I. ALPS OF PIEDMONT FROM THE INNOMINATA, MONT BLANC MASSIF, 29.8.33
THIS MY VOYAGE

by

TOM LONGSTAFF

If any man shall demaunde of me the cause of this my voyage, certeynely I can shewe no better reason then is the ardent desire of knowledge, which hath moved many other to see the worlde and miracles of God therin.

VARTHHEMA, trans. 1576.

NEW YORK

CHARLES SCRIBNER'S SONS
Δός δὲ μοι οὐρέα πάντα· πόλιν δὲ μοι ἑντινα νεῖμον, ἑντινα λῆς' σπαρνὸν γὰρ ὦτ' "Ἀρτέμις ἀστυ κἀτεισιν όυρεσιν οἰκῆσω.

(Artemis asks an inheritance of Zeus.)

"Give me for my own all mountain lands. Grant the great cities to whom you will; seldom will Artemis linger in a town. The high places shall be my home."

From the *Hymn to Artemis*, by Callimachus of Cyrene (310–235 B.C.)
OPTIMO PATRI
FILIUS
HAUD IMMEMOR
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"VOYAGING is Victory," said the Arabs: and those great fighters and explorers should know. They saw travel as an overcoming of difficulties, foreseen and unforeseen. The traveller must withstand hunger, thirst and fatigue; at times he must overcome fear, but it will be fear of nature rather than of man. To the happier and more simple amongst us such conflict will be more satisfying than any fanatic strife of war. In overcoming the alleged malignity of nature we do but overcome ourselves.

Several times young men at the Universities have come to me saying: "I want to be an explorer. What shall I do?" There is no short reply except "qualify yourself". Nowadays, when unknown lands are so limited, geographical discovery must be linked with detailed research of some sort. Geology, biology or ethnology give immense scope: but the field is vast. So it will take longer for the mind to prepare itself for a journey than for the body to perform it. What the traveller gets out of any journey chiefly depends on what he himself brings into it when he starts. The more he knows what may be seen, the more he will see. The most aware man I ever knew was Sandy Wollaston, the traveller and naturalist. A walk in the country with him was an inspiring experience. He saw more than another because he knew more, and so he saw with more understanding.

Self-preparation costs time. There is always the very vital question of learning something of the appropriate language; how to greet suitably different types of men; how not to offend prejudice or custom and so make it easier and not harder for others to follow in the same path. After self-preparation it is still time rather than money that the explorer needs, for the more
time which can be spent on a journey and the less necessity there
is for speed, the less need be the expense in money.

For myself I was trained as a doctor. Besides wide reading
this involves a closer contact with humanity than any other
academic discipline. Also in many countries where strangers
are unwelcome a doctor's diploma is a good passport.

Since happiness is most often met by those who have learned
to live in every moment of the present, none has such prodigal
opportunities of attaining that art as the traveller. Every day
as he moves or halts there is something new to enjoy. At every
evening's camp is the charm of taking possession of some new
home. Attainment of a set objective is but a secondary matter;
the traveller should not anticipate the journey's end. So long
as he loses consciousness of self and is aware in all his senses of
the present scene, almost any part of the world is as good as
another. Mountain or desert, it is all one. We shall have
realized ourselves as being a tiny portion of the universe; not
lords of it. We shall agree with Collingwood—"Whatever
nature depends on, it does not depend on the human mind."

As I looked back through the perspective of years on travels
in the Alps, the Caucasus, the Rockies, High Asia and the
Arctic, I was bitten with a desire to write a book comparing
and contrasting these infinitely varied regions one with another,
and to try to distil something of the particular atmosphere of
each. In doing this I have been led to describe not only
the mountains but also something of the flowers, animals,
peoples and histories which form so essential a part of the scene. I
had over fifty volumes of diaries written on the spot and my "day
book" has about a thousand entries. These covered twenty
visits to the Alps; six to the Himalayan regions; five to the
Arctic; two to the Rocky Mountains, the Selkirks and Alaska;
and one to the Caucasus. The material was too ample and I
found great difficulty in selection. At first I tried to be impersonal
and objective, but I was more and more impelled—and urged
by others—to import myself into the tale, because without the
thread of personal experience I could make nothing of it. Yet
Foreword

I have retained a geographical sequence and hence the story is not strictly consecutive in time. Despite the autobiographical element I hope that what will remain with the reader will be a picture not of myself but of mountain travel.

The consecutive numbers in the text refer to the notes at the end of the book. There is no need for the reader to refer to them, but they will enable him to pursue further any particular topic in which he is interested. I have eschewed foreign words; any I could not dispense with will be found in the glossary. The maps, drawn by my wife, are only to make it easier for the reader to follow the text: more detailed maps can be found in various papers referred to in the Notes. Most of the illustrations are from my old negatives. The one of Shkara is by my friend the late Vittorio Sella, whose permission for publication I obtained.

Many good friends I have to thank for help and advice. To John Grey Murray I am particularly indebted. But this book would never have been finished without the continued encouragement of my wife. She has also been my most relentless critic. Her painter's feeling for design has been of inestimable value to me. By her advice I have scrapped long passages and inserted episodes which I had originally left out. From many a verbal morass has she rescued me and many a crooked sentence made straight: and her criticism has not seldom been mixed with the wine of inspiration.

Badentarbat, 1950.

Coigach.
CHAPTER I

BEGINNINGS

My first memory of mountains is when I was three; the Pyrenees. It was probably from some spot near Biarritz, because I associate the thunder of breakers on the Biscay beaches with my vision. I saw and yet remember, under the sun, a pale white pyramid in the sky: I was told it was a snow mountain. I felt I should possess something I coveted if I could stand on that remote summit and look out over the sea; but the caution, or timidity, which has never forsaken me, made me enquire whether there was danger of sinking over my head through the snow if I did so.

My next memory is a suddenly revealed panorama of the Maritime Alps. I was just four: 11th January, 1879. We were wintering at Cannes. On excursions I rode in a mule pannier, with a large stone as a make-weight against my younger brother and sister in the other pannier. We had come up some rise: miraculously, without warning, the whole range of the western Maritimes stood displayed, completely white under a very blue sky. My mother wrote in her diary that I exclaimed "that's what I call a lovely view". I do not remember saying this, but I do remember thinking that the Mediterranean with its bare yard of tide-mark and gentle waves was a very poor kind of sea compared with the Bay of Biscay.

The thread of mountain memory now leads me to my grandfather's library. Before I went to school we children used to visit him every week. Born in 1799 he was still, in his eighties, a tall upright man dressed always in a grey tail-coat and a grey topper, which he did not discard even to play cricket with us. As a dalesman he scorned a collar and wore a big white "choker".
Beginnings

Whenever the occasion seemed favourable we would ask how he heard the news of the battle of Waterloo. “As the coach drove into York the guard discharged his blunderbuss from the roof”—(this most exciting part of the story must never be left out). “His voice was very hoarse from shouting again and again: ‘Wellington has defeated Boney at Waterloo’; then all the people cheered and tar barrels were lit in the streets.” It was a tale which never palled. His stories of early days in North Carolina were also wonderful to us—negro slaves and the pigs fed on peaches!

On wet days we often went into the library where were all the old volumes of the Illustrated London News and Punch; to us the most fascinating of modern history books. But I also came across an account of climbing in the Himalaya by W. W. Graham with his guide the great Emil Boss of Grindelwald. The section I lit on described a night in a cave in the unexplored Rishi valley of the central Himalaya. I still remember my excitement. It was the first time I had read anything about mountaineering and I never forgot the story; but it did not occur to me to ask any questions about mountaineering; that was all quite obvious and natural. I had already seen mountains spread calmly in the sunlight inviting me to wander over them in complete freedom of body and spirit, and I knew far more about that than any grown-up. They might even not understand.

My other grandfather we never knew, but in my mother’s bedroom hung a very exciting sketch, painted by the surgeon of the Scots Guards, of a paddle-steamer forcing its way through a waste of ice. This was my first picture of the Arctic, and the frozen sea attracted me almost as much as the snowy mountain tops: I must ask all about this new wonder. My grandfather had been chosen by the Royal Mail to take out the 2nd Scots Guards to Canada to meet the threat of a Fenian invasion from the States. It was the winter of 1861–2; the force was sent too late in the season; ice was to be expected in the St. Lawrence and sure enough the ship was beset forty miles from Quebec. Despite its paddle-wheels it was safely extricated and the battalion
School Days

was landed at St. John. The captain was said to have deserved "the thanks of the House" for his seamanship.

My father I shall always remember as the best friend I ever had. He was remarkable in many ways but perhaps his genius lay above all in his sympathetic relationship with his children. He was prepared to share all his interests with us and he encouraged our curiosity, especially in natural history. We bombarded him with questions during the long walks of which he was so fond. Speaking French and German fluently he had visited nearly every country on the Continent, including Russia, during the momentous years of the birth of modern Europe. He had spent a year in Frankfort when it was a Free City, garrisoned by Austrian, Prussian and Bavarian troops, all patrolling the town at night to prevent affrays between their different nationalities. He had seen Austrian sentries posted on the stage of the Opera House in Venice; French bayonets holding Rome; Metz and Sedan just fallen to the Germans; and had been caught in the First Commune in Paris. He took a keen interest in the geographical discoveries of the late nineteenth century and with my mother often attended meetings of the Royal Geographical Society: later he served on the Council. When Scott's first Antarctic expedition was held up for want of money, it was his support which made it possible for the plan to go forward. That is why Scott named the mountain he saw from his "farthest south" Mount Longstaff.

With my brother I had the luck to start my education at home, instead of going to a preparatory school. There I was free to browse on a treasure of atlases and books of travel and to listen to travellers' tales told by my father's friends. I could read a map before I could read a book and when I went to Eton, though I took a low place, I got a prize for geography at the end of my first half.

Not having been to a private school I was regarded as rather odd. Worse was to come, for one Sunday at "absence" I forgot that my topper was full of wild flowers which I had picked in the meadows that afternoon. When I raised my hat to answer
Beginnings

my name a shower of forget-me-nots, ragged-robin and fritillaries cascaded over me. Yes—I was definitely odd. I spent many happy days sculling alone in a "whiff" looking for birds in the reed-beds on the River. The finding of a reed-warbler's nest with a cuckoo's egg in the clutch was, I fear, my most notable success as a "wet-bob". Once Clinton Dent came down to lecture to the school on the Caucasus. He showed a series of lantern slides made from Sella's splendid photographs. I was carried away and determined that one day I would go there.

I saw the Alps again in 1890—from the Feldberg in the Black Forest. A very tantalizing outline of unattainable snowy summits: a poor view compared with either of the earlier ones. The following year we went to Tyrol and Bavaria. In Innsbruck mountains form the background of the vista up every street and my desire to escape from the towns into the mountains was so intense that I degenerated into an abominably surly sightseer. In that holiday, one drive up the Sil valley almost overshadowed the glory of the Aeginetan marbles at Munich. The eerie salt mines of the Salzkammergut, with their mysterious subterranean water-ways, produced no stimulus towards cave-hunting. It was mountains I wanted.

I had already been bitten by the physical urge to climb. My cousins lived on the North Devon coast, facing Lundy Island. The cliffs are only slate but finely fretted by tumultuous seas. We began climbing in a small way in 1887 and by 1892 we were using a rope. Such climbs were nearly all horizontal traverses. The rules were to get round the headlands between the top of the cliffs and the sea below, keeping above high water mark if possible. There was a good climb from Thrift Cove round Bull Point to the buzzard-haunted cliffs of Rockham Bay. Some of the passages were difficult. The sharp slates of "Gory Corner", the crux of the traverse, drew blood. But the finest climbing of all was on bluff Baggy Point, facing Lundy. The complete traverse is hardly possible in one day, for two sections some considerable distance apart can only be passed at low tide and during a calm. At the south-west corner of the headland is a deep over-
North Devon cliffs

hung inlet which must be crossed by an awkward descent followed by a tricky jump on to a spike of rock which is submerged except at low tide. We did not complete this section till 1898. The north-west corner of the traverse of Baggy Point is done by “Scrattling Crack”, a curious freak at an otherwise impassable corner. The Crack is about 130 feet long, but not difficult since it is not really as vertical as it looks, and a foot or knee can always be squeezed in. It is quite exciting to race for this corner on a rising tide with a good sea running.

We also visited Lundy, “puffin island” of the Norsemen, a primitively fascinating place. In Gannet Combe is a strange dense growth of Carex paniculata, our largest sedge. This grows in huge tussocks separated by dark tunnels. The whole aspect is reminiscent of the breeding-places of giant petrels in some of the islands of the Southern Ocean. Off the combe Gannet Rock rises sheer out of the sea. One day we rowed out and climbed it: a reputed first ascent. Guillemots and puffs eyed us curiously and staring seals poised themselves upright in the water: I was astonished at the size of their eyes. The pillar of the Constable at the north end of the island always defeated us, though the lighthouse keepers said it had once been climbed by a sailor. The Shutter Rock where Amyas Leigh cast his sword into the sea, and where the cruiser Montague was wrecked, was a problem dependent on the great tides of the Atlantic. But climbing on sea cliffs does not grant us that freedom of spirit which we find on mountain tops. The surf confines us with elemental restraint: thus far and no farther. Yet it is this very intimacy with the sea’s infinite variety of mood which gives to cliff climbing its unique fascination.

When, at about the age of fifteen, I declared that mountain travel was my ambition, my father urged me to take a medical degree first: every man, he said, ought to have a profession to fall back on, nor should I enjoy my freedom unless I had gone through some mill or other. Only later did I realize that it was through the sacrifice of his own youthful desires that I had enough money for travel.
Beginnings

This weighty decision to follow a medical career led to my taking biology as an “extra” at Eton under William Lutley Sclater. He was an inspiring teacher. His character was so charming that we never looked on him as a “beak”; he talked to us as equals and occasion for punishment never arose. After leaving Eton he became one of the foremost ornithologists of his time. Nearly fifty years later I was to be associated with him as joint Honorary Secretary of the Royal Geographical Society.

Very different was my introduction to science at Oxford. My science tutor had one interest only—teeth—of men and animals extinct and living. On this subject he was a pre-eminent authority, and he did not like wasting his time on pupils. At our first interview he began by asking me where I had been at school. I told him. He replied: “I would not send my dog to Eton.” He then asked why I wanted to read for an honours degree in physiology. I replied that it would help me towards a medical degree. After looking me carefully over he remarked in chilling tones: “But I perceive, Mr. Longstaff, that you have neither the brains nor the physique for such a career. I advise you to take a pass degree.” The memory of this interview spurred me to persevere laboriously through a seemingly endless series of examinations; which may perhaps have been his real intention.
CHAPTER 2

THE ALPS

The Alps are of all mountains the most delectable. The attribute of long human settlement is one of their great adornments. The word alp means a mountain pasture, not a mountain. It is the zone between the tree-limit and the snow-line. Here a very ancient pastoral system is preserved. Many alpine place names, especially in the Valais and Piedmont, derive from the Gallic of the original Keltic tribes.

It is the approach to the peaks which is so enthralling. The best type of alpine village always reminds me of a hive of bees—every one busy, a woman coming out of her house to fill a water pail, children running errands or driving beasts, the sound of an axe splitting wood at the back of a chalet. The alpine peasant has retained the fine independence of the craftsman. I remember the summer chalet among the hayfields above Courmayeur which my old friend and guide Adolphe Rey had just built for himself. Every cow-stall on the ground floor had been shaped and finished by hand with a few familiar tools. It was with the solemnity of a hanging committee that we debated the best position for a row of coat pegs he had made. The whole construction was a masterpiece in wood.

From the village we pass through forest beside streams, limpid clear or clouded with silt of glaciers. On some tall pine a crossbill tears at a cone, to be cast tell-tale to the ground. So to the alpine pastures, with the tinkling bells of summer herds. On up to bare rock, glaciers and the high peaks. Now we are far from roads and tracks and works of man, and can indulge the instinct for exploration. It is that which led the Victorians to the Playground of Europe. Mountaineering is but an expression
of the basic instinct to explore the unknown. Petrarch, writing to his brother in 1336, describing his ascent of Mont Ventoux in Vaucluse, affirmed that he climbed merely to satisfy his curiosity as to the view from such a height. His was the curiosity which impels the explorer.

My first intimacy with the Alps began in 1894, at Diablerets, then a small tourist centre at the head of the Ormont valley, a French-speaking district at the western extremity of the Oberland. The one hotel faced the famous Cirque, a semi-circle of continuous cliff. I did small climbs with my brother, and we used to go off with an old local guide, one Gottreux, called *boit de l'eau*—because he never did. He still carried the old type of ice-axe, with the adze edge set vertical, like a hatchet, yet reasonably short in the shaft, for he was a cragsman. But our best days were with the local *garde chasse*, spying his chamois on the Rochers de Culant. He was a preserver, not a killer, and we could watch both the capercailzie and the eagle owl in the woods at the foot of the Oldenhorn. He had no use for the rope on ordinary rock: huntsmen tend to scorn the methods of the professional guide, and, usually alone, they go free as their quarry. The guide must indulge the whim of his patron to play at gymnastics and climb to the lifeless summit where no game is; yet many a chamois hunter won fame as a guide in early days in the Alps. In the Caucasus, too, it is to the native hunter we must turn for help.

In 1897, having taken our schools, Tim Ashby, later a most eminent head of the British School at Rome, W. B. Anderson of an old Cape family, my brother Cedric and I, all from Christ Church, had a real "season" in the Valais. At Arolla I secured old Jean Maître through the good offices of Alfred Topham: the handsome and dashing Joseph Georges, a man of joyful adventure, was our second guide: young Pierre Maurys came as porter. All these men wore the pale homespun of Evolena with green facings, long trousers and a blackcock's feather in the hat. Jean Maître was a finished guide from whom I learnt much; he was very keen on new routes and well content to
make long wandering tours. He had been a chamois hunter: he told how his father had seen ibex below the Dents des Bouquetins as late as 1840. Jean had been called to the Colours in 1870 for the defence of the Swiss frontier: to preserve their country's neutrality they had to disarm Bourbaki's army making its last stand at the frontier. He told us that many of these gallant men were shoeless in the snow, with hay bands wrapped round their frost-bitten feet, and were without food for days.

We made several of the usual climbs from Arolla, including the Za by the face and a small new peak, the second of the two points of the Mitre de l'Evêque. Then for the real delights of the Alps: crossing from valley to valley over peaks and passes. Fifty years ago Europe was comparatively civilized. Frontiers were not then prison walls. With a British passport we could cross back and forth from country to country without let or hindrance. Leaving Arolla we abandoned baggage except for flannel trousers and a spare shirt in the ruck-sack. We swung off to Mauvoisin over in the lovely Val de Bagnes, so rich in waterfalls and flowers, a land of clear streams with bright pebbly beds. Then across the classical Col de Sonadon, leading to the Great St. Bernard. Here Jean gave us an exhibition of mountain craft. On the descent from the pass, on the western side, parties usually followed an easy couloir; but it was liable to be raked by falling stones. Rather than risk this Jean took us down steep rock, a more difficult but safer route, to the right of the couloir. So to Bourg St. Pierre and the hotel of the Lunch of Napoleon.

Imminent above the St. Bernard Hospice stands the beautiful Velan, first climbed by Canon L. J. Murith in 1779. The ordinary route leads up easy snow slopes to the snow calotte of the summit. But there runs down from it, northwards, a serrated ridge with three separate summits rising from it. The ridge is steep-sided right down to the little Aiguilles du Velan at its foot. This route was long and had never been attempted; Jean Maitre was eager for it. Starting at two-twenty-five in the morning we made for the Aiguilles du Velan. Roping up in two parties we traversed these and followed the whole ridge. Its first part is
The Alps

called *le Pourri* by the native chamois hunters, from the rottenness of the rock. The second part, with two points standing up on the ridge, is much more interesting: better rock with a steep drop to glaciers far below on either hand. The last summit is formed by a great grey block like the head of a Titan. Thence a narrow snow ridge, followed by a short steep snow slope, led us to the top at one-ten. More than double the time required for the ordinary route, but worth it. Yet it must be admitted that the Velan will usually be climbed for the sake of the view from the top. In all the Alps this must be hard to beat. The whole range of Mont Blanc stands displayed to the west; the Grandes Jorasses particularly splendid. To the south is Italy; eastward the Valpelline with the Matterhorn towering at its head and Monte Rosa beyond; to the north-east the Grand Combin is better seen than from any other direction.

At the end of that season, after the others had gone home, Jean Maître took me for my first big climb, the Dent Blanche. There was no hut then. We carried up some blankets from Ferpècle and spent the night in a cheese-making hovel on the Bricolla alp. It was a splendid sunset of pure colour with no cloud. The western Oberland was spread out against a background of orange and yellow, with arctic green above. I watched the stars come out, and turned in with the cheeses. The *patron* smoked a fearful pipe, which he periodically took out of his mouth so as to be able to blow into the forming cheese: his teeth were very black. Are the holes always so made in Gruyère cheese? The atmosphere was very rich in the low stuffy hut, but the *patron’s* dreams were even more disturbing: he shouted and screamed all night as he slept. We were up before two o’clock next morning and got away quickly into the fresh air. It turned out a hard day. It was September and a cold wind rose with the dawn. We struck the arête at seven-fifteen and after a bite, roped up. The wind was now fierce, whipping up the snow and driving it into our eyes, but Jean stuck to the ridge itself, going over the tops of the gendarmes rather than skirting below, where steps would have to be cut in
Christian Kaufmann

snow-covered ice. Soon his beard and whiskers were masked with snow: the cold made my head ache. It was trying standing up in the ice-steps while Jean cut along the last final bit of the ridge and I was very thankful to reach the summit at twelve-fifteen. No question here of rest or enjoyment of the view; but we could turn our backs to the gale. I found the descent a test of endurance; it demanded unflagging attention. At four o’clock we got off the ridge itself and had a welcome meal, but in rain and hail and with clouds down. We raced back to Ferpècle by seven-forty. Seventeen hours all told, with very few halts, always in the wind. A grand day, but hard. A good resolute performance by my old guide, and still to me of happiest memory.

By 1899 I was in a condition to learn something of mountain-eering. The quickest way is to go with a really first-rate guide. Such were rare and in those days were mostly booked far ahead by famous climbers, who employed them year after year, so that they became their essential companions. But I had luck. Christian Kaufmann was then a young guide, very handsome, refined, and of quick intelligence. He had hardly been out of his own Rosenlauri-Grindelwald district. Here was a chance. I would take him to my beloved Valais, and cross peak after peak, or, if the weather was bad, pass after pass, from Saas Fee to Chamonix. I should see how a real artist tackled mountains which he had never set eyes on: up one side and down the other: how to foresee the way over unknown ground.

I made an elementary mistake by taking on an old porter, whom I had employed before, instead of letting Christian choose the second man. I learned my lesson. Three is the number for glacier work; moreover long cross-country expeditions involve considerable weight-carrying and the leader must not be overloaded, while for myself I had enough to do to carry a slender wardrobe for intervals of civilization. A porter was therefore essential: but Christian would have taken a much better man. Speed is a great source of safety in the mountains. With two good men it is a good plan to put them together in the lead and follow last. The first man is all eyes on the route, and if he has
The Alps

confidence in his second can forget the incubus of the amateur. On the descent the amateur can be put in the middle: a reliable second man is needed to steady him down tricky passages. The leader is thus free to concentrate on picking out the route ahead, knowing his employer to be in safe hands. So time is saved.

Together, to make acquaintance, we traversed the Mönch over the ice bulge of the north face. This route had seldom been taken at that time; a ladder had always been carried to overcome the ice cliff. But in 1899 the bulge was flattening out and it was just possible to overcome the vertical bit by direct methods. Christian led superbly. For a short distance he had to cut hand-holds in the ice and hang on with one hand while he cut pigeon-holes for his toes with the other. We also traversed the Finsteraarhorn and the Schreckhorn, the latter by the unusual but interesting route from the Gleckstein hut, up the Nässihorn, and along the north ridge; it was a new route to my guide.

When we left the Oberland the train journey round to the Valais was beguiled by the pleasure of sitting with old Melchior Anderegg, one of the most famous of the first generation of great guides. He was a tiny man; quiet, retiring and so modest that it was hard to get him to talk. But his face lighted when I spoke of having seen Leslie Stephen at the Alpine Club. That was on my first visit to Savile Row and it was the last time Leslie Stephen spoke at the Club. He had made the first ascent of the Rothorn and many other historic expeditions with Melchior.

Christian, Ulrich and I left the train at Stalden, to walk up the Saas valley; there was then not even a carriage road. For ease on the long walk I wore shorts, which created shocked comment from villagers unused in those days to such immodest exposure. A three-day snow-storm was ending as we reached Saas Fee. At that time the big climb there was the great east face of the Dom (14,937 ft.). This face had seldom been climbed and was considered dangerous owing to falling stones: with this risk, chance plays a greater part than skill and I feared the recent snowfall had put it out of court. Not so Christian: “Wait for two days of fine weather. Bivouac at the very foot of the steep rocks
of the face. Start up the rocks well before dawn: you can hold a lantern in your teeth. The frost of the fine night will freeze the stones safely into the new snow. But we must clear the face before the morning sun has had time to melt them loose."

This bivouac entailed another porter to carry up and bring back blankets, besides firewood and provisions, but I could not let a single man return alone down the Fee glacier next morning; so two were needed. Saas looked askance at my "foreign" guides, and no porters were forthcoming. Fortunately the great Ambrose Supersaxo was at home, and Christian had met him before in the Oberland where a friendship had naturally been established. The big, quiet, courtly man had a position in the valley and was beyond any petty local feeling. He produced an adequate pair at the last moment of our desperation.

In six hours we reached the gîte, the sleeping place, a level rock platform sheltered from missiles by a good overhang. It was grandly situated, with the great Fee glacier stretching away below us and across the valley the whole range of the Fletschorn, Laquinhorn and Weissmies. I spent a well-remembered evening in my sack watching the stars swing across a clear frosty sky. To know a mountain you must sleep upon it.

Next morning we were off early (2.45) roping up in the bivouac, Christian in the lead with a lantern, often held in his teeth, and Ulrich the porter following me with another, for hand and foot rock-climbing began at once. I noticed how Christian clung to the slightest wrinkle of a ridge that offered and never crossed a couloir until he had to. Each was a potential stone-shute: one we sped over was pock-marked by their fall. Christian was going all out, as directly for the summit as possible, and the effort to keep up with him took all my energies, so that it was only while waiting for him to negotiate the more difficult passages that I had a moment to drink in the marvellous view behind us as we rose higher and higher in the perfect light of morning. Suddenly at eight-fifteen, only five and a half hours from the start, almost with a crash, Christian turned and faced me—on the summit.

We descended to Zermatt. This was my first visit to the
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Monte Rosa Hotel—Mecca of English climbers of the Golden Age. The low wall opposite the hotel, on which only the star guides could sit, always reminded me of “the wall” at Eton, on which in my day only members of Pop ventured to display themselves. There we found Owen Glynne Jones, so soon to be lost on the Dent Blanche; Alfred Williams the painter, and best of fortune for me, Norman Collie and Charlie Bruce; the latter with two of his men from the 5th Gurkha Rifles. He was training them for expeditions in the Himalaya.

From Zermatt we made the first traverse of the whole summit ridge of Monte Rosa, a tour I had long set my heart on. From the Bétemps hut up the Grenz glacier to the Lysjoch and so to the Punta Gnifetti: a marvellous view over Italy with cloud seas filling the valleys and the southern wall of the Alps in view from the Disgrazia to Monte Viso. Down a little and then up over the Zumsteinspitze, along the Grenz Sattel, looking down the terrific east face, Himalayan in its proportions. So to the cluster of the Grenz Gipfel, the Ost Spitze and the Dufour Spitze, the actual summit of Monte Rosa. We had left the Bétemps hut at 2 a.m. and reached the Dufour Spitze at eleven-fifteen. After only a short rest, for the Ost Spitze blocks any glimpse of the abyss of Macugnaga, we descended slithery snow to the Silber Sattel and continued along the ridge to the Nord End (2.15 p.m.).

We had been walking fast for nearly seven hours at about 15,000 feet; my head was aching and I was very tired; but twenty minutes sleep in the snow put me right and we got back to the Riffel at 8.30 p.m., after fifteen hours actual walking along the finest high-level promenade in Europe.

Next the Matterhorn: up the Italian side and down the Swiss. The first visit to the Italian hut is a revelation. It is sited very high on an exiguous balcony overlooking Italy, but the eye is held by the superb ridge rising in great steps from the Col du Lion to culminate in the Dent d’Hérens. In the evening the light falls sideways upon it, lighting the snow slopes which fall so steeply to the Tiefenmatten glacier and plunging the southern cliff into cold shadow. The climb up the Italian side is pure joy:
I have made it thrice up and twice down. The ordinary route on the Swiss side is a dull grind; once down was enough. We had the mountain to ourselves, an unheard of privilege to-day, and the weather was perfect. It is the weather, both before and during the ascent, that makes the Matterhorn easy or difficult, deadly dangerous or safe.

Yet it is always a serious undertaking. A very well-known climber once confided to me that on his marriage his wife wished to take part in his alpine excursions. These were always in the very first flight and he employed two of the finest guides then living. He did not want a lady in such a party. Therefore he took his bride up the Swiss side of the Matterhorn and down the Italian side to Breuil. Next day he took her back again over the same route. She never climbed again.

Then for Montenvers to finish the season with the best week’s climbing I have ever had. It must be remembered that Christian had never seen, much less set foot on, any of the peaks we were going to tackle. On the 21st August we traversed the Grépon. Although Mummery had already labelled it “an easy day for a lady” anyone is fortunate to make this climb, so full of surprises and solutions of the apparently impassable. On the 22nd we walked up through the Jardin to the great rock of the Couvercle, a bivouac far preferable to the subsequent hut. It was a grand moonlight night with Orion climbing over the Grandes Jorasses, every rock and gully of whose northern face stood clear as in daylight. My best remembered night in the Alps.

We were bound for the Aiguille Verte by the Moine ridge, first climbed by Mummery and up to that time seldom repeated. Getting off on the 23rd at midnight we climbed the Talèfre glacier to the foot of the rocks on the Verte side of the Moine. Helped by the moon we were on to the ridge by five-twenty. We soon had trouble with snow cornices. At one point, to avoid a bad cornice, Christian cut along a very steep slope of ice, facing south, where we had to move belly to the ice, cutting handholds as well as footholds. The traverse was nearly horizontal and about 150 feet in length. I did not like it, but we got
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across all right. We came to the final rock-cone leading to the summit. Steep firm rocks falling away on each side gave us pause to admire the cliffs of the Pic sans Nom on the one hand and the immaculate snow slopes sweeping up to the Droites on the other. The actual top of the Verte is a perfect cone of snow, unchallenged by any neighbour. We reached it at nine-forty-five; very good time. We rested for an hour, drinking in the view and discussing our return. We could see stones falling down the easy couloir of the ordinary route. It was a hot day. Christian thought there was risk of snow avalanche as well as stone-fall in the couloir and advised a return by our route of the morning; much longer but relatively safer under the conditions of the day. So back we went. Before we came to the ice traverse I pointed out that the sun must have partially melted the hand- and footholds we had cut on the way up, and that by descending a couple of rope lengths we could pass along the rock face under the ice traverse and regain the ridge beyond by a short ascent. Christian murmured that the steps were cut in solid ice and would be all right, while we should lose much valuable time among the rocks below. So I was over-ruled. We all had to be on the traverse at one time: for an appreciable distance we were beyond the safe anchorage of the rocks of the ridge, which above us were buried under the snow cornice. In the middle of the traverse there was a bulge in the ice. When I got round this I could not see Christian behind me. I paused, in good steps, to watch the porter in front of me, who was nearing the safety of the rocks on the far side. To my horror I saw him hesitate and then very, very slowly fall backwards. Turning my head I shouted a warning to the invisible Christian, and braced myself for the shock. I was torn off the ice face like a fly from a wall as soon as Ulrich's weight came below me. Here was a nice to-do. Christian must by now be committed to the ice and could not possibly hold the two of us. We should fall a thousand feet to the Talèfre glacier. It was all so unnecessary. It would mean the awful disgrace of a search party. "Comes of taking a guide who does not know our mountains," the Cha-
monix men would say. And then, of course “it was the amateur who had slipped”. If we finished up in a crevasse our bodies would never be found. It would be a horrid shock to my mother and father. And all my fault. I knew that traverse would not do on the descent. I was furious with myself for having given way to Christian, and furious with Christian for rejecting my warning.

All this crossed my mind while I was falling, or rather sliding like a pendulum for only thirty feet. How it happened like that I do not know: yet it did happen just like that. “An experiment with time”? But instead of continuing to fall I was stopped on the slippery wall with a breath-taking jerk. I looked up. There was Christian’s face grinning at me from over the top of the cornice: his body was on the far side of the ridge. “I can hold you,” he shouted. He had been sufficiently impressed by my foreboding to straddle the ridge, breaking down the rotten cornice as he went. Then he began to curse the porter for a duffer. The porter-pendulum swung slowly to rest. The rope was taut between all three of us and I could cut no serviceable step in that position, so I yelled to Ulrich to use his axe and come up a foot to relieve me of the strain. Then we both cut diagonally back to the rocks, and dodged the passage by descending them, passing below the ice traverse, and re-ascending to the safety of the ridge just as I had originally suggested. We lost some time by this escapade and Christian complained that I went unconscionably slowly down the rocks. We had trouble with the schrund and lost more time finding the way off the Mer de Glace in the dark, so that we did not get back to Montenvers till nine o’clock that night.

August 24th was an off day, beguiled by lessons in the use of crampons from that enigmatic couple Oscar Eckenstein and Aleister Crowley. Eckenstein was responsible for the introduction of ice-claws, crampons, amongst British mountaineers: he even claimed that their use made the regulation ice-axe unnecessary. There was a peculiarly English opposition to their use in those days; they were scornfully called “artificial aids”,

[A pendulum]
but, surely, so are special nails in climbing boots or an ice-axe. Crowley was a poet and later a notorious master of Black Magic. At that time, as Laird of Boleskine, he chose to wear full Highland dress, complete with eagle’s feather, on all occasions. But he was a fine climber, if an unconventional one. I have seen him go up the dangerous and difficult right (true) side of the great icefall of the Mer de Glace below the Géant alone, just for a promenade. Probably the first and perhaps the only time this mad, dangerous and difficult route had been taken.

On the 25th we went up to the hut on the Col du Géant and the next day climbed the Dent. Though roped from top to bottom it is still a fascinating experience. After the climb we continued down the Italian side of the pass and on past Pertud, through lovely pine forest, up the Val Veni to the little Cantine de La Visaille, then delightfully primitive. We had a huge dinner at 6.30 p.m. and fell on sleep for thirteen hours: we all needed it. On the 27th we continued up the stony Miage glacier, littered with rock crystals, to the Dôme hut for the traverse of Mont Blanc. Arnold Mumm was in front of us and Corning with the two Gentinetas behind. It was a good hut and we were lucky in our companions. But there were poissons in the sky, a bad weather sign.

We were the first party away (2.45) on the 28th. The weather was obviously breaking. Kaufmann was brilliant: on the intricate Dôme glacier he never made a mistake. Through good route selection he managed with a minimum of step cutting. At seven-five we had reached the hut below the Bosses and saw the Dauphiné peaks silver in the west. There we left our sacks and Christian raced the weather to the top in sixty-five minutes (8.50). Clouds began to skim past us and cut off all view. By now we were all looking like Arctic travellers, well iced-up. We raced back to the Bosses in forty minutes, meeting the other parties, iced-up too, but resolute. We scudded down the almost beaten track to the Grands Mulets, across the Bossons glacier, and unroped at twelve-twenty: three hours and twenty minutes from the top. The glorious week was over: yet I have it still.
Looking back on those first seasons in the Alps my heart stirs again as I remember the passion of delight I experienced; and if the extreme ecstasy no longer returns to-day when I re-visit those scenes I have only to think back to recapture it.

*   *   *   *   *

One sometimes hears a guide say of an amateur “he is as good as a guide”. Perhaps: yet not as good as a first-class one. In 1899, travelling with a first-rate guide over country of which he knew nothing, I learned more mountaineering than I could have gained by any other means. Some of the very finest mountaineers always travelled with guides. The idea that such a man—“tied between two fat guides”—deserved little credit, is utterly absurd. The amateur was often the essential driving force of the party and the real author of first ascents and new routes. Good mountaineers must be fast goers. None know better that speed is a source of safety. As a rule good guides are faster than amateurs; their trained perception of the alternatives ahead repeatedly save the minutes which, added together at the end of the day, gain an hour or two of the margin of daylight. An intended bivouac may be a necessary part of the plan; a surprise night out is not only a reflection on the climber but a cause of anxiety to others and will probably entail the useless bother of a search party.

Despite all this I believe that only the guideless climber can distil the true essence of pleasure from mountaineering. To the guideless climber every new peak is in reality a “first ascent” and has all the savour of the unknown. This must be qualified: not quite all: just because he knows that it has been, and therefore can be, climbed. But in fairness it must be remembered that any comparison of amateurs with guides can only be made on climbs of which neither has previous knowledge. The mountaineer who travels without guides must leave nothing to chance. He must know precisely what he can do, what are his limits on rock and on steep ice, his limit of endurance. He should be, and with proper training and experience can be, master of the
situation. He must be prepared to turn back in time in case of bad weather. If he is caught on bad ground by darkness he has made an elementary mistake of judgment. It must be his rule in bad or threatening weather never to go beyond the point from which the party can get back in any weather, however bad. Put in another way, it is safe to tackle any climb as soon as you have learned when to turn back. Take no risk that can be avoided: but having taken all precautions then there are some risks that can be taken with open eyes.

There should be no weak member in a guideless party. The ideal is that every member should think the others a little better than himself. If the chosen party does contain a weaker vessel equality must be bestowed on him by limiting the expeditions to such as are within his competence. To get the real elixir out of mountaineering you must "drink delight of battle with your peers". Fortunately absolute equality does not exist. It will very soon appear that different members of the party have different excellences. One excels on a difficult rock passage; another, through his perfect balance and smooth rhythm of step-cutting, on steep ice; yet another, like my old companion Rolleston, has an unusual flair for finding the quickest and safest way up or down or off a glacier he has never seen. As routine, every member should take his turn at leading and of coming down last. The temporary leader can call on another companion to take the lead at any point where his special skill may be of advantage to the party. The party must be one entity: every member equally alive to emergency—not passive followers of a professed leader. The best soldiers need very little leading; every rank can lead in an emergency. Mummery wrote that "the rope should be regarded by each member of the party exclusively as an aid and protection to his companion". How very seldom is this true of a guided party? How often do we see incompetent mountaineers moving with the rope ignored and dragged in useless and dangerous coils loose between the climbers? The rope ahead and behind demands constant care, to be coiled up or paid out with continual attention.
The Klein Eiger

After my season with Christian Kaufmann I was tied by work in the medical schools. Holidays had to come by chance and not by pre-arrangement. Christian had been snapped up by others. The great guides of those days, Christian Klucker, the Lochmatters, the Burgeners, and the Knubels were engaged a year ahead by the élite of the Alpine Club, to which I had only just been elected. After experiencing the brilliance of Kaufmann it was impossible to contemplate travelling with a second-rater. So I would do my climbing without guides.

I got a welcome three weeks’ holiday in 1901 and foolishly went to the central Bernese Oberland. Big mountains demand steady weather. It was no place to begin guideless climbing. But I had a first-rate companion in Somerset Bullock. He excelled on ice, a fine step-cutter with perfect balance. We had broken weather and spent most of our time reconnoitring routes for climbs which never came off. For the guideless climber it is especially necessary to reconnoitre his peaks beforehand. One of these bye-days we spent on the first section of the Mittelleggi, the finest route up the Eiger. The immediate rock scenery and the close view across the great north face of the Eiger is superb. Years later this face became a Wotan stone upon which young Germans sacrificed themselves: yet Hans Lauper and Alfred Züri, the great Swiss climbers, had proved in 1932 that there is a very fine route up it which can be accomplished in safety.

We made several moderate climbs together when a rare break in the weather allowed, and also the Gspaltenhorn despite the weather. But our only climb of any novelty was directly up the north face of the Klein Eiger. This is rather difficult. It was made more so for us by a skin of verglas on the rocks. On this day I learned that iced rocks can be safely climbed in crampons, at that time a most unorthodox practice. This face of the Klein Eiger is made up of horizontal bands of rock interspersed with short steep slopes of ice. Fortunately the rock steps are rarely vertical and then only for short stretches. We wanted to get to a prominent red rock tower to our right but were constantly forced to climb straight upwards. When that became
impossible we could only traverse to the left round a difficult corner. Having managed this I unroped, well securing the rope's end, and found a way into a gully whence I was sure we could make the summit. Returning I roped up and took a perfect stance belaying the rope behind me. Somerset arrived as near ruffled as I have ever seen him. So he took the lead—always a safe cure—and did a stretch of severe step-cutting up the gully. Thence we broke out on to the final very steep slope below the summit. Fortunately here the snow was good, the sun had not yet touched the north face, and it was possible to kick steps instead of cutting them. This short climb had taken us five and a half hours. It would have been very dangerous to be on it once the sun had struck it.

Basking on the top, in a comfortable hollow between the uncorniced snow ridge and the bare rock arête, we watched a guided party making their way up the Eiger by the ordinary route. Owing to bad weather the mountain had not yet—5th August—been climbed that year, and we had meant to descend from the little Eiger by the easy route down the south face to the upper Eiger glacier. But an ascent by this party would secure us a good staircase of ice-steps, facing north, which would remain quite safe for the afternoon. We could reasonably continue up the ridge connecting us with the Gross Eiger. Wearing crampons we had no difficulty with the next icy portion. The big rock tower was climbed directly up its face and rocks followed to the summit of the Eiger itself. Mist was coming down and rain followed, but thankfully using the guided party's old steps we got down quickly and easily to the Little Scheidegg.

However much practice on British hills the climber may have had, it is far better to begin guideless climbing modestly in the Alps: to follow from the simple toward the more exacting. Binn is an excellent centre, with easy glaciers and a good supply of moderate peaks that can be either directly traversed or combined with passes which beckon us over into the remote Italian glens of Forno, Devero and the Veglia. The Tarentaise and the Graian Alps are also first-rate and safe districts for gaining experi-
The Maritime Alps

ence. From such centres there are always some peaks which can be climbed however bad the season.

This matter of two on the rope, instead of the orthodox three to give safety if someone does make a mistake over a snow-bridge and gets into a crevasse, is open to criticism. I must plead guilty to having done it habitually, but only with thoroughly reliable and experienced companions. It is often difficult to make up a party of three equally good amateurs: two always go faster than three and that in itself is a source of safety. To take an inexperienced climber just for the sake of having a third man is doubtful policy. The use of a doubled rope, with stirrups, on snow-covered glaciers is a sound precaution; but with a party of only two it should be a rule to avoid big complicated glaciers: yet rules are made to be broken.

Conway divided mountaineers into “centrists” and “eccentrics” according to whether they habitually climbed from one of the big centres or wandered free over the Alps traversing peaks and passes from one district to another. The latter seemed the proper training for an explorer, so for 1902 I decided to work my way from the Mediterranean to Mont Blanc. As the starting point for our tour we chose Bagni di Valdieri. It is easily reached from Turin through Cuneo and Borgo San Dalmazzo. Beyond lay some of Victor Emmanuel’s favourite hunting grounds: when Nice and Savoy were ceded to Napoleon III the royal preserves, which extended over the water-shed on to the French side, remained Italian. These mountains and glens, being preserved by keepers, were richer in bird life than most other parts of the French and Italian Alps, and forty years ago were seldom visited by tourists. Professional guides did not exist. I persuaded Charles Ascherson, who had done a lot of climbing with first-rate guides, to join me. We had a delightful series of small climbs from Valdieri, including the Punta dell’ Argentera and Cima di Mercantour. It was a snowy year and the contrast of snow beds amongst the steep and broken pine woods above the lower beech groves was entrancing. We passed sheets of tiger lilies. The butterflies were gorgeous. Birds like
The Alps

the black redstart, several wheat-ears and the beautiful wall-creeper, were common. We could get right up to chamois amongst the trees, for they had not here been driven up to the naked rocks where they can see you a mile off. Years later I found the same thing in the Julian Alps of Yugoslavia, when one day, as we came through the last of the woods in the Martuljek glen, we saw an old buck close ahead. Crouching in the cover of the stone pines, my wife whistled it right up to us. A particularly beautiful walk is that through the great forest of the Boréon glen across the Piagù ridge from Ciriegia to Madonna delle Fenestre. From here we traversed the Cima dei Gelas to Entraque. The little Maledia glacier on this peak must be nearer to the sea than any other in the Alps. The summit was carpeted with the exquisite blue *Eritrichium nanum* and the view from the top was breath-taking—Corsica with Monte Cinto, the mouth of the Var, Antibes and Nice with the Esterel hills running down to the sea: on the other side the plains of Piedmont with the outline of the Apennines: to the north the cone of Monte Viso, the peaks of Dauphiné, the Graians, the Pennine Alps from Mont Blanc to Monte Rosa. It was a panorama of the most superb composition.

In July Charles had to return to England, and after climbing the solitary Viso I went to the Tarentaise to await Rolleston and finish the tour to Mont Blanc. L. W. Rolleston was the finest companion I was ever to have on a mountain. In stature a giant: in giving confidence to his party, supreme. He had a massive head and when he chose to draw a veil over his smiling grey eyes he could assume a most satanic expression. "Yon's the De'il of a mon" had been the startled verdict of a Glencoe innkeeper as Rolleston stalked in out of the night. The name stuck and to his many climbing friends he was always "the De'il".

The Tarentaise, a French district of Savoy between Dauphiné and Mont Blanc, was little visited by mountaineers in those days: though neither of us will forget the thrill of meeting there the veteran Horace Walker with his sister Lucy. We covered a lot of ground and climbed all the best peaks in the district
without meeting another party on any climb. Conditions of travel were primitive. One evening we had got to the Fournache chalets at the foot of the Dent Parrachée. We asked for quarters for the night. "You speak like foreigners—perhaps you are from Paris?" Our hostess pulled down a great panel in the wall of the one living-room. Out of the cavern came a bed. Out of the bed flapped a fowl. "Certainly; it has a nest there." My exploring hand revealed something warm and soft. "They are only kittens." "Madam, this bed is too small for my so big friend; if you permit we will sleep in the hay-loft."

After several other climbs we started at dawn on August 4 for the Val d'Isère across the historic Col d'Iseran, traversing on the way the Aiguille Pers and Mont Iseran itself. We seemed to be in the very centre of those intricate ranges which lie between Mont Blanc and the Viso. From the Iseran the most striking feature of the view was the mass of the Pourri, which rises in tier upon tier of steep cliffs for 9,000 or 10,000 feet above the Isère at its base. No wonder the mountain is seldom climbed, so far it seems from every point of approach.

We decided to attack this peak at once, and so at eight o'clock next morning set off for Ste. Foy in a one-mule affair driven by our host, O'Brien, a descendent of Irish kings. It had been decided that the Club hut was necessarily the best point from which to attack an unknown peak. We were assured that at Ste. Foy a porter would be found to carry our provision sack up to the hut on the western slopes of the Col du Pourri. However, on our arrival none was forthcoming, and it did not appear certain that any existed, although one was promised for the next day. We gently but firmly intimated our intention of reaching the hut that night. At last, all attempts to dissuade us from our rash undertaking having failed, an unwilling youth was paraded before us by the village elders.

"What is the tariff?" said the business manager.

"There is no tariff."

"Do you know the way to the hut?"

"Yes; but I have not been quite up to it."

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"Very well, then; ten francs."
"And the pourboire? How much?"
"We will speak of that later."
"I will only carry the sack to the last chalets."
"Then you won’t carry it at all."
Finally, the oldest inhabitant:
"Indeed, gentlemen, no one ever goes to the hut: gentlemen, there is no hut."

At that we boarded the post-cart, which had stayed to listen to the conversation, and drove on yet a few miles more to Bourg St. Maurice, the capital of these parts. The town was in an uproar, having just been held up by a mad dog, which was eventually slain by a detachment of gendarmes.

An ex-sergeant of Alpine Chasseurs, who was reputed to be a strong goer and to know the hut well, was produced in lieu of a professional porter. We managed to get off at two o’clock, intending to walk in the shade through the forest of Malgovert and past the chalet of Arc. However, our sergeant produced short cuts and his absinthe bottle at frequent intervals, finally landing us on the Col des Evettes (about 8,000 feet) only a short time before sunset. As we plodded down the reverse slope towards the little Merlon lake, our friend admitted that he had “deceived himself as to the way”.

"Never mind," said we, “in an hour at most we shall reach the hut."

"But, gentlemen, I have deceived you too: I have never been to the hut; let us go down to the chalets; indeed, there is no hut."

By this time we were beyond any expression of feeling, and more in sorrow than in anger we pointed out the hut among the snow slopes at the foot of the Col du Pourri. We reached it about seven-thirty, only to find that every pot, pan, stick, straw, and blanket, had been stolen. The thieves had broken open a window, stripped the hut absolutely bare, and left the door on one hinge. We decided to descend to the chalets of Arc, as we were without any sort of covering and could cook nothing.

So down the steep slopes we scrambled, the sergeant protesting
Mont Pourri

volubly. We were very tired, and even the last marvellous phase of the sunset over against Mont Blanc passed almost unheeded. At last the nightmare came to an end, and at nine o’clock we were most hospitably received by the patron of Arc, whose family did everything possible for our comfort. I observed with pleasure that our porter was quite done up, and ate even less than we could.

The two of us started for the Pourri at four o’clock next morning. The weather was threatening and it got worse, but we gained our summit at ten-forty-five. We could not make down direct to Ste. Foy because we had left some things at Arc. This meant a tedious down and up detour before we could begin the long descent to Ste. Foy and we did not reach the inn till five o’clock in the afternoon. There was difficulty about a meal, but finally a huge dish of tomatoes was cooked with mysterious accessories. The inevitable one-mule conveyance was produced and we were off, looking forward with delight to the thirteen-mile drive back to Val d’Isère. But alas, the mule went slower and slower. “New hay has disagreed,” said the driver: the results were lamentable. We had to get out and push the cart uphill while the driver pulled and coaxed the mule. Next I noticed that Rolleston seemed to be unaccountably depressed. Soon he collapsed, crawled back into the cart and exhibited the severest symptoms of sea-sickness. It was that insidious dish of tomatoes! I was now left to push alone. In this position it was a matter of some delicacy to avoid the combined symptoms of both Rolleston and the mule. Though I stuck to it, it was not till well after midnight that we reached Val d’Isère. We had literally exhausted three days over a “second-rate” peak.

We crossed the Italian frontier—then open—by the Col de la Galise, over into Valsavaranche. The King was coming to hunt bouquetin. He was very popular with the Piedmontese: but French was their polite language, so across the one street of Dégioz hung a banner inscribed “Vive le Roi”. It was a joke in those days that some of the Piedmontese officers of the alpine regiments could not speak Italian. Considering that the
The Alps

unification of Italy was primarily due to Piedmont it might have been thought that the Piedmontese would always have retained an especial consideration from Italian governments. Yet in later years Mussolini went out of his way to antagonize them by changing the old historic names of their villages and valleys into unheard-of Italian forms.

From Pont we went up to the big new hut for the Gran Paradiso. It was crammed by a large party of members of the Italian Alpine Club. There was no room for us and we had to give up our climb and go down. We left our sacks in a corner and sat down to lunch outside. After lunch we could not find our gear, for two of the Italians had cleared out of their own bunks and placed our sacks in them. Obviously a club to join, and this we did.

From Valsavaranche we had determined to climb the steep rocky south-west face of the Grivola, which with the great sweeping curve of its north-east snow ridge is so lovely a component of many views from the great Pennine peaks. The natural route is by the Col de Belle-face; but a herd of ibex had been marked just below the pass and the King was going to stalk them: so that route must be avoided. To make sure of not disturbing the game we got a keeper to start (1.30 a.m.) with us from Dégioz and followed the Leviona Glen to the Col de Lauzon. As soon as we got well above the bouquetin, we dismissed the keeper, and traversed high under the Punta Bianca. On this spur we were caught by a gale so abominably cold that we had to huddle under a rock for an hour and a half before it moderated and we could face it. Thereafter two hours of fast climbing, over steep but sound rock, put us on the top of the Grivola (11.30). Getting over on to the eastern side we luxuriated in warm sun with all the beauty of the Graian Alps before us and the whole Pennine range for a background. The detour to avoid the ibex made a long day of it, but it was a really good rock-climb.

Later we made the first guideless ascent of the narrow serrated south ridge of the Herbetet. Hope and Kirkpatrick followed us. They were a most entertaining and enterprising pair, and their
Mont Blanc

methods were very haphazard for they would start at any hour, generally very late. Objecting to carry weight themselves and scorning the luxury of a porter, they would reduce their personal kit to minute dimensions: even the handles of their toothbrushes were sawn off to the last inch and their collar-studs specially made of aluminium. Yet they were always equipped for a forced bivouac and passed many a night making hot drinks with an excellent machine Hope had invented: it weighed about four ounces.

We made our way to Courmayeur to cross Mont Blanc to Chamonix. We had hoped to take the route by the Rochers du Mont Blanc but the weather had been too bad that season to make this advisable. It was lucky for us we had chosen the lesser ranges of the Tarentaise and Graians as our field that year. So we had to take the Dôme route, up the Miage glacier, as I had previously done with Kaufmann. Hope and Kirkpatrick were following us, and at the hut we met an Austrian climber with the Courmayeur guides Cyprien Savoie and Alexis Brocherel, the latter to be my companion on two later trips in the Himalaya. When starting next morning Savoie said that he had already failed to make the ascent from this side five times that year and that this would be the sixth failure: for the weather was foul, and in fact not one of the numerous parties which started that morning up the ordinary route from Chamonix reached even the Vallot hut. But Rolleston was in his element. By good route finding on the Dôme glacier he forged ahead and gained the lead. We fairly raced up in six hours: and got down early to Chamonix. It was a justifiable tour de force, as we were both very fit: a good climb well accomplished rather than a day of pleasant memory. My walk from the shores of the Mediterranean was completed.

At the end of August we induced L. F. Ryan to join us in ascents of the Tour Noire, immortalized by Javelle, and of the Aiguille d'Argentière. He was the perfect climber: on ice or rock it was a pleasure to watch him move. His brother, V. J. E. Ryan, made many notable ascents including the first climb up
The Alps

the Mer de Glaer face of the Grépon, but cheated us by printing no record of them.

I had only one other good season in the Alps without guides. It was that year of shocking weather, 1908. My companions were Rolleston and Cajrati. Don Ricardo Cajrati-Crivelli was an Italian member of the English Alpine Club and an old friend of ours. A Milanese, his title of Don was a relic of the days of the Spanish occupation of the city state. As we were to be three on the rope we could go anywhere; but the weather constantly frustrated us.

This season stands out as my introduction to the Italian valleys of Monte Rosa. It is always miraculous to pass from the northern skies of Switzerland into the sun of Italy. The southern valleys of Mont Blanc have for years held a special attraction for the elect of mountaineers. The Italian valleys of Monte Rosa are less known and of an even greater charm.

From Saas Fee we crossed the Monte Moro to Macugnaga. This very ancient little town, in a cul-de-sac far from any historic route across the Alps, lies in an incredibly deep pit directly under the stupendous east face of Monte Rosa. Nowhere else is it so apparent how suddenly and profoundly do the great Pennine Alps drop to the plains of Italy.

The most striking element amongst the people of this district is derived from long passed migrations of German-speaking Swiss who crossed over into these empty glens, then unpenetrated by the plainsmen of northern Italy. Though absorbed into the Italian nation they retained their native speech. The family of the Zumsteins has tended to decline the name of Della Roccia. But, later, when staying with de Filippi at Gressoney, in the westernmost of these valleys, I found that Italian was rapidly replacing German speech, except for the persisting names of properties and alpine pastures.

Our first good climb in 1908 was the crossing of the Colle delle Loccie from Macugnaga to Alagna. It is a first-class glacier pass over the base of the southern spur of Monte Rosa. We started for it before 2 a.m. and saw the dawn light up the
most splendid side of that great mountain. Going very fast we reached the Col at eight-twenty. With no guide to hurry us we smoked and idled till ten o'clock and then loafed down to Alagna in time for lunch. Alagna lies in the Sesia valley, one of the most lovely in the Alps, steep-sided and narrow, clothed with forests of deepest green.

Next morning in the village I was accosted by a chestnut-bearded giant with gold rings in his ears and as Kugy truly said "lightning in his eyes". "You are Dr. Longstaff of the Himalaya." He was Matthias Zurbriggen, the guide of Fitzgerald on Aconcagua and in New Zealand, of Conway and the Workmans in the Karakorum. Born in the Saas valley he had migrated like so many of his forebears over to Macugnaga and become an Italian subject. In his youth he had travelled far and wide as a craftsman. Here was the authentic adventurer with befitting air of braggadocio, full of tales: would that I dare repeat one of them, of a wife belabouring a prostrate husband with her ice-axe. So was the morning beguiled. Not till the afternoon did we start for the Colle d'Olen. We were bound for the Lyskamm by the Naso, its great southern spur. It is quite easy to reach the Gnifetti hut in a day from Alagna; but the little inn on the Colle d'Olen was so exquisitely sited that it seemed a barbarism to pass it by; and the wine was good.

The Naso is a steep buttress of rock leading to a long horizontal knife-edge of ice, which abuts directly against the precipitous southern rock-face of the Lyskamm. We made a traverse of the peak by descending the easy western ridge to the Felik Joch and down to the Quintino Sella hut. We meant to continue along the frontier ridge over Castor and Pollux, but snow-storms forced us down to poor quarters at Fiéry. The bad weather continued and we fled over the Col Supérieur des Cimes Blanches to the Théodule and Zermatt. The mountains were in a hopeless condition from fresh snow, so we made for Chamonix, blessing the railways for once. Both Rolleston and Cajrati had already climbed the Charmoz, but Cajrati very kindly consented to accompany me on the traverse, so that I might have the
The Alps

pleasure of leading. I found it hard getting into the bottom of the crack leading up to "Wicks' Stick": but once in the crack I got up easily. Then there is an almost perpendicular slab which requires a doubled rope to be thrown up over a providential spike of rock. Cajrat led down during the descent on the Montenvers side; it is easy to get into difficulty here for the rock is much too steep to allow of seeing the way any distance ahead. But thanks to him we got down in very good time. Essentially a climb for two.

We returned to Italy by the Col de Talèfre, a fine glacier pass. It leads into the Val Ferret above Courmayeur. It is far more interesting than the Col du Géant and may be taken when the more celebrated Col des Hirondelles is unsafe. It is too often neglected. During the ascent the grim north face of the Grandes Jorasses held all our attention and its eastern bastions of steepest rock can nowhere else be so well seen as from the summit of this pass. On the descent we had an hour's stiff rock climbing to gain the glacier below, but sped down this in ten minutes, eager for the flesh-pots of Courmayeur. Rolleston always made a point of calculating the pourboire which we should have given had we employed a guide. The tariff for the Talèfre was high and he was of a generous disposition. Bertolini's cellar was famous. We had Barolo. In those days Courmayeur was a fashionable place. At dinner everyone was in evening dress; we were in rags. The Italian climbing fraternity welcomed us with open arms, but I was rather shattered to be introduced to the Archbishop of Canterbury by the Bishop of Oxford, formerly Dean of my old college.

None of the great Courmayeur climbs were in condition. We toiled up the long, hot slopes to the Géant hut to be welcomed by the guardian Bareux of happy memory. But even the Dent was iced up. On the descent to Montenvers one glance showed that the Dru was still locked against us. We fled, to a lower district, my beloved Val de Bagnes. After several smaller climbs we decided we could tackle the Grand Combin, the Graffencire. I had already missed it twice owing to bad weather. At last
The Julians

we had a golden sunrise, with an unusual dawn display of the curved shadow of the earth retreating down the sky before the sun. In good snow conditions, such as we had that day, the corridor is not dangerous and the climb is easy, all on snow. But the Grand Combin is a great peak which no one should miss: lying off the popular routes it so often gets left "for another season". As on every climb that year we had our mountain to ourselves.

I cannot take leave of the Alps without some reference to the Julians. They lie at the extreme east of the glacier-bearing chain, on the fringe of the Balkans. Formerly in Austrian Carniola the range became the frontier between Italy and Yugoslavia. But the boundary was not an ethnic one. Many Slovones were left in Italian territory, and there are also small communities in Austrian Carinthia. They speak one of the oldest Slavonic tongues: but are Catholics and use the Latin script: whereas the Serbs are Orthodox and use the Cyrillic. The Slovones are woodsmen and tillers of the poor soil—hunters, not tourist guides. They have all the charm of the Slav. The country is full of folk-lore and tales of fairies. The architecture, too, has an eastern flavour, the churches have onion spires, the houses are roofed with rows of long, narrow shingles, and boarding is used rather than the squared logs of the typical Swiss chalet.

My wife and I visited Slovenia three times. We lived in luxury on half a crown a day with slivovitz at a penny a glass. The small scale and fine sculpturing of these limestone mountains combine with the extreme complexity of the topography to make every excursion seem full of surprises. The valleys are green glades with great conifers spaced as in a park. Higher up are beechwoods splashed with yellow of the wild laburnum, and, still higher, dense cover of stone pines. Unforgettable are the Christmas roses in June, the early flowers pale pink, then white, then palest green. There are very many chamois, and bears are extinct only within living memory. The lakes, deep green or turquoise, are full of trout. Most wonderful of all, rivers gush full-fledged from the limestone cliffs of the mountain
The Alps

sides. From meadow to tiny glacier the span of variety is greater than in the western Alps, and the flowers are different. The smallness of the scale is an advantage; especially to the aged mountaineer. The month's approach in the Himalaya is magically traversed in a day.

One year we had the good fortune to be invited by Albert Bois de Chesne to his shooting lodge at Santa Maria di Trenta in the upper Isonzo valley. There we met Julius Kugy, the devoted explorer of the Julians. Though nearly eighty he had still the frame of a Hercules, combined with the great sensibility of the musician and lover of beauty that he was. With our host's gamekeepers Komac and Tozbar, whose fathers had been Kugy's guides, we climbed Razor, the aristocrat of the Julians, and Prisank, its massive neighbour. Frontier restrictions, which pressed very hardly on the Slovenes in Italian territory, made it impossible to cross the range into Yugoslavia. Another year, on the Yugoslav side we wandered unwittingly into a frontier post. The Serb sentry appeared, alert, from cover behind us. A prohibited spot! Arrest? A soldier ran out with a bench. Turkish coffee and cigarettes were served amid compliments exchanged.

Alas, the ordinary routes up nearly all these mountains, including Triglav itself, have been defaced by paint and pitons, making them as Kugy says, "look more lamentable than St. Sebastian's body". But one can always go by on the other side. I shall remember best two visits we made to an idyllic camp-site in the uninhabited Martuljek glen. This lies high above the valley of the Save, where Humphry Davy loved to stay, and is hemmed in by the weird limestone cliffs of Spik and the Dovski Kriz with the cleft of the Grlo between. A rock the size of a cottage provided on one side a dining-room and on the other a bedroom. Ring ouzels awakened us. There was no sign of man. It was all ours. A fellowship more quiet even than solitude.
CHAPTER 3

CAUCASUS

In 1903, having at long last taken my medical degrees, I felt that virtue should be rewarded. I persuaded Rolleston to take two months' holiday. Now for the frosty Caucasus, the goal of the Argonauts, the last refuge of Alastor. The great days of its exploration were over: Freshfield's book and his alluring map had been published and the last great unclimbed peaks were named and known. Willy Rickmers, of the well-known Heligoland family and an old alpine acquaintance, invited us to join his large party of continental climbers; but we preferred independence. Also we meant to snatch some of the plums from our Austrian and Bavarian rivals.

The Caucasus stretches from the Black Sea to the Caspian. The great peaks lie along its middle third, from Elbruz in the west to Kasbek in the east. The northern valleys are peopled by Moslem Tartars, whose centuries of pastoral grazing have destroyed the forests, for no seedling can survive. To the south lies Christian Georgia, densely forested on the steeper southern slopes of the range, for the people are more agricultural than pastoral in their economy. Tucked away between the outlying piedmont range of the Laila and the main chain lies Svanetia, not occupied by the Russians, but its unruly clans somewhat tamed, though not disarmed. This was to be our goal. We read it up. We studied the detailed maps of Freshfield and Merzbacher. We learned a smattering of Russian, which should be our lingua franca in these lands of many tongues.

In our preparations Hermann Woolley proved himself a most generous mentor. He was the last of the great ones in the Caucasus, a fine exponent of mountain craft and a personality
Crim Tartary

of the rarest charm. We had realized in the Alps that mobility is the essence of happy travel. Rolleston is really a sybarite, a connoisseur of good living: but he knew his stuff. It is best to burden yourself with nothing but what is essential: anything more becomes a hindrance. We took one Whymper tent and, for high bivouacs, a very light silk Mummery tent, but with the improvement of a floor sewn in to keep out wind and snow. Our sleeping-bags were of eiderdown, weighing under 3 lbs. each. Our climbing rope was silk. We were to live on the country, carrying bags of small change therefor. For the mountains we needed some tinned food and biscuits, to be bought at Odessa. Two pack-horses should be enough. There must be no waiting for the assembly of a caravan each time we had to change transport.

So off by boat and train on the 16th July. Through upstart Berlin, with its blatant self-consciousness, and frowning Thorn to Alexandrovo on the frontier. The Russians were both friendly and helpful. But the ice-axes were beyond them and suspicion is ineradicable in the Russian mind. Englishmen going to the Caucasus to climb mountains? Absurd! We were gold-seekers. Those ice-axes were miners' picks: thus! and the action was illustrated. But nichevo, "what matter": the commonest and most useful word in the language. Then on to lovely tragic Warsaw, last outlier of Europe. Through 700 miles of the hot Ukraine with its unending plains of ripening corn to Odessa, in those days the leading port of Europe for the export of wheat. At Odessa shopping and money-changing took a day.

Then off again by night across the Black Sea, where Venus was reflected like a moon and even the Milky Way shone in the black mirror of the Euxine. The Chersonese; Crim Tartary; the Crimea. Along these coasts were strung, before our era, a series of Ionian Greek settlements, fringing a barbarous hinterland of Iranian tribes. Later these were occupied by the Genoese, much as our East India merchants established factories on the coasts of the Indian peninsula. Such is Feodosia. There the East
Caucasus came aboard: Persian traders with scarlet-dyed beards and high caps; picturesque Turkish, Bulgarian and Armenian labourers; Greeks and Karait Jews; a chained gang of sad but evil-looking Tartars with their poor families, said to be on the weary road to Siberia.

The Caucasus is usually said to divide Europe from Asia. But few realize that Asia is on the north side and Europe on the south. The mountains protected European Georgia against a succession of Asiatic invasions which swept over the steppe to the north. Only within the last century has southern Russia been added to Europe and in many districts its native population is still Asiatic. The whole tradition of Georgia is European.

The straits of Kertsch seemed a strong dividing line: once past them we began to sense the Caucasus. Forest begins. The coasts become steep and richly wooded right down to the shore. There was snow on the cloud-capped ranges inland. We passed the mouth of the Kodor rushing down from the trackless fever-stricken forests of Abkhasia, home of the great wisent, that bison so vividly depicted in the prehistoric drawings of the Spanish caves. At Soukhum Kale we discovered Georgia. The first swaggering Mingrelians came on board in pointed flapping bashliks and long tight-fitting coats with ornamented cartridge slots at the breast and narrow silver-studded belts with the ivory-handled kinjal at their slender waists. The kinjal is like the sword the warrior holds on a black-figured Greek vase: short, broad, two-edged blades, sharply pointed but only 15 inches long: altogether Mycnean in type. And these men are Europeans.

At Batum, anciently Georgian, later Turkish and now Russian, we sought out the British Consul. He introduced us to his American colleague who at once recommended to us one of his own camp-servants, a young Georgian, Nestor: his open face did not belie his character. He would take charge of our base-camps and interpret our scanty Russian into the several Georgian dialects we should meet. We had cause to be very grateful to our American benefactor. Sound local advice is priceless at the start in any new venture.
Georgia

At this time there was trouble at Baku, followed by great unrest in Batum soon after we left, and friendly Russians warned us against going to the mountains and most of all against venturing into lawless Svanetia. But the Consuls advised us that it was only along the Turkish and Persian frontiers that things were bad, though the Russian mail had just been cut up at Artvine and all the Cossack escort killed.

At Batum we took train to Kutais, the historic Cyta of the Greeks. Colchis at last, the home of Medea. And I remembered Clinton Dent—his face like Odysseus—giving a lecture at Eton on his travels in the Caucasus, and my boast that I would go there. Now the dream had come true. This river Rion was the Phasis from whose sands the Fleece was loaded with gold and which, through Greece and Rome, gave its name to our pheasant. This western Georgia has been a link between Europe and Asia for eons. Georgians have ruled and swayed policy widely: Georgian nobles had great influence at Persian courts: Georgians went with Nadir Shah to conquer India, and once garrisoned Kandahar. Prince Bagration, the hero of the Russian retreat of 1805, was from Imeretia. Marshal Stalin (Djugashvili) is a Georgian from Gori near Tiflis.

From Kutais we drove along the great Russian military road, the Ossetinsky Daroga. We were bound for Orbeli, gateway to Svanetia. I was entranced by the laurel trees, with us so suburban dull, but here decked with profusion of flowers: and we picked delicious wild figs, cranberries and raspberries, and bought a bucket of yellow peaches for fourpence. Because of a note left by Rickmers at Batum we had picked up Ernst Platz, a German painter left behind sick, and taken him along with us. Now on the road we ran straight into Makandaroff, Rickmers’ dragoman: a most competent bearded desperado speaking about a dozen languages, including French. He was to convoy the invalid and assist us in crossing the barrier of the Laila. Our meeting was providential: for the road got very bad at Alpana and our driver, with flagging horses, refused to go on. Makandaroff instantly produced an arba, an ox-cart, into which we
Caucasus

dumped the baggage under charge of Nestor, while we walked the last miles into Orbeli, an ancient town on the first foothills of the Caucasus. We slept on the table of the cancelleria, the court-house being the only available quarters for travellers in these parts. But the bugs either dropped from the ceiling or crawled up the table legs, for we were thoroughly well bitten by the morning. We now took horse and pushing ahead of the baggage rode beside the roaring Skenis Skali through luxuriant deciduous forests. There is a cowboy dash about Georgian horsemen, who make it a point of honour never to dismount for a difficulty, but rather to ride the harder the worse the track becomes: nor, however long the day, will they halt for food until the journey is done. It was pitch dark as we crossed the river and galloped into Lentekhi.

The village lies at the foot of the Laila range, at a parting of ways. Platz, with Nestor and the baggage were to cross by the easy Latpari pass, Rolleston and I to traverse the highest peak of the range away to the north-west. Makandaroff insisted on coming with us, bringing four Svans as porters, for now we had to walk. The track led through high forest beside the Kheledula torrent, past a few clearings with fields of maize. The forests are full of bears and maize they cannot resist: so in each field a platform is raised on stakes and on it is set an iron cresset to hold fire at night: all night a man must sit there, ringing a bell and uttering monotonous and doleful cries to protect the crops. We camped, that is we lit a fire, beside the hamlet of Djudari, and bought a small pig for the solace of our men.

We were off early next morning up the Skimeri glen, at first through close forest, then through thinning alpine woods and so eventually clear of the trees. At the edge of the brushwood, at about 10,000 feet, we made our bivouac directly under the peak of Laila, and slept in the open under a full moon, happy to be freed from compulsion of made trails.

The following morning we made an early start and got up to the Laila Pass of Freshfield’s map. Here we left Makandaroff and the Svans to descend the easy glacier into the head of the
Khudesh glen lying west of our peak. They would thence cross a secondary ridge to the north and get down to Betsho. We made a dash for our peak, Laila, 13,400 feet, and despite cloud got up easily in two hours, though cheated of the view we so much desired. In another hour we had rejoined Makandaroff’s party and from the saddle of the secondary ridge, at about 9,000 feet, we got our view—a first sight of double-crowned Ushba, the Terrible: the grandest peak in the Caucasus, cliff piled on cliff soaring up ice-clad, more beautiful even than the twin-peaked Nanda Devi, its Himalayan counterpart, and putting the Matterhorn to shame by its massive symmetry of composition. We overlooked the valley of the upper Ingur and could see the village of Betsho beyond, at the very foot of Ushba. Betsho was the home of our four Svans, and they stood praying to the spirits of forest and hill and to the rivers of their homeland. These Svans are the turbulent Soanes of Strabo. The people of inner or free Svanetia were christianized so long ago, and have since lived in such isolation, that they have forgotten the tenets of their faith. The tribal elders used to keep the few churches locked except for one day in the year, when the priest was admitted to perform a service alone. I suspect that traces of Manicheanism and even of the more ancient sun-worship of Mithras might be discovered by the erudite. Virtually they were pagans, though the Russians had sent in a few Orthodox priests and a few Georgian school teachers in an attempt to reclaim them.

Still with Ushba magnificent before us we descended the flank of the Laila range to Skomari, or Tobalt as Freshfield’s map has it. Here Prince Dadarkhan Dadishkiliani invited us to his house for tea, and kept us to dinner. This was a surprisingly sudden contact with western culture, for his entertainment and his family circle were completely European and we might have been in France. With all the charm and understanding of an aristocrat, the head of a clan, the prince cheerfully admitted that he had little control over his own tribesmen and none whatever in upper Svanetia, whither we were bound, where every man
lived armed against his neighbour, acknowledging no master. It is tragically wasteful that such families as the Dadishkiliani should have been eliminated from Georgia by the Russian revolution.

It was difficult to withdraw from this pleasant social interlude and it was long after dark when we entered Betsho, thirteen days after we had left London. Here we met Willy Rickmers' party. After five attempts they had just climbed the forbidding south peak of Ushba. The successful ascent had been led by Schultze, of Munich, despite a severe fall at his first attempt when his life was only saved by the rope through the skill and intrepidity of Heinz von Ficker, one of the foremost young Austrian climbers of his day. The more I heard from them and the more I looked at Ushba the more relief I felt that it was not for us to attempt. We would snatch Tiktingen (15,267 feet) before Rickmers' stalwarts could recover from their ordeal. This was now the highest unclimbed peak in the Caucasus; but Tiktingen was far away on the main water-parting at the head of the great Zanner glacier: while here, from Betsho, we could make a nodding acquaintance with Elbruz and the sources of the Kuban and maybe overlook mysterious Abkhasia. With these objects in view we decided to make for Lakra, only 12,185 feet, but unclimbed: judging from the map it was the very view-point we wanted.

Leaving Betsho on the last day of July with a couple of Svan porters we walked up the wild Kuish glen to a kosh, as any hunter's bivouac is called. This kosh was just below the Kuish glacier in easy reach of our peak and a most delightful spot. Fortunately the weather was fine, for the rocks were vertical and offered no shelter. The Svaris couched on the ground wrapped in their dark sheep-skin burkhas. We were off alone next morning, going slowly up the Kuish glacier straight for the saddle between Leirag and Lakra, negotiating the upper ice fall and the final steep slope in three hours. Our climbing-irons saved time, obviating step-cutting except on the steepest ice. Then we turned southerly up the snowy north ridge of our peak. Soon
we had to work round a rock tower on the ridge. Then snow again, the ridge getting steeper and narrower and turning to ice. At last we got on to rock: but this got rapidly steeper and several towers had to be climbed direct as it was not practicable to skirt them. We climbed up the final peak by a moderately difficult crack and then by ledges on the western face. It was early: we had only taken two hours from the saddle: no clouds had appeared and we stared round at a startling landscape. At our feet the wild and uninhabited Nakra glen, its tumultuous torrent reduced to a gleaming and motionless silver thread which led through forest glades southward to the gorges of the Ingur and the seaward valleys. To the west was a sea of peaks about the sources of the Kuban. To the north loomed the vast dome of Elbruz, the highest peak of Caucasus. Great, massive, it seemed to support the heavens. But attractive, no: we wanted none of it. There to the east was Ushba, far more beautiful, with huge Shkara towering in the distance above the perfect cone of Tetnuld. Tiktingen was clear; through our glasses it looked very difficult, standing remote at the head of a great glacier system. We dared not delay and wrenched ourselves away after less than two hours on the summit. Time was precious and we rushed down headlong, getting back to Betsho by moonlight.

Next morning there was the usual delay in getting horses and we only got off after noon. It was a wonderful ride to Mujal through villages such as we had never seen. These are set in wide open clearings sparsely cultivated. Every house had its strong stone tower, like the castle of a bandit, with an entrance twenty feet above ground. To enter these houses you climb up a notched tree-trunk; nailed to the walls are bear-paws and the horns of tur, the Caucasian ibex. These fortified houses have an aspect of grim readiness; they are set not too close together, so that your neighbour cannot get too easy a shot at you: but near enough to support each other if the village itself is attacked. There is a fine air of European individualism and no crowding together as of oriental hovels.

Next day, soon after leaving Mujal, we had trouble with our
Caucasus

Betsho horsemen. They had no stomach for trusting themselves amongst these cut-throat hillmen, and also, it appeared, Nestor had refused them food from our scanty store. Led by Gramiton, a trouble-maker, the men struck for double pay: we refused to be blackmailed: Gramiton laid hand to his pistol: I hitched forward in my saddle exposing my holster, but did not move my hand towards the revolver, for it is a fool’s trick to draw unless you are prepared to shoot at once and take the consequences. For a moment Gramiton weighed the chances, but the others gave him no support. We told him to be off instantly, using the insulting phrase a Russian would use to a dog and he seized his two horses and galloped back down the track without a word. Then one Constanti Devdarian, who knew a little French, came to our assistance, and we got off at last with two pack-horses and two Betsho men, but with no mounts for ourselves. We were now on the track to the Zanner pass, which leads over the main range to the Bezingi Tartar country. Probably our men thought we must be bound for Bezingi and feared to enter a Moslem district, for at the last village, Jabesh, where we camped that night, they announced their irrevocable decision to leave us, and cleared off. It was raining hard as we pitched our tent while Nestor stood guard over the abandoned baggage. A hunter came up, stood silent, and watched us. Without a word he started in and lent a hand. This Araman Kordiani turned out a jewel and never left us, and we had no more trouble with our men. His Russian vocabulary was as limited as ours, but it sufficed. He was a real Svan highlander: a tiny man hidden in shaggy burkha with bashlik worn turban-wise, or in bad weather with the tails draped round his shoulder, complete with sheep-skin-covered rifle and the inevitable kinjal at his waist. Self-contained, tough, sleeping always in the open, he would carry any weight and at the end of a march or at a shout from the Mummery tent before dawn at a high bivouac, would produce tea inside ten minutes. Nestor, and how often did we bless the good American consul for lending him, was a Mingrelian and the Svans were sticky with him and he was in fear of them, but
Ti ktingen

Araman could always get us a sheep or chickens if any were to be had. Best of all he knew the local men, and could secure us good porters.

Next morning we set off for our attempt on Tiktingen with a couple of hunters to carry our light mountain kit, leaving Araman to keep the nervous Nestor company at our Jabesh base camp, pitched in a thicket some distance from the village. A faint track led for two hours through exquisite woodland, broken by glades of the tallest flowers I have ever seen—great blue larkspurs six feet high and more. Then up a grassy spur studded with late alpine flowers, above the terminal ice-fall of the great Zanner glacier. We took to the ice and found it easy going until we came to the second ice-fall, which we avoided by crossing to a grassy spur on the glacier’s left bank. We came across the skeleton of a fine tur, first cousin to the ibex: it had probably been killed by an avalanche during the previous winter, for the bones were not scattered, as by bears. Finally we selected a camp site on the edge of the moraine at about 10,500 feet. In front was the uncompromising mammoth ice of the Zanner glacier; at our back a mantle of lilac rhododendron swept up to the spurs of Lyaler. A lovely site and a gorgeous evening. But away up the glacier Tiktingen loomed most forbidding: very bare of snow for so high a peak and therefore very steep. In 1893 a strong party consisting of Woolley, Cockin, Solly and Newmarch had climbed the western ridge to within a few hundred feet of the summit. Where they had failed we thought it hopeless to try. The south face was appallingly steep and probably raked by stone falls. There was nothing for it but to try and get up to the top of the great east wall that connects Tiktingen with Salyinan Bashi, and so follow this ridge to the summit. This would mean a very long climb, for the glasses showed no possibility of getting up on to the wall anywhere near the peak.

We were up at two next morning; but the weather looked worse than doubtful and rain delayed us till three-thirty. The glacier was difficult by lantern light for its surface was very rough
and crevasses numerous. Fortunately we did not encounter snow-bridges, till daylight came, murky. At six we were halted by a vicious hailstorm. Scratching a hollow in the snow we set our backs to the storm and pretended to enjoy breakfast and the lightning. The reward of good reconnoitring came when we discovered that we could reach the great east ridge by the route chosen. I was very despondent about weather prospects, but the good De’il was resolute. Another couple of hours up easy but rather rotten rock ribs, in lowering weather with more hail, landed us on the top of the east wall. This was our first close sight of the northern country: barren and inhospitable compared to the forested valleys of Svanetia, with a suggestion of approach to the naked steppe. But time pressed: we turned west along the ridge: very steep on the north and soon to be still steeper on the south. The first big tower was difficult; slabby and plastered with hail-rotted snow; we had to climb straight over it. More towers followed. It took us three and a half hours, going all out, to reach the highest tower of all, above the deep notch, so visible from afar, at the east foot of the final rocky pyramid of Tiktingen. It was Rolleston’s confident resolution that had kept me going, for I hate and fear bad weather on a high peak. It was noon. If we could get down into the gap the peak was ours: but the descent from this great tower was very awkward. I tried leading straight down the rock face, but two large separate handholds gave way and I came on the rope. With Rolleston above I knew I was perfectly safe, so swung in, got holds and continued down. But it got worse, with no possibility of belaying the last man, so I gave it up and climbed back to the top of the tower. Rolleston went straight for the only alternative, a vicious curving ice ridge running very steeply down to the notch. The drop on both sides was alarming. The knife edge of ice seemed like a crouching beast hunching its shoulders to thrust us down the abyss. My companion was in his element for he is a dominating personality on steep ice; but it took him nearly an hour to cut hand- and footholds down to the notch, while I paid out only seventy feet of the rope. There
2. SOUTH FACE OF SHKARA: ASCENT UP RIDGE TO SUMMIT ON LEFT
Highest peak ↓  ↓ East peak  ↓ Panchu pass

Camp →

(See Pl. 4)

3. NANDA DEVI FROM OVER 20,000 FEET ON NANDA KOT, 11.6.05.
A three-course dinner

he had a safe stance on good snow and I could follow. The old De’il had done the trick. We were in cold cloud but the rocks of the final peak were easier than we had dared to hope and in another one and a half hours we stood on the summit. Alas there was no inducement to stay: we built a very small cairn on an overhanging rock just west of the highest crag and turned down at two-thirty. Back through a searching cold wind and recurrent hail storms: but we had our old tracks to follow. Lower down new snow made it exhausting work: then rain fairly drenched us and to keep continuously alert was a hard strain. I think even the tough De’il was thankful to get back to camp at nine-thirty and gulp a hot drink brewed by our bearded hunter. Then the wind really got going: thunder, lightning, hail and rain all night. Tiktingen was very angry. Next morning we scurried down, still in rain, to our main camp at Jabesh, very wet and very cold. Off with our sodden clothes and into our sleeping-bags, where Nestor fed us with my own special Caucasian dish. It has great merits. A chicken is boiled in plenty of water with a cupful of rice. The diners start with as many cups of soup as they can drink. Then comes the chicken, which may literally be a pièce de résistance: but no matter if you are hungry. Finally, at the bottom there is the rice pudding. A complete three-course dinner in one cooking-pot.

Next day was given up to the sheer delight of idleness and the drying of clothes and gear. Still intent on the flesh-pots we bought a black, fat-tailed sheep for ten shillings, which Nestor considered a most exorbitant price—"but then Svans are swine." Araman produced a stocky, bearded hunter, Bitta Zourabiani, as a porter—a likely man who had a very old Berdan rifle which he kept permanently loaded and at full cock; the scar had gone, so the bolt was held back by a bit of stick, but if this fell out the gun went off.

The challenge of Tiktingen having been met we could now indulge ourselves in a treat. We would repeat the ascent of the great pyramid of Temuld (15,918 feet), one of the grandest peaks in the whole chain, whose summit view, Freshfield, its first
Caucasus

climber, accounted the finest in all the Caucasus. As Nestor was feeling more at home and confident in our little camp in the coppice, comfortably private from the village of Jabesh, with whose people, however, he was now on friendly terms, we could take both Araman and Bitta with us, and so lighten our own sacks. On August 8th we went back to the snout of the Zanner and crossed to the right moraine of the Nageb glacier. The hunters pointed out tracks of bear and tur, but we were unlucky and saw neither. Near the end of the moraine we found a good kosh under an overhanging cliff, the back smoke-blackened by the bivouac fire of hunters. This was probably the very spot where Freshfield camped for the first ascent in 1887. That evening we prospected and marked the way on to the glacier and through the first crevasses.

In the morning we left the men in camp and got off early (2.10). Working up the Nageb glacier we made for the south ridge of our peak, while a gorgeous sunrise lit bands of cloud across the crown of Ushba behind us. Over the ridge itself the going is comparable to the Bionnassay arête of Mont Blanc, but much steeper. Tetnulld is only a little higher than Mont Blanc, but a far finer peak, rising as an isolated cone rather than as the culminating point of a great massif. As we rose the slopes on the east side of our ridge got very steep: to the west was a sheer-looking drop of thousands of feet to the Nageb glacier. The condition of the snow was perfect for crampons and we had little step-cutting. But we both felt the altitude and went rather slowly. After seven and a half hours' actual going we reached the top (11.10) in a mild hail-storm, which drove us down to get back into the sunlight and enjoy the view Freshfield had promised us. From Elbruz to Kasbek the whole Caucasus was displayed and to the south all central Georgia backed by the mountains on the Turkish frontier and the highlands of Armenia.

We came down quickly in little over three hours to our bivouac, greeted with food ready. The men made up the loads with quick competence, refusing to let us carry anything. Bitta
Zourabiani led off straight down the Negeb glacier instead of following the windings of the moraine. He was wearing oval crampons, sheni, made by forging together two old horse-shoes set with spikes and bound under the instep with rawhide thongs. He went at a terrific pace down the glacier, having our crampons inside his sack, and was immensely pleased when we had to cut a step or two where he had passed light foot. He was very intelligent and he discussed Franks of various races; yet great was his surprise to learn that Germans were Christians. Though very anti-Russian he had absorbed their profound national aversion to the “Nemetsky”—those “tongueless” people lacking human speech, as the Russians call the Herrenvolk.

On August 10th we moved down to Mujal. There we were entertained by the Russian orthodox priest, who, like all his brethren here, was glad of any break in his loneliness among unlettered pagans. Rickmers had urged us to visit the great Leksur glacier and have a shot at one of the several unclimbed peaks at its head. The Leksur is the biggest glacier system between Ushba and Tiktingen, due north of Mestia, the village of splendid towers, through which we had already ridden on our way from Betsho for Tiktingen. There is a snow pass at the head of the glacier sometimes used by travellers to Urusbieh in the Tartar country at the eastern foot of Elbruz. The upper ice basin extends about eight miles from west to east and is surrounded by a number of striking peaks, most of which had not at that time been climbed. We rode on to Mestia, pitching our tent in a clean open spot near the cancelleria. That night the vision of the moonrise over the gleaming white pyramid of Tetnuld with the dark stone village towers in the foreground kept me up late, and I browsed on Shelley for an hour, like a good Victorian.

In the morning we bought a sheep and a goose for eleven shillings and secured four horses and two men to carry ourselves and the gear up to the Leksur glacier. The track we now followed was the worst we had met, but we dared not dismount for our credit’s sake, even when a baggage horse fell and almost rolled into the torrent. Because of the rough going we failed
Caucasus

to reach the foot of the glacier, but camped in the last of the birch trees, where there was grazing for the horses. The following day we carried our light camp and food up the left side of the glacier and found an ideal bivouac under the steep spurs of Margyan-na with good water and a little rhododendron for our fire. From there we sent back a man to help Nestor at our base camp. From the bivouac we could now see our peaks. There was plenty of choice. Rolleston thought that the west peak of Latsga, Ullu-tau-tschana, marked 4,203 metres on Merzbacher’s map, looked the most interesting, and made out a good line of attack. *Ula* is the Mongol word for a mountain and I wondered if the Tartars of the northern valleys had preserved the word through the centuries since their migration from Central Asia. Yet Tau (rhyming with “how”) is the more generally used word for a peak in the northern Caucasus, so the combination seems tautologous, as we might say Hillmount. On the morrow we made the first ascent of this peak in glorious weather, getting up by the south-west ridge with no particular difficulty. From the top the Highlands of Armenia were clear and we thought we could make out Ararat itself: and towards the Black Sea rose the snowy peaks about the sources of the Kodor river, with the bare valley of Urusbieh and the huge dome of Elbruz to the north-west. For contrast away over beyond Bezingi to the north-east towered Dyktau, a Rodin rock mass, and for sheer beauty of line there was Tetenuld, all steep ice and snow, standing alone. Gem-like amid the austerity of the scene a wall-creeper, crimson and plum-coloured, with half-open wings and fanned tail, clung to the final rocks of the summit. It sang a tenuous song of happy repetition as it crept mouse-like across the slabs. The wall-creeper (*Tichodroma muraria*) is my favourite bird, an old friend of the Alps and afterwards of the Himalaya, yet this was the only time I have heard the wild beauty of its song.

After a day well spent in complete idleness at our lovely bivouac we decided to try Bashil-tau (13,685 feet), an unclimbed peak we had reconnoitred from Ullu-tau-tschana. Bashil-tau lay at the extreme eastern end of the basin of the Leksur glacier, a
long way from our bivouac, so we got off at midnight under a brilliant moon. We had to cross the glacier, clear of snow at this level, to the right moraine, to get round a bad ice-fall: above this we turned east, leaving the route to the Mestia pass on our left hand, and wound our way slowly through strange scenery of ice where the crevasses and schrunds were the biggest either of us had ever seen. This was the only time we felt that it was risky to be only two on the rope, and we were relieved to reach (7.20) the saddle at the foot of the north-west ridge of our peak. Looking over to the north side of the range we gazed on a new world, in complete contrast to the ice mazes we had crept through for hours. We could now see the limestone foothills edging the northern steppe and at our feet, on the Chegem side, the melting waters of the Bashil glacier sped away as the river Bashilauzu-su, bound for the distant Caspian (Su—river—is a word certainly directly imported from Central Asia). At eight o’clock we started to climb the great north-west ridge, set with some of which we outflanked by traverses on the forbidding west face, but the rock was so rotten that we preferred to climb several of the towers direct, sticking rigorously to the more difficult but safer crest of the ridge. Then the rocks were interrupted by an unexpectedly steep ice-slope where Rolleston took the lead again, cutting big steps. After the ice the ridge steepened, but the rocks were firm and warm in the sun, though clouds were piling up from the coasts of the Black Sea. At noon we gained the summit; our fourth virgin peak. This very good four hours’ climb up the ridge, had been just difficult enough to be stimulating, but misliking the look of the sky we only remained a few minutes to nibble some food, while we admired Tiktingen which had so nearly defeated us. We retraced our morning route, going as fast as we could, for it was essential to clear those big crevasses by daylight. Just below the bergschrund, the big crevasse below the saddle, we were brought to a sudden stop. A huge snow-bridge, which we had safely crossed in the cold of dawn, had collapsed; forty feet of it dropped into a staggering ice-gulf with vertical sides. Our morning foot marks
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were cut clean at each brink. Displaying his usual ice-craft Rolleston circled the schrund and found a skimpy snow-bridge which would serve, if delicately handled. After many windings, but no hitch, he got us back to our morning’s route through the labyrinth of big crevasses on to easier ground. We got down to our bivouac by seven o’clock. We had been out nineteen hours with few and brief halts, and now devoured all the food in camp, and as there was no breakfast to delay us, we reached our base camp in the birch grove early next morning, to gorge on Nestor’s shishlik, gobbets of mutton alternated with chunks of fat skewered on a stick and grilled in the flames of a wood fire: a princely dish.

We now lost a few days from bad weather, with new snow on the mountains, and it was time to be off to Shkara. It would take three full days to reach its foot and by then we hoped the new snow would have settled into good order. From Mestia we rode over the Uguir pass to Ipari. Amongst some grand old fir trees we heard a grating call which was new to me: then saw, in labourd flight from tree to tree, two black, satanic-looking birds with marked crests—the great black woodpecker (*Dryocopus martius*)—a bird I had not then met in the Alps. From Ipari we rode on to Ushkul, the last village group on the Ingur river, in a barren and treeless glen. Both the Russian priest and the Georgian schoolmaster offered us entertainment, but we had to push on, and we camped an hour above the village, in a convenient thicket, with the south face of Shkara in full view.

Shkara is the second highest peak of the Caucasus. Its south face has been likened to the great Macugnaga face of Monte Rosa. The summit ridge is well over a mile long coming to a point at each end. The eastern one (17,036 feet) had already been climbed from the north by Cockin, with Ulrich Almer and Roth in 1888. The western peak (16,592 feet) which looked more impressive from our camp was unclimbed, and no one had yet set foot on the great southern wall facing us.

On August 23rd with Araman and his friend Simon, another bearded hunter, we struck up the right bank of the infant Ingui
Shkara

ter river mounting grassy slopes such as would have resounded to cowbells in the Alps. We followed the morainic ridge on the right bank of the Shkara glacier below the point marked 3,043 metres on Merzbacher's map. We pitched the Mummery tent on a natural platform at about 10,500 feet, which was not really high enough for our need, but was too tempting to pass by. Opposite was spread the whole lovely range of the Laila, its sweeping spurs forest-clad: away to the east we overlooked Imeretia and the hills of the Ossete clans, famed in war, and beyond lay the peak of Kasbek and the Dariel pass, through which goes the great road from Vladikavkaz to Tiflis, capital of Georgia. Vladikavkaz means Key of the Caucasus, just as Vladivostok means Key of the East. On modern maps the name has been unromantically changed to Ordzhonikidze, but as he has been recently liquidated the name will probably be changed again.

We had examined the western peak of Shkara from the west and also in face and had seen that a well-marked ridge led directly to the summit. There was a little wall of rock just below the top which might be difficult: and again, some distance below this, were slabby, snow-covered rocks which might check us. It was a fine direct route, but we had not yet seen the way to get on to the beginning of this great ridge. It was the more unwise that we allowed doubtful weather to delay our start next morning till five-twenty. There is no risk in starting early in doubtful weather; but the flesh is weak. We scrambled down to the Shkara glacier and traversed snow slopes under a gloomy cliff with a blind corner ahead. This revealed a deep rock-strewn ravine with a hanging glacier above it from which stones and ice must often fall: but on the far side we could get on to our ridge. As the weather improved we bolted across the danger zone in a few minutes, and on to our ridge which began with easy snow slopes broken by rather rotten rock. Then, of a sudden, we found ourselves looking down upon a knife-edge of snow, with excessively steep slopes falling away on either hand. At our feet the narrow crest led abruptly downwards: then it ran horizontal for about 200 feet, to rise steep again to the con-

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continuing rocky crest. This passage which we had to take astride was like the well-known Brenva ice-ridge on Mont Blanc, but longer: an unpleasant place to leave behind us because the snow would be pretty rotten late in the afternoon. Beyond it we encountered easy rocks alternating with snow crests, with only an occasional step to cut in ice. As we had feared, the ledges leading up to the upper section of our ridge were particularly vile, rather steep and with ice-covered slabs dripping with melting snow. Above this warm dry rocks suggested a halt at one-forty-five. Here an eagle circled round: we could see its eyes: we remembered Prometheus. We were still fully three hours from the summit, and if we went on we would have to pass the night on the mountain. But the weather was now fine and we were both in very good form: we had only to go on and the peak was ours. So on we went, with Rolleston in the lead, along our narrowing ridge, with sheering slopes on either side, carefully noting several ledges where we could spend the night on the descent. The condition of the snow improved, but in one case steps had to be cut for a short distance into hard ice. Then we faced the final rock step below the summit. It had looked awkward through glasses, but there was a mantel-shelf on to which Rolleston boosted me, prodding my tail with his axe as I clawed at iced finger-holds. The passage seemed very exposed, but was fortunately short and we landed above it on easy snow. The actual summit (16,592 feet), which we reached at four-forty was a vast cornice and our small cairn had to be made on a rock outcrop just below it. [Pl. 2.]

This was the highest climb we had made, yet we felt no effects from the altitude, unless it was the curious feeling of aloofness from the world below that we both experienced. We only had time to gaze over to the north at the great peak of Dyktau rising so abruptly from the Bezingi glacier in the deep gulf below us. We had to hurry down, but as we moved one at a time, the heavyweight first, the last man could often spare an eye for the wonderful view over Georgia as the sun set and to Ararat, across the Turkish frontier, overlooking Persian lands.

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A night out

But the going was not easy for the last man, who had often to turn and come down backwards, which is hard to do quickly. Also the melting snow had now frozen on the rocks and a slip would have been very dangerous. In the very last of the light we reached the ledge at the foot of the steep final section of the ridge. We could not get down even to the highest of the sheltering rocks we had noted on the way up and had to spend the night on a narrow shelf with no hitch for the rope: we could sit with dangling legs, but there could be no dozing. Gingerly taking off wet boots and stockings we wrapped our feet in dry socks and putties and thrust them into our rucksacks. The height was about 14,500 feet and after midnight we felt the cold. We took it in turns to hold the lantern between our knees for warmth, and later Rolleston boldly lit our little snow melter: but "who can hold a fire in his hand by thinking on the frosty Caucasus?" His clothes were sadly scorched.

Slow and stiff we started down at five o'clock next morning. The narrow snow ridge was well frozen and we managed it quickly, reaching our bivouac without incident just before noon. Faithful Araman had seen our lantern in the night and had tea and grilled mutton ready for us. Then welcome sleep till four, and so down to camp. As we passed the tent, for we could only cross the stream below camp, we hailed Nestor to get a meal going. No answer. This was too much for Simon the Svan: "the Georgian swine sleeps." He unslung his rifle and loosed a shot, apparently at the tent, which brought Nestor scuttling out.

I count this as the finest climb I have ever had. The altitude is about the limit for alpine standards. There is no excessive difficulty on the great southern spur which we followed, though it is very long and demands constant attention, especially on the descent. The peak itself and every foot of the way was all new, and it was a good ending to a great season of seven peaks in twenty-nine days' climbing, five of them first ascents.
CHAPTER 4

HIMALAYA: KUMAON

The word Himalaya, of Sanskrit origin, means Abode of Snow. The outer rampart of this mighty range, known as the Great Himalaya, stretches through an arc of 1,500 miles, like a bow bent towards Hindustan, from the great bend of the Indus to the great bend of the Brahmaputra. These two renowned rivers, and others also, rise to the north of the range and flow round it into India. The rivers were there before the mountains rose from beneath the primeval sea of Tethys, which covered all central Asia and lapped the northern coast of Gondwanaland, which is now peninsular India. The building of the Himalaya cannot be comprehended unless the high steppe of Tibet is constantly borne in mind. The solid crust of northern Asia slipped down over the molten magma of the depths impelled by some mighty earth force. The ocean Tethys was displaced by the surging mass. But beyond what is now the Indo-Gangetic plain lay the bastion of Gondwanaland, ribbed deep under the earth. Against this resistance not even the Himalaya could pursue its southward course. Tibet, still pushing behind, forced up the Himalayan fold into the highest, and newest, of the world’s great ranges. Indeed the main axis of the Great Himalaya may still be rising. The earthquake zone of the foothills indicates instability. With such an evolutionary history it can be seen why the northern water-parting between India and Tibet is both older and lower than the main axis of elevation which formed the loftier chain to the south. From this older northern range the drainage was established southward before the more recent southern peaks of the Great Himalaya were thrust up. As these were elevated, the rivers, already established in their courses,
were able to cut down their beds through the slowly rising mountain barrier, and so divide what is really an east to west range into blocks apparently running from north to south. Hence the traveller from Hindustan, following up any Himalayan river valley, must pass through some profound gorge, leaving the highest peaks by-passed on either hand, to reach the sill of the Tibetan steppe, which forms a local, but not a continental parting of the waters.

The grandest and most beautiful part of the whole range is the Central Himalaya. As it lay in the British districts of Kumaon and Garhwal there were no political difficulties of access. Other higher groups of peaks rose actually on frontiers or in territory which was not administered directly by the government of British India. In this central section of Kumaon and Garhwal there are more than fifty measured peaks of over 20,000 feet, of which seven exceed 23,000 feet. Obviously a paradise for the mountaineer. Yet when I first went there none of the great peaks had been climbed. The culminating point of the group is Nanda Devi (pronounced Nunda Davy) (25,660 feet), the Ushba of the Himalaya, double-peaked like its Caucasian compeer, but 10,000 feet higher: the most romantic mountain in the world, surrounded by legend of inaccessibility. This region is connected with the most ancient traditions of the Indo-Aryan race. The Mahabharata, the Sanskrit Iliad, tells that at Bageswar, in the Kumaon foothills, Siva was married to Parbati, the “mountain-born” daughter of Himachal. She is enshrined in Nanda Devi. Trisul, its outlier, is the Trident of Siva himself. Primitive humanity was rather slow to give names to the individual peaks of mountain ranges, but on the main axis of the Great Himalaya, whence the peaks look down directly on to the Plains, distinctive names were anciently bestowed and are widely recognized. In Buddha’s time, the fifth century B.C., this region formed part of the great kingdom of Kosala, later absorbed into the empire of Asoka, as is written on the “picture stone” at Kalsi, accounted the most perfect example extant of that emperor’s many rock-cut edicts. It was under this
Edward Whymper

great Buddhist ruler that India attained its highest level of civilization, a level in some respects more advanced than that of the golden age of Greece.

As a boy I had read an account of Graham's approach to Nanda Devi in 1883, so that my attention was early called to this region. Later I devoured many books on Himalayan travel, yet none of them aroused in me the same feeling of excitement or mystery. Reading led me to map hunting—a fascinating game which later enabled me to meet Whymper. Just before his marriage he wished to sell his Himalayan maps and books of which he had a considerable collection, and some of these I bought. Edward Whymper was at that time a rock-faced lion in appearance, difficult and incalculable. Often when I pounced on some particular item he would decide to keep it for himself. I admired a case of Ecuadorian humming-birds in his rooms and on a subsequent visit they had gone: on to his wife's hat he said.

These large-scale maps of one and four miles to the inch were published by the Survey of India: and they represent work of grave hardship and difficulty, involving the sickness and death of many who prepared them. During the middle half of the nineteenth century the Great Trigonometrical Survey had provided a plot of the great peaks, accurately measured for position and height by triangulation from considerable distances in the plains and foothills. To fill in the topography between the network of these fixed points was a Herculean labour which, in Kumaon and Garhwal, was mostly done between 1872 and 1875. To save time and money the survey parties were directed to concentrate on the settled areas, the vast uninhabited regions of tangled valleys and glaciers being merely sketched in from a distance, and only quite recently has an accurate survey been undertaken. How fortunate were we in those days to have such an area to explore.

From these old maps it could be seen that the basin of Nanda Devi presented unique difficulties of access. It is doubly barred from the outer world by a wall within a wall. The highest and
western peak (25,660 feet) rises from the centre of two concentric amphitheatres, resembling two horseshoes placed one within the other and touching each other at the toe. Where the toes of the two horseshoes overlie one another is Nanda Devi East (24,379 feet). From this springs a wall, two miles long and 23,000 feet high, to rise abruptly to the higher western peak. Thus Nanda Devi itself projects right out into the centre of the inner horseshoe dominating the Sanctuary and rising a sheer 10,000 or 12,000 feet above the glaciers at its base. The outer amphitheatre, or horseshoe, measures seventy miles in circumference and from its crest rise a dozen peaks of over 20,000 feet, including Trisul and Dunagiri as well as Nanda Devi East. For sixty miles of this distance there is no depression below 17,000 feet, and not even the rim of this barrier had ever been reached by any human foot.

Down the centre of these two concentric horseshoes the Rishiganga rushes to meet the Dhaoli river, at Rini, only 6,000 feet above sea level. Its whole course is not twenty miles. Un-
The Rishiganga

expectedly this gorge of the Rishi offers no practicable way of access into its basin of some 250 square miles, which has in consequence never been inhabited: in fact no one has yet traversed the whole course of the river. Graham had tried to force the passage in 1883 but was compelled to turn back after going only a very short way. The native Garhwalis also found this route impossible. Furthermore, to them this is "a savage place . . . holy and enchanted", of which they had a superstitious dread. Was not the Rishiganga the home of the Sat Rishi, the Seven Wise Men to whom the Vedic Hymns were revealed and who were translated to the constellation of the Great Bear? Between Trisul and Nanda Ghungti is there not a pile of shoes, undigested remnants of unwary trespassers who have been swallowed up by the great serpent on guard there? But every summer the shepherds of Tolma drive a few sheep and goats over the lower end of the outer horseshoe, three miles above Rini, in order to pasture them for two months in the little side glen of Dibrugheta which hangs high above the northern bank of the Rishiganga. It was by this side door, at a height of 14,700 feet, that Graham had entered, to be the first man to reach the haunted Rishiganga. But the inner sanctuary defeated him.

Thus when in 1905 I first went to the Himalaya my objective had been determined years beforehand. First I would attempt Trisul, the highest peak on the outer rampart and then try and get to Nanda Devi itself. I had hoped for Charlie Bruce, with some of his trained Gurkhas, as my companion, but at the last moment his military duties prevented it. He and Kellas had not yet shown us that Bhotias and Sherpas could be the mainstay of any Himalayan expedition. I could not rely on the local hill-men for serious mountaineering and would need alpine guides. Italians are usually better travellers—in the wider sense—than guides from other alpine countries and Courmayeur was then as celebrated for its breed as was Valtournanche in the days of Whymper. I had met Alexis Brocherel, the guide of my good friend Cajrat, who generously allowed me to engage him, and arranged for his younger brother, Henri Brocherel, to come as
Himalaya: Kumaon

porter—two huge Piedmontese peasants, blue-eyed and enormously strong. Alexis lacked the flair of a really great guide (he was not a Croux or a Petigax) but both men were utterly reliable and never ruffled by any unaccustomed event of travel. Eager to come they asked only a very moderate fee and they endured discomfort for long months without complaint, though their enormous appetites were a menace at times to the local supplies on which I relied.

On a difficult journey pleasure is in inverse proportion to the amount of transport involved and I reduced my outfit to the utmost. We took but three coolie loads of European food for our high camps: for the rest we lived on the country. Here I made a bad mistake in relying on local supplies of sugar, which the climber so inordinately craves, for even goor, large soft cakes of dark coarse native sugar, excellent stuff, was hard to come by in the hill villages. We were always short of it: but flour, rice, lentils, eggs, chicken and sheep were usually obtainable. As a result the cost of this six-month trip for the three of us, from railhead and back, was less than £100.

On arrival in India I went to see Lord Curzon, then Viceroy, who was ill in bed. He had visited Kumaon and was enraptured by the scenery. Approving my plans he assured me of official support and, though no mountaineer, he captured my respect at once by his insistence on the necessity of reaching the top.

From railhead at Kathgodam we made three marches over wooded foothills to Almora, official headquarters of Kumaon. Every morning, before the clouds rolled up, was the vision of the Snows, incredibly vast though still seventy miles away, and the Brocherels were jerked out of the outward phlegm of the alpine peasant by the beauty of the scene. Our way was enlivened by birds they had never seen before: the most exquisite was the Paradise Flycatcher (Terpsiphone paradisi) which the men called the ribband bird. The cock has the two central tail feathers lengthened into white streamers some eight inches long which wave in the air behind it like floating ribbands. The Kumaonis
4. CAMP ON NANDA DEVI SADDLE, 8.6.05
Change of plans

say it is the familiar of the tiger, warning it of the approach of an enemy or luring some unwary prey to its doom.

The late C. A. Sherring was then Deputy Commissioner of the Almora district of Kumaon, administering an area of 6,000 square miles, which he knew intimately. He was about to start on tour for the Bhot Mahals adjoining Tibet, first making for the Milam valley immediately east of Nanda Devi. He urged me to reverse my plans and come with him which meant approaching my objective from the east instead of the west. My Hindustani was very limited: he was an authority on the district and its peoples: the inducements were irresistible. No sooner was this arranged than Sherring received orders to proceed over the border into Tibet on an official mission. Would I not change my plans further, and after a visit to Milam, join him on the road to Tibet? A doctor is an asset with orientals and could be easily smuggled into such a mission: moreover, I had already secured the favour of the Viceroy and with no question of pay there would be no difficulties with a vigilant Treasury. I could try two famous Tibetan peaks by the sacred shores of Manasarowar Lake: I could get back into Garhwal, after The Rains, by another route from Tibet through Sherring's official backing. What a chance! My plans for a mountaineering expedition would change into the prospect of a walk of some thousand miles across and round the Himalaya. But thank the gods I fell for it.

On May 14th I left Almora with the two Brocherels. It is reckoned ten or twelve marches to Milam. Our first stage was to a Forest Department bungalow set amid scarlet flowered rhododendron trees on the hill of Binsar, whence from a distance of sixty miles we got our first good sight of the two peaks of Nanda Devi towering over their inviolate ramparts of ice. At Harsil, beyond holy Bageswar, we met the first Danpurias, far superior to the Kumaonis. These fine upstanding Garhwalis draped themselves in folds of home-spun blanket, worn rather like a Scotch plaid and broochd with a big silver pin. They
carry loads on their backs like hillmen: the down-country people carry loads on their heads. We saw yellow-billed blue and white magpies (*Urocissa* sp.) and black drongos with racquet tails, bulbul, Indian cuckoos and green fruit-pigeons. Flights of entrancing butterflies thronged our path. Near the fields lurked troops of shaggy grey *lungoors*, the big monkey of the hills, insatiable crop-raiders. As we left the lower cultivated valleys behind, the scene became less tropical, and on the higher ridges pine forests appeared. The silver fir, *raga* (*Picea webbiana*), is the most beautiful of these, growing in close stands like the masts of ships. Approaching Mansiari, the highest permanently inhabited village, we met parties of Bhotias driving scores of sheep and goats, each
laden with little bags of salt or borax from Tibet: or if on the
upward journey with grain for exchange. Inhabiting the British
side of the border they have become Hindus, but are of Mongoloid
blood: therefore they laugh; the “Aryan” hillman does not.
These Bhotias do all the trade, including the great traffic in wool
between Tibet and India. They use sheep and goats for trans-
port, pasturing them as they go along in marches of only a few
miles a day. Many Bhotias winter at Mansiari, going up to
Milam for the summer only, where they leave their families and
go trading over into Tibet. At Mansiari was Rai Bahadur
Kishen Singh, an old man, who in his youth was the celebrated
“A. K.”, secret agent of the Survey of India, and who explored
southern Tibet with a price on his head. He counted his paces
with the help of his Buddhist rosary and hid his compass in his
prayer-wheel. Thus he and other trained Indians mapped much
of Tibet at peril of their lives before Sven Hedin, who so un-
generously belittled their achievements, was born. Kishen
Singh did all he could to help us with our plans.

We were now on the very threshold of the Himalaya and
every day the scene became more impressive. Perhaps the finest
march of all is that between the camping places marked Lelam
and Baughdiar through the gorge of the Gori river, roaring down
white from the Milam glaciers. This march is only about nine
miles, but so rough is the path, with constant ascents and de-
scent over stone stairways and along balconies built out over
the river, that it took more than four hours to cover. At a bend
of the torrent, spanned by a rickety footbridge, the mountain
obelisk of Hasaling overhangs the gorge with menace of destruc-
tion. In the recesses between the cliffs were thickets of Him-
layan oak, trees of rhododendron and box, with stands of dwarf
bamboo. On the crags above were thar, short-horned, long-
haired wild goats, desperate climbers and lovers of precipices.
We met monal (Lophopherus refulgens), the big peacock-coloured
hill pheasant, shooting overhead like a rocketing Capercaillie,
and in place of tropical birds we met the white-capped redstart
(Chimarrhornis leucocephalus) beside the waters and heard the

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European cuckoo. On this day we trod the first snow: great banks of winter avalanches that had fallen across the track from the peaks above.

On May 27th we pitched our base camp at Ganaghar on the right bank of the Gori river at a height of about 11,100 feet. We were opposite the snout of the Panchu (the n is nasal) glacier with the eastern face of Nanda Devi East in full view at its head. According to the old one-inch map the head of this glacier should lead us on to the top of the amphitheatre guarding the inviolate inner sanctuary of Nanda Devi.

We now had to reconnoitre a route up the Panchu glacier and for this purpose I mounted well up the opposite side of the valley. The Bhotias had not yet moved up to Milam and so as food was hard to come by I lent Alexis my rifle: he was itching to get a shot at the burrhal (Ovis naphura) the “blue” sheep, we had seen. I told him to respect the prejudices of English sportsmen and to be careful to shoot a ram. When I returned he told me with glee that he had shot three with one cartridge.

Peasant economy. He had fired at a rani and behind was a ewe in lamb, killed by the same bullet. Shades of MacIntyre and Edmund Smyth! Should I ever hear the last of this? But none of that meat was wasted. Yet Alexis was not merely a frugal peasant; one day I came across Dante’s sonnet “Tanto gentile” pasted into one of my little books. After a first sight he read it aloud, slowly, to Henri. Then looked up; “Monsieur, this is very fine: who wrote it?”

On May 31st we left our base camp standing at Ganaghar and pitched our little tent at 14,600 feet on the right moraine of the Panchu glacier, sending back the five coolies who had carried our loads so far. Next day we laid up through a snow-storm; a bad beginning, for new snow would be the devil on the upper glacier. It was, and I soon developed a splitting headache, more likely due to sun-glare than altitude. The climbing was unpleasant, up snow likely to avalanche, or over rotten rocks, and the finish was steep, ending in a snow cornice curling over our heads. But Alexis would not be denied and cut straight through
it, landing us on the top of the pass at one o'clock. I made it 17,750 feet. We expected to find ourselves on the rim of the Inner Sanctuary and to see the glaciers at our feet flowing westward towards the Rishiganga round the base of Nanda Devi itself. But the new glacier below us flowed south and then east. The old survey, admittedly sketchy, had rolled two great ridges into one, and left out the glacier between them. The southern buttress of Nanda Devi East was still a long way off and considerably above us. We had carried very little food and no sleeping-bags: I was sick with headache. But the men were very keen to cross this new pass of ours, and were so completely unable to realize the scale of these mountains that they were quite convinced we could descend into the valley ahead and return down it and up the Milam valley to our base camp at Ganaghar the same evening. I thought they had better learn and that we could surely get down to firewood before dark. So on we went, down steep but quite easy rock, just clearing the glacier by daylight; and soon after 7 p.m. reached a level grassy spot beside some juniper bushes. We ate half our remaining food and made a good fire, for though a fine night it was chilly in the open.

Next morning the cold roused us before daylight and we continued down what we afterwards learned was called the Lwanl nullah, joining the Milam valley at Martoli. We saved time by following a sheep track northward high above the Gori river and passing through Mapa we reached our old base camp at Ganaghar by noon. Our people were astonished to see us coming back to them from behind—we were evidently very competent, if mysterious, madmen. The Brocherels also had begun to acquire some appreciation of the scale of the Himalaya.

We had now seen our way right on to the rim of the Sanctuary: from the head of the highest Lwanl glacier, rocks and a very long steep snow gully would lead us direct to the lowest depression on the great southern spur of Nanda Devi East. The saddle would be at least 19,000 feet. On June 5th we were off again with six coolies for the Lwanl valley. But the coolies went very slowly and we could not get as high as our open bivouac of
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2nd June. Even the next day we only got as far as Narspan Patti, the highest summer grazing ground (13,200 feet). It was a charming spot, level, with good water and directly in face was Nanda Khot (22,530 feet) completely draped in snow and ice. The men swore they could climb it in a day, still thinking nothing of a paltry 9,000 feet. Our coolies were showing great reluctance to go on, for we were getting too close to dread Nanda Devi: Parbati the beautiful can quickly become Kali the terrible. Europeans do not carry loads. Where were we trying to make them carry ours? With an eye to the future, in our own interests no less than in those of any mountaineers who might come after us, it was essential to gain their confidence by fair dealing. So on June 7th we left our Whymper tent standing on the little plain of Narspan Patti and went on with only three coolies, loaded with the absolute necessities for our prospective climb. The Brocherels carried half-filled rucksacks: mine was practically empty, bulged out with only a shirt and jerseys. In two and a half hours we had cleared the easy Lwanl glacier and started up the rock slope of the final ascent to our intended saddle at the foot of the southern ridge of Nanda Devi East. The coolies struck. In halting Hindustani I explained that we had only taken them with us as a favour to themselves and that we would much prefer that they returned to our little base camp for the two or three days we should be on the mountain. But what of the loads, they asked. Oh, we liked carrying loads ourselves. They stared as the Brocherels loaded up their huge sacks with primus stove, oil, and Mummery tent, to a good fifty or sixty pounds each, while I contented myself with the half of this. To their astonishment we climbed on; and continued over rocks where sometimes the sacks had to be taken off and hauled up on the rope, till at five o'clock we reached a platform big enough for the little tent. I made it 17,440 feet. This east face had long been in the shade and it was so cold that our cocoa froze inside the tent before we had finished drinking it.

On June 8th, despite the early morning sun, we took long to thaw out and make some sort of a meal, so that we did not get
The rim of the Sanctuary

under way till seven-thirty. It was a much longer climb to the top of the ridge than we expected. We went perfectly straight upwards, at first by small rock ribs; then we struck a very long shallow gully of good snow, but it was steep enough to necessitate step-cutting, very laborious work for heavily-laden men. The guides were grand, cutting steps in turn, though we had often to pause for breath. The cold wind, whipping up the snow into our faces, was trying, but at three-thirty, after eight hours’ toil to gain a couple of thousand feet, we reached our goal. The tracks of a snow-leopard showed that we were not the first visitors, but we were the first human beings to stand on the rim of the Inner Sanctuary: the first to look down into it. There was Nanda Devi itself rising more than 10,000 feet above the westward flowing glacier at its base. Clouds were being blown across the Sanctuary below us and it was hard to make out the topography: though at our own level we gazed on a chaos of the peaks of Garhwal. The descent on the western side of our saddle, into the Sanctuary itself, was much steeper than the side we had ascended. It would be quite impossible to take local coolies down it: indeed we never could have got them up to our present vantage-point. [Pl. 3.]

The part of the ridge we had reached was far too narrow to sleep on: we would have risked being blown bodily off it. I made the height 19,100 feet (on the modern survey map it is given as 19,200 feet). Our tent was six and a half feet long, three feet high and four feet wide, and though the original Mummery pattern had no floor, I had one sewn in which was a vast improvement for not only was it warmer and more weatherproof, but it could not be blown away while we lay inside it. The poles were two ice-axes, lengthened with short pieces of hollow bamboo, fitted over the spikes. With great labour we built a stone platform for it, just below the crest on the east side. The projecting end had to be built up over three feet high; it was like the platform of a miniature ski-jump and emphasized for us the heady discomfort of the great snow-slide below. [Pl. 4.]

At high altitudes a primus stove is hard to work, but I had
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taken the precaution of bringing a supply of absolute alcohol for lighting it with. It is a good plan to camp early and begin melting snow at once, for it takes a long time to turn snow into water, and as soon as it is turned to sludge it is usually drunk greedily. Then a hot drink for the evening meal must be prepared, generally from some preparation of powder, for tins of liquid soups are much too heavy to carry. Then more snow must be melted to fill two of the largest-sized thermos flasks with tea (very weak at this altitude of low boiling point); one flask for the morrow’s breakfast and the second flask for the following day’s climbing. Thus the abominable primus need be used only once a day.

We could not try the descent into the Sanctuary for fear of starvation, and so decided to attempt the great southern ridge of Nanda Devi East. During a bitterly cold night I kept warm in a two-pound eiderdown sleeping-bag, wedged tightly between the feet of the two guides in the narrow tent. We all put our boots inside our sleeping-bags, but they were frozen stiff in the morning. The rope, which had got wet in the snow the day before, but which I coiled down for a pillow, was frozen stiff too. In the early morning I spilled a little tea in the tent and it froze instantly, and only when the sun was up could we thaw out and start. We took all our wraps but left the tent standing with the sleeping-bags, primus stove, and a little food carefully stowed inside with a few stones as make-weight in case of wind. The weather was fine and the mountain scene marvellous. On this ridge we were to feel the altitude much less than on the great face we had toiled up during the previous day. A series of rock towers jutted up from the ridge ahead, not too easy in themselves, for the new snow gave poor footing and had to be cleared from steps and handholds. The first group of pinnacles was not very difficult. Then followed a descent into a depression, from which shattered rocks led steeply up to a group of big gendarmes forming a second little subsidiary summit. The irregular consistency of the snow made each step a new experiment and progress was slow. On the highest tower we paused to chew chocolate, our
Polish success

chiefest treasure, and admire Nanda Devi, now in full sun. The great wall, running at 23,000 feet from Nanda Devi East for two miles to the main peak, did not look practicable: it was too long and too difficult. We saw the southern face of Nanda Devi in profile and it seemed that the central rib of this face, mostly snow, was far preferable: but its length and steepness appalled me. Ahead of us the ridge led north direct to the top of Nanda Devi East. We all agreed that if we went on we should probably get up, for there seemed no difficulties greater than we had already overcome. The men were quite willing and realized that it would mean at least one and probably two nights out on the ridge, with no tent or sleeping-bags. But, even if we could dig a cave in the snow to sleep in, the risk of frostbite was more than I was willing to face. So, to the unconcealed chagrin of the guides I gave it up and we turned back at noon. At least we had found the only possible route up Nanda Devi East for some future party, and had reached the rim of the Sanctuary itself for the first time, though our saddle was not practicable as a supply route for an assault on the main peak.

As we turned to descend we faced Nanda Kot, literally mailed with ice, shooting up a sheer 9,000 feet from the pleasant meadow of Narspan Patti, and having followed our tracks back to the tent platform, we struck camp and descended the great east wall. The snow was good here: our old steps still served and we went fast. As we reached the bivouac place of June 6th a hail-storm hit us. This only cheered us up because we were no longer on the exposed ridge above. As soon as we got on to easier ground we raced down to the blessed turf of Narspan Patti. The Whympen tent seemed a palace. How we ate and slept!

Nanda Devi East was not to be climbed, nor even to be revisited, until thirty-four years later. In 1939 a Polish party of four climbers with six Sherpas, led by Adam Karpinski, followed our route up to the saddle on the rim of the Sanctuary from which they had to make three further camps on the ridge before Bujak and Klarner on the third attempt, reached the summit. This great ascent was won by the courageous perseverance and good
team-work of the whole party. Bujak, whom I met in London in 1940, had got back to Lwow as the Russians entered; he had made a hazardous escape and enlisted in our Air Force. As the Brocherels and I had originally thought, there were no difficulties beyond our farthest point greater than those we had surmounted, for Bujak said that the big rock tower, from the top of which we had turned back, was the worst. At such altitudes support camps are now acknowledged to be essential, but in those early days, before the experience gained on Mount Everest, we attacked Himalayan peaks in the alpine tradition. Despite awareness of the tremendous scale we used “rush tactics”. Once we were to succeed, often we failed.

At Narspan Patti we decided to console ourselves for the rebuff of Nanda Devi East by attempting Nanda Kot (22,530 feet). It is sometimes called Kulhari, the Hatchet, from the outline of its summit as seen from the south-east. The weather was fine and we were off next morning, June 10th, for a bivouac, with five coolies, who were to return that night. We intended to follow the north-eastern ridge of the mountain, gaining it by ascending a glacier slope of moderate steepness, for the northern face was quite out of the question—a very steep slope guarded by a series of ice cliffs constantly threatening avalanches. Indeed the whole upper part of this mountain looked decidedly dangerous from this cause. T. H. Somervell, when he examined its northern aspect in 1926 from the top of Qalganga, wrote: 18 “It seemed to us that the whole mountain was in danger of slipping down in snowy crashes.” [Pl. 5.]

Our way led us up easy rocks beside the steep broken lower portion of the glacier which descended from our chosen ridge, but at one-thirty snow began to fall and at three o’clock we decided to stop at only about 16,300 feet, so as to let the coolies get back before dark. It was a poor bivouac on a stony spot between snow beds. With difficulty we melted snow with the wet juniper wood we had carried up and, though neither the tea nor the cocoa was a success, thirst made any drink welcome. At four-thirty the snow ceased: the clouds thinned, shifting like
Nanda Kot

veils before our eyes, to disclose Nanda Devi and the Milam peaks flushed orange red by the setting sun. It was a happy gift from the gods for colour at sunset is a rare and fleeting thing in the mountains of these low latitudes. In India the angle of the sun's setting is so steep that it plunges down behind the horizon in a moment of time, unlike its long slow decline in the north which spreads colour for hours across the sky.

Next day we left our bivouac standing and with light sacks got off early (3.45). We soon reached the upper glacier but despite the new snow masking its many crevasses, Alexis led fast through a minor icefall, and a long slant to our right turned another. With the upper icefall we had little difficulty, thrusting upwards with a sharp slant to our own left. Above this came a long steep slope of softish snow leading up on to the north-east ridge itself (10.30). We struck this at its lowest depression, which I made 19,800 feet and from which a very sea of mountains was visible in all directions. The Panch Chuli range, lovely and uncompromising, dominated the view towards Tibet: the Pindari glaciers lay below on the southern slopes of our peak: and far away in western Garhwal was the great wall of mountain over Badrinath, holiest of all places of pilgrimage. But the most impressive sight of all was Nanda Devi, its twin peaks being seen to better advantage from here than from any other view-point: they rose magnificent above the saddle which we had left only two days before.

In front of us rose the north-east ridge of Nanda Kot: narrow and requiring care, for the drop on our left was appalling. The summit was in plain sight and we were confident of success. But the snow ridge, and the nature of the snow, got worse and worse: and there was no other choice but to follow it. About noon we reached the little snow point, or rather hummock (at least 21,000 feet) so visible on this north-east ridge from either side of it. Beyond that the slope steepened still more. Alexis stopped: I came up to him, and then Henri joined us on the rounded dome. We all three looked at the snow ahead; it was obviously unsafe. I made a snowball and cast it at the slope; and

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a hissing baby avalanche started down that horrible north face. Beaten again, at noon, and only two hours from the top, by what, with fair snow conditions, should have been an easy ascent. Bitterly disappointed we retraced our steps to our bivouac (4 p.m.), bundled up tent and sleeping-bags and descended to our camp in the valley below.

There was time for only one more serious effort before we were due to join Sherring on his road to Tibet. I was beginning to realize that success on any big Himalayan peak was unlikely if we confined ourselves to rush-tactics suitable enough for the Alps or Caucasus. Yet I was not inclined to spend precious days over siege-tactics on mountains we had already tried. Furthermore, owing to the horrible effects of high altitude, success is only to be attained through endurance of the greatest physical discomfort and by such concentrated mental resolve that little spiritual energy remains for the pure enjoyment of living through such days. Though hardly aware of it I was already changing from the esoteric mountain climber into the epicurean explorer. In the Himalaya, with its manifold diversities of attraction, the change is almost inevitable. We were on virgin ground and a small fast party can cover a lot of new country and such a prospect intrigued me far more than the mere achievement of a great ascent. An unknown valley is more than a peak with a name to it.

Immediately east of Nanda Kot lies the Shalung glacier, of which nothing seemed to be known. It is fed by the snows of the east face of Nanda Kot and limited on the south by the ridge running down in a south-easterly direction from the summit of that peak. Could we but get up the Shalung glacier and gain this latter ridge, I believed we should find ourselves looking down on to the Ponting glacier (pron. Poting). Then, provided we could make the pass, we could follow the Ponting torrent down to its junction with the Gori river and thus regain the route we must follow to join Sherring. This new problem attracted me far more than another attempt on Nanda Kot.

So soon as our plans were announced it became evident that this Shalung valley was particularly demon-haunted. The
The Shalung glacier

Milam people were very averse to entering it, but we had established a good reputation with them and aided by Kishen Singh's influence we got the four coolies we needed. Our cook and baggage were to go down the main Gori Valley to await us at Baugdiar at the mouth of the Ponting glen. Leaving the Gori valley at Martoli we made our way up the bare Shalung nullah on June 15th. We halted when well in sight of the snout of the main Shalung glacier, camping early in doubtful weather. Next day we soon reached the foot of the glacier, which we saw by the condition of the moraines was in a stage of retreat. The coolies went very slowly with obvious reluctance. Eating little they would "drink tobacco" often, which meant kindling a little fire for the common pipe. The caste rules of ceremonial cleanliness can be preserved by curling the fingers of the right hand—the left hand is unclean—round the mouthpiece, so that this is never touched by the lips. Thus the habit of smoking pleasantly delays the march—and the approach to the habitation of demons. We crossed the dry glacier and at one o'clock reached a flat mossy spot by a big rock. I made the height 15,350 feet. This was neither so near our objective, nor so high, as we should have liked: but light snow and rain fell, the first precursors of the monsoon, and I thought it well to let the coolies return. They needed no second bidding and scudded back down the easy glacier towards their homes in the main valley, leaving us in a very comfortable camp, though rain and cloud cheated us of the view of the eastern face of Nanda Kot, which must be magnificent from this spot.

Sleety snow continued to fall till six o'clock next morning. Gradually the sun dispersed the mist and we dried our gear, which, with the remaining firewood our coolies had brought, made up loads of sixty pounds for each of the guides and half that for myself. After only a couple of hours walking along easy glacier we turned a corner and found such an ideal spot for a bivouac that we dumped our loads and camped. We could now clearly see three possible passes ahead, and chose the most easterly for the morrow, so as to be the more certain of finding the Ponting glacier on the far side. Our camp was visited by a
few small birds: dull-coloured but very lively in movement. I hardened my heart and shot one for identification: it was a Nepalese relative (Accentor nepalensis) of our hedge sparrow—a bird of the high levels. The few specimens I collected on this and other journeys went to the Natural History Museum, where they were identified.

We were off, well loaded, at two-forty-five on June 18th, Waterloo Day: we must make our new pass, whatever the difficulty. Slowly we mounted the glacier in a south-easterly direction, weighed down by our loads. Gradually the veil of cloud lifted from Nanda Kot and we saw its eastern face: impossible: at least there was no route there which any of us would have dreamt of attempting: our first essay had given the only chance. With unexpected ease we reached the pass at about nine o'clock (I made it 18,000 feet). The view eastward into Nepal was fascinating: a chaos of unknown peaks, with an indication of the deep gorge of the Kali river which formed the frontier between Nepal and British India and which we were later to follow to Tibet.

This new pass should I think be called after the Ponting glacier and valley south-east of its foot. The Shalung side is easy and so would be the ascent from the Ponting valley, because the route ahead would be in plain sight, but from above we could see nothing of what was below us. Descending quickly from the pass we soon met a line of cliff cutting diagonally across our path. Alexis found a crevassed shelf of snow which got us down through this obstruction but at ten-forty we were halted by a second and much worse line of cliff. We tried again and again to descend this direct, but always met either a sheer drop or an overhang. Meanwhile cloud enveloped us and wet snow fell continuously. Gradually we worked westward along the top of the cliffs, unable to descend. There seemed no possible way down. About five o'clock I called a halt and suggested camping, in the hope of a clear morning and a sight of our way, but Henri unrope and dashed on to reconnoitre; he returned at five-thirty to say that he had found the head of a good snow couloir leading
downwards. We roped up and followed him further along the top of the cliff. His gully certainly did lead downwards—into seething mist. Down we went, backwards, owing to its steepness though mercifully the snow was good and we could all three move together. Surrounded by grey mist the descent seemed interminable, but the slope eased off at last and we could face outward—then through gently falling snow we saw avalanche debris below us and emerged from cloud on to the upper snowfields of the Ponting glacier. We raced across this presumably dangerous area in the gathering gloom, only to find ourselves held up by a third band of cliff. Alexis zig-zagged down the rocks till darkness stopped us in a dismal couloir. We lit two lanterns and pushed on, safely emerging at last on to the lower glacier. At nine-fifteen we got off the (true) left bank of the glacier on to grass: I refused to go a step further and we pitched the Mummery tent and crawled into our sleeping-bags. We were too wet to be thirsty and too tired to prepare a meal so supped on four sardines each and a little chocolate.

We slept like logs and breakfasted on our last tin of soup with the remainder of the chocolate stirred into it—a strange but invigorating mixture. We were quite close to the actual snout of the Ponting glacier. On the south side of the Great Himalaya the ice descends right down to the rhododendron level: I made the snout to be only 11,500 feet. Quite soon we were welcomed by birch trees, very fair to eyes fresh from the treeless northern glens: we breathed again the half-forgotten scent of opening leaves: June was vanquishing winter. To complete the transformation scene Pan himself appeared: from a thicket a light brown young face, with a purple primula set above the ear, gazed astonished at us, and disappeared without trace or sound; nor was there any reply to our calls. So will some Kumaoni shepherd lad relate that he once saw two giants, accompanied by a red-bearded dwarf, who verily had descended from the clouds and pursued him with savage cries.
CHAPTER 5

HIMALAYA: GARHWAŁ

In 1907 the Alpine Club was to celebrate its fiftieth anniversary. The recent return of Sir Francis Younghusband from Lhasa, with the treaty he had made with the Tibetans, seemed to open the possibility of an approach to Everest. Arnold Mumm, who was particularly devoted to the Club, wanted to celebrate its jubilee by making the first reconnaissance of Everest, and guaranteed finance. Charles Bruce, who had been with Mummery and Collie on Nanga Parbat and with Conway in the Karakorum, was the organizer in India. They had asked me to join them. Mumm was to bring his old guide Moritz Inderbinnen, who had accompanied him for many years in the Alps and also to Ruwenzori. Bruce was to bring eight picked riflemen and a Gurkha officer, to act as high altitude porters. I was to bring the two Brocherels once more.

We had the strong moral support of the Royal Geographical Society and the Indian authorities seemed to favour our plan. But just as we felt the venture was likely to go through, the Olympian Lord Morley put down an illiberal foot. He adduced “considerations of high Imperial policy”, since he was trying to conclude a treaty with Russia, and as The Times leader said “it is known that Russian susceptibilities are easily awakened by reports of movements, however innocent, in the heart of Asia”.

So Tibet was closed to us. Never has Mount Everest attracted me as it did then when it first loomed as an adventure unvaunted by publicity. But the mysteries of Nanda Devi still beckoned unsolved. There was Trisul, the second highest peak of the group, standing on the great southern rim of the fortress, its height already certified for us by the Survey of India as 23,406
feet. Higher than any other peak previously climbed, its ascent would worthily mark the jubilee.

The great Trident of Shiva, the triple peak of Trisul, presents an implacable face to the west. I had tried the south side on my return from Tibet in 1905; and that was most unpromising. This approach leads only to the middle peak of the Trident and it is the northern one which is the highest. But I was convinced from what I had seen that there must be a relatively easy route behind the northern ridge up the unseen north-eastern side, though I thought it might well be more difficult to cross the gorge of the Rishi, on the north side, than to climb the peak itself. It was my job to persuade Bruce and Mumm that, having seen two sides of a mountain, I could tell what the invisible third side was like. They understood and believed so our course was set.

We met at Almora on April 24th, 1907, and thanks to Bruce's efficiency got under way after only a day's halt at the hospitable mess of the 1/3rd Gurkhas. In three days we covered fifty miles through the sub-tropical valleys of Kumaon, full of exotic birds and butterflies; there were still a few small palms to be seen and the scent of jasmine was at times overwhelming. The roadside jungle was almost impenetrable from the profusion of flowering creepers and masses of wild roses more delicate than ours at home. Sisterhoods of babblers, brown birds rather larger than a thrush, scuttled under the brushwood in ceaseless conversation with each other. They are said to be always in sevens and are commonly called the Seven Sisters. So after long marches we climbed up to Gwaldam on the edge of Garhwal, where from the terrace of Nash's bungalow, is the finest of all views of the Garhwal peaks, twenty miles away above a succession of wooded foothills. One need go no farther. The unearthly splendour of the snows, before dawn has brought them to life, is incredible. At sunset it is possible to believe. I remember at Gwaldam a rare tropical sunset when day seemed to be dying for the last time, as though the darkness which came so quickly was to be eternal: all day Indra had been calling with thunder for the monsoon, to end the drought of the Plains and only the steadfastness of the eternal
6. GARHWAL, SOUTH.
The Middle Hills

snows seemed to give any promise of a morrow in this twilight of the gods.

Robert Nash of Gwaldam, with his charming wife, were perfect hosts. A great shikari, with outstanding knowledge of Garhwal and its peoples, he had wandered widely over the middle hills and up to the snow-line. He had panned gold from every tributary of the Pindar river and showed us tiny gold blocks from each stream. Considering the widely prevalent accusations of national selfishness and exploitation of the people so recklessly levelled against the British administration of India, it is well to record that mining, or even prospecting, for gold was forbidden to Europeans since the government would not risk the native population being subjected to the dangers of a gold rush: though natives were free to wash for gold if they chose.

Our way from Gwaldam now led across a complicated series of valleys and ridges running westward from the outer side of the ramparts encompassing the basin of the Rishi and Nanda Devi. The Garhwals, who inhabit these valleys, are a finer people than the Kumaonis; their villages and cultivation, widely spaced, are cleaner and better. But flies, even thus early in the season, are a curse; the mora is the worst, raising a small blood-blister at each bite, and Bruce, engrossed in bloody massacre, lamented that there was no way of making them scream, which would have been some solace to him. I was transfixed with envy by his command of language.

These valleys of the Middle Hills are well timbered. Glowing tree-rhododendrons alternate with Himalayan oak and coniferous forest. The open stands of high branching chir (Pinus longifolia) of the lower levels are rather dull—serried ranks of bare stems completely devoid of undergrowth; but higher up is coniferous forest of silver fir, spruce, blue pine and deodar—"timber of the gods". The southward-facing slopes of the higher ridges are frequently bare: but the northern slopes, where the protecting snow-cover remains to the end of spring are well wooded. Here the native chestnut was coming into leaf and white anemones were opening. Above precipices, tucked away
Himalaya: Garhwal

safe from the depredations of sheep and goats, there are woods of silver birch like those of the Highlands, with birds and butterflies of familiar northern form. Still higher, the flora becomes arctic until finally the landscape undergoes its last transformation, into polar desert. In the deep cut gorges of Garhwal, all the gradual changes which spread from the tropics to the pole are telescoped into a few miles, so that we may see them disposed vertically up the side of a single valley and realize that high altitude is a biological equivalent of high latitude.

With six Europeans and nine Gurkhas we required over a hundred coolies to carry our supplies, for our requirements were beyond the capacity of local provender. Coolies for a small party can be obtained from stage to stage; but the villages can only spare a few men at a time without upsetting their economy which always happens when a large expedition descends like a swarm of locusts on a poor countryside. In our case we had to enlist permanent coolies. Of these the Dhotials, from a wild district in western Nepal, who come into British territory to earn a little ready money, are far the best. Indeed they are first-rate fellows. Further, Bruce had had to arrange for a supply of rice and flour to be sent ahead up the pilgrim road through the Alaknanda valley to meet us farther on. It is this necessity to pick up stores at pre-arranged halting places which limits the flexibility of movement of any large party. It is manifest that in an unexplored region, where the most desirable route cannot be predicted, the smaller the party the greater will be its chance of success. In the present case the approach to our goal was quite well known and with the Gurkhas to look after the caravan everything was very simple. I felt so free that on several of our marches I diverged from the path and climbed hills along our route which gave further opportunity of examining Trisul and confirming the impressions of its probable topography which I had gained in 1905. Once I was attracted by the angry chattering of lungoors, the big grey Himalayan monkeys. I marked a dozen crowded on a great silver fir, and thought they were mobbing a panther. Leaving Alexis on the path and telling him to watch, I
The Kuari Pass

went down into the jungle with my paradox. Suddenly he called “it has gone”. I said, “Yellow with black spots?” He replied vehemently, “No! Stripes, black stripes.” It was a hill tiger: but I had not the luck to see it.

On May 5th, a week after leaving Gwaldam, we crossed the Kuari Pass, 12,400 feet, still under snow. We climbed a little hill above the pass and gained a most impressive view of the Kamet group to the north, a galaxy of peaks divided by a maze of glaciers, to this day imperfectly known. To the east Dunagiri soared up from the northern rim of the Nanda Devi rampart, and away to the west was lovely Nilkanta, the Blue Spike, and the broad bastion of snow set above black cliffs over sacred Kedarnath. We descended through deodar forest to the banks of the Dhaoli river, a tumult of glacier water and melting snow, and so to Tapoban, a village with Hindu temples so ancient that they recall the earlier Buddhist culture.

From Tapoban our stores were to be moved in charge of some of the Gurkhas two marches up the banks of the Dhaoli river to Surain Thota, below Tolma village. This would be our base for Trisul. We followed past the hamlet of Rini, where the Rishiganga bursts into the Dhaoli through a forbidding gash between the mountains which nearly close the lower gorge of the Rishi. The junction of the waters is only about 6,000 feet above sea level: the top of Nanda Devi, only nineteen miles distant, is 25,660 feet—a steeper gradient than that on the northern flank of Everest. I had been most anxious to try to penetrate this lower gorge, this sabre-cut through which the Rishi bursts its way out from the Nanda Devi basin and which was reputed to be so utterly impassable, but there was still much snow about and the local people were unanimous in their refusal to face it. Also our problem was to get to the foot of Trisul, on the southern side of the Rishi torrent, and the lower gorge was no route for this objective. We must cross the Rishi in its middle course. We must get coolies over the great outer bastion of the fortress, over the rim of the horse-shoe, to descend upon the Rishi from the north. The only route by which this fastness had ever been

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entered was that used by the Tolma shepherds for their annual two months’ visit to a grazing ground inside the Rishi basin but high above the torrent. As it seemed quite certain that this passage must lie between the hamlets of Tolma and Lata marked on our old map, we continued up the path beside the Dhaoli, past Rini to the Bhotia camping ground of Towa, directly below Lata peak—a dirty camp, soiled by generations of sheep caravans, but backed by splendid cliffs.

On May 8th, leaving the heavy baggage behind, we toiled for six hours up 5,000 feet of the spurs of Lata and camped in snow at the tree-limit (12,624 feet) Cloud descended, more snow fell: the ground was sodden; but huge wood fires made us happy. We were but a little way below the top of the walls of the fortress and to-morrow we should look down upon the promised land.

The toils, the fatigues and the discomforts of the entire journey were repaid a thousand times by the visions of the next two days that we spent exploring the Lata ridge at about 15,000 feet. The prospect surpassed my wildest imagination. We could see into the depths and up the whole length of the Rishi nullah while above the inviolate upper gorge towered Nanda Devi, seen in full majesty, “remote, serene and inaccessible”. The great array of peaks suggested an assemblage of huge crystals—recalling to my mind Ruskin’s fanciful conception that the forms of gneissic mountains are due to massive crystallization and not to the contortion of their strata.

Amidst this ineffable scene I saw to my astonishment a pure white falcon, whiter than any I was afterwards to see in the Arctic, sailing like a peregrine in the thin blue air. The beautiful monal, grandest of all Himalayan pheasants, we flushed constantly, and there were many big sturdy snow pigeons (Columba leuconota) about. In the snow we came across signs of musk-deer. Yet there was a disappointment for I had expected to see from here the north-east face of Trisul—the unseen route upon which I had staked my reputation. Point 20,842 feet of the survey map concealed this vital face; only the extreme summit was visible.
Gorge of the Dhaoli

But we were too early in the year, and there was too much snow everywhere. We actually hit upon the shepherd’s passage which led diagonally down a cliff into the Rishi nullah, but it was so deeply blocked by snow that we dared not take our ill-shod coolies down, and it was evident that it would be a good three weeks before it was safe to tackle the passage to the grazing ground of Durashi. So Bruce suggested that we should meanwhile explore the Bagini glacier which flows northwards and then bends to the west round the northern base of Dunagiri (23,184 feet), itself on the outer wall of the fortress. The topography was totally unknown, but according to the old map a pass at its head promised access to the Inner Sanctuary at the very foot of Nanda Devi itself. So we all retreated to Surain Thota (the camping place of the cypresses), where those beautifully branching trees surround a glade of short turf, lying beneath a steep cliff and set a little back from the thundering waters of the Dhaoli.

There we dumped all but bare necessities and continued on beside the Dhaoli river. We passed through its first narrow gorge. So young is this cleft that there were water-worn rocks and even the bisected halves of old pot-holes hundreds of feet above our heads demonstrating the power of running water as a stone-cutter, in contrast to the dispersed planing and polishing which is all that a glacier can do. Yet some geologists still write as if glaciers could excavate valleys and lake-beds, while the truth is that the valleys were there before the glaciers. A glacial period is only an episode: a period of quiescence protecting the earth’s surface from denudation. The heavy work of a glacial epoch is accomplished while it is dying through the melting of the back-years’ accumulation of snow which formed it: the melting must be abnormally rapid, greatly in excess of the annual snowfall, and the summer floods will be irresistible, cutting clefts through valleys or littering plains with debris. There is no sign of the great glacier which once flowed through the gorge of the Rishi and debouched into the valley of the Alaknanda; the torrent flows through a deep V-shaped trench cut by water, not by ice.
Himalaya: Garhwal

After two marches we turned east up the Bagini valley to the hamlet of Dunagiri, at the foot and due north of the great peak of that name. The village had been ravaged by plague the year before and no supplies were to be had: so Mumm and I went up a side nullah and got four thar, the long-haired short-horned wild goat. I count this as the most sporting animal in the Himalaya. It lives on far worse ground than any other beast, frequenting the very steepest cliffs about and above the tree-line and bitter experience had taught me never to fire unless I could see that the carcase would drop where it could be recovered.

Bruce had taken the caravan on up to the foot of the Bagini glacier, to establish a temporary base camp where we rejoined him on May 17th. From this camp we reconnoitred the glacier, pushing up to the point where it makes a sharp bend, flowing northward before it turns west, and it was important to get the position of this sharp angle fixed on our plane-table survey. On the 20th we were able to set off from the base camp: six Europeans, five Gurkhas and nine coolies, the latter to carry loads for that day only and then to return. We camped early, at 15,500 feet, so that the Garhwalis could get back to grass and wood at the foot of the glacier in daylight and on the morrow, all now heavily laden, we pushed on up the glacier. Ahead we could now see a high pass at the foot of the eastern ridge of Dunagiri and decided to try it. No one knew what lay on the far side: nor whether, if we got into the basin of the Rishi, we could get out again. It was a fascinating enterprise but Mumm was not fit and insisted on returning with Inderbinnen rather than risk any possibility of delaying us. It was a typical action; he was always the most considerate, patient and unselfish of companions.

We were that rare combination an integrated party without a “leader”. Each knew the value of the other’s opinion so well that discussion easily decided every move. Arnold Mumm was at this time nearly fifty years of age. He was a fine mountaineer, compact and stocky, but had not the toughness which usually goes with this build. He was very modest and retiring. With an exceptional record of scholarship both at Eton and Cambridge
he was one of the most cultivated men I have ever met—in art and music as in literature. But he was perhaps over refined for the rough work of Himalayan exploration: he slept badly and curious and irregular meals were a trial to him. Nor had he got my irritating capacity for enjoying comfort attained in the most unlikely circumstances.

Charlie Bruce was the antithesis of all this. Normally riotous and hilarious he was a devastating practical joker and was for ever keeping the Gurkhas in roars of laughter with stories that he would not translate. Besides speaking Khaskura, the common tongue of Nepal, he was familiar with the peculiar dialects of the Magars and Gurungs, two of the most redoubtable of the fighting clans. Physically a giant he was a noted wrestler amongst the Sikh masters of the art. Any meal at any time was welcome: but it was bloody chops he craved. He could also sleep anywhere at any time, if not bothered by flies. As brave as a lion he was a master of mountain warfare and had served in every Frontier campaign of his time. He knew that against Pathans almost every engagement must turn into a rear-guard action, that each flanking hill-top must be held to the last moment, with a handful of picked men remaining behind to maintain rapid fire and then, at a given signal, to fling themselves downhill at breakneck speed. It was Bruce who brought this manœuvre to a fine art by hand-training selected men. He was so worshipped by his Gurkhas and had so unique a control over them that when he was desperately wounded in Gallipoli the Staff considered that the brigade had suffered a loss equivalent to a whole battalion.

With the loss of Mumm and Inderbinnen our party was reduced to four Europeans and four Gurkhas. The glacier was easy and we made a good start at five o'clock, but we were confined in a steep-sided trench and as the sun got higher the heat was appalling so that by eleven o'clock we had had enough and camped by some flat rocks on the névé (18,300 feet). To the west rose the steep spurs of Dunagiri, but a more astonishing sight lay to the south—the sheer 5,000-foot rock face of Changarang (22,516 feet), a sheet of palest granite draped with vast
Himalaya: Garhwal

icicles, one a thousand feet long. In some ways this was the most amazing mountain I have ever seen. [Pl. 6.]

May 22nd was an exciting day. We got off at four-thirty, but in contrast to the tropic heat of the day before Bruce and I very soon had to stop to prevent our feet freezing. I got out my sleeping-bag and sitting on this we pulled off our frozen boots and painfully restored circulation. I took off one of my three pairs of socks and with more play in my boots my feet kept much warmer. The rise to the pass was steep: several times Alexis or Henri set down their loads while cutting steps and over one stretch of snow-covered ice we roped for safety. At ten o'clock we stood on the new pass: I made it over 20,000 feet and we christened it the Bagiili Pass.

What lay ahead? A cliff, so steep we could not see down it, led to a level snow-covered glacier which ran south-east to disappear round a corner. All we knew was that its melt-water must join the Rishi torrent. But where? Should we enter the Inner Sanctuary or were we only entering the outer horseshoe? We would chance it. Alexis took the post of honour as last man: we had 600 feet of rope and we used it all. In three places Alexis hammered a spike into the rock and by hitching a doubled rope round this he could steady himself down. At one difficult passage, Bruce being the last but one, Alexis coolly handed him his heavy load, but "Palwan" (Hercules was Bruce's Pathan by-name) made light of the double weight. One of the Gurkhas however lost his load: bags of flour and tins of preserves cataracted down the cliff, exploding amid the gibes of stalwart Karbir. In the lead I reached the bottom of the cliff at three o'clock, half an hour before the last man got clear. The descent of less than 1,000 feet had cost us five hours and it is the only bit of climbing I have done in the Himalaya that would count as stiff in the Alps. The Himalayan scale prohibits acrobatics, even as in the Alps the time factor precludes dallying with the minuscule problems which compose the "super-severes" of the British hills.

In half an hour we came to level snow and thankfully camped (18,800 feet). The night was very cold. Next morning
The Rishi gorge

(6 a.m.) we descended this new glacier for six hours to its snout. As it was not shown on the map we christened it the Rhamini glacier in our new plane table survey; this was a local name I got later for this part of the Rishi nullah. Continuing down the thickly snow-bridged glacier torrent we were nearly trapped in a box canyon, but managed to break out to our right up its steep side to the west. Now we could see that we were cut off from the Inner Sanctuary of Nanda Devi. The Rhamini torrent joined the Rishi just as the latter emerged through an astonishingly narrow rift between the calcins of the inner horseshoe. Above the terrific north wall of this gorge the summit of Nanda Devi and then its whole southern flank was displayed as we advanced. At six o'clock we reached the level of the first birch thickets (13,100 feet). After many days spent on glaciers the first trees are always irresistible, with their beauty, the scent of foliage and the material blessing of wood fires. So in this lovely spot we camped; surely the first humans to get there.

From this spur on the right bank of the Rhamini torrent we could also see the narrow opening of a nullah across and on the south side of the Rishiganga, which should give access to the northern foot of Trisul. We could see the place where later we should have to cross the river, but now we had to find a way back to our base at Surain Thota. We were completely ignorant of the topography immediately ahead and we must push on and get out of this entrancing glen while our provisions lasted.

After a grand night in the open, the first not on snow for some time, I watched from my sleeping-bag the pale arch of dawn grow over Nanda Devi, now so close, yet so far in fact. We were above and on the north or true right bank of the sacred Rishi torrent and had to find a way out over unknown ground. Provisions were very low so, while the others, led by Bruce, followed along the steep broken spurs of the side of the glen, I went above them after burral and got two. By this time it only needed the excuse of fresh meat for the Gurkhas to suggest camping on the spot: so we did, under a convenient rock-overhang beside a snow patch for water, and near brushwood.

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We had only covered about three miles in a straight line, so broken was the ground, but we spent another marvellous evening with no sound but of wind amongst the crags above and of the moving waters below.

May 25th was a really terrific day. We got off at seven-thirty, scrambling along the slopes of a small summit marked on the map as Niti peak. We were constantly toiling up easy slopes only to find a "cut-off" on the far side: every easy passage led to an impasse. It was far too fatiguing a route for local coolies, and snow-inflamed eyes made it the more trying for me. But late in the afternoon, having been forced still higher up the slope, we suddenly looked down upon a flat meadow bordered by low pine forest; a most perfect haven. This was certainly Graham's "Debritigurh", more correctly Dibrugheta (11,730 feet). From seven-thirty in the morning to five in the afternoon we had covered according to the map only two miles in a straight line. We were many hundreds of feet above the meadow but rushed down, glissading and slipping over snow beds, to relax at last on the first level spot we had seen for a week. Here was water to drink instead of only melted snow, and soft lying. This is the furthest point to which Tolma shepherds ever bring their flocks. I can imagine no more perfect abode—"holy and enchanted" indeed.

We had no notion of the line usually taken by the shepherds but on the 26th Bruce, despite an injured knee, still moving like a giant possessed, started straight uphill, while Alexis made for a saddle somewhat to our left, to the right of a huge impending curtain of cliff. On the far side Alexis came across some rough sheep-pens, with dry ground and juniper and at that bleak spot—Durashi, 13,200 feet—we collected to camp. I then went off along a spur running west. Without warning I came to the top of a cliff which dropped sheer to the bottom of the lower gorge of the Rishi: Lata Peak (12,624 feet), on the other side of which we had camped a fortnight before, was on my right hand. The drop to the river must be nearly 6,000 feet and this in a horizontal distance of only three-quarters of a mile. Truly the Seven Sages (Sat Rishi) had barred their gate.
Start for Trisul

May 27th dawned rather dourly with cloud and threatening snow. But we would break out somehow. We missed the shepherds' route in the snow and climbed straight uphill into cloud. In three and a half hours we gained a summit (15,700 feet) obviously on the "boundary fence". Below was an enormous snow-couloir. We roped and started down facing inwards. We got below the cloud and shot down a very long glissade to forest at the head of the Tolma glen where a ferny dripping cliff called for lunch. Then on down through virgin forest, rough going but very beautiful, sometimes in the bed of the torrent but more often creeping along the cliffs on its left bank and so through Tolma village, the Gurkhas racing and hard to keep up with. We entered our base camp at Surain Thota at four-thirty to find Mumm completely recovered from his indisposition. So ended my eight days' adventure with Charlie Bruce, to whom I owe it that it was the happiest, most enchanting week I have ever spent in the mountains.

We were now all set for Trisul. Bruce was down and out with a damaged knee, but we had already decided that not even a death in the party should prevent one of us getting up the mountain: so when his knee would not yield to treatment Bruce insisted that Mumm and I should start without him. The monsoon would be on us in June. He would follow when he could. Never did any man travel with such utterly unselfish companions.

So on May 31st Mumm and I hit the trail once more. We had the three guides with Karbir in charge of Damar Singh, Kulbahadur, Dhan Lal and Buddhichand and twenty-three coolies were required to carry our gear and food for a fortnight. Bruce wisely insisted on our driving along three sheep, led by a reliable and serious goat. Above the hamlet of Tolma the forest is gorgeous and we passed one colossal deodar which measured forty-one feet round the bole, six feet above the ground. In the higher woods numbers of monal pheasants were nesting and we flushed a hen off her eggs. Next day we crossed the little Durashi pass (14,700 feet) which should have been clear, but the snow-drifts of the late season made it hard work for the guides to cut a safe
Himalaya: Garhwal

track down the cliffs for the coolies, who had to be roped for further security in several places. That evening we reached the sheep-pens of Durashi (13,230 feet) and camped, the coolies finding shelter beside the rough stone walls.

On June 2nd we raced down to the fairy meadow of Dibrugheta. Mumm was as enchanted as I had been when with Bruce, I first saw the place. Amid the vertical confusion of the landscape the horizontal instantly invited relaxation and repose. Dibrugheta is a fragment of Arcady dropped amid chaos; a very paradise where we could listen to cuckoos and willow warblers (P. affinis (Tickell)) singing, while flaming redstarts displayed by the margin of the little pine forest which half encircled the meadow, as though defending us with a friendly screen from the appalling cliffs immediately below. Paharis, hillmen as opposed to plainsmen, need meat, and seldom get it: so at night we divided a sheep and everyone was happy round roaring camp fires. One has to remember when with Hindus never to go near their cooking-place; the mere gaze of the Unclean is enough to make them throw away their fare.

Now to cross the Rishi torrent. We told the coolies this was their last march and so got them off early. There was no track and the ground was steep and difficult but by ten-thirty we reached the river at a spot they called Duti (10,900 feet) where huge boulders crop out amidst the boiling waters. By felling a couple of pines we made a rough bridge and stretched a rope across tightly from bank to bank. But the coolies jibbed. Karbir got very angry and laid hand on his kukri. At my remonstrance he seemed very hurt and asserted that he had threatened no man: “I only said I will cut off the head of the first man who refuses to cross: now they will all cross: you will see.” And they did. I repeated that they should turn back that day in time to make Dibrugheta before dark and food had been left for them there. So we herded them up a stony gully and then traversed above a line of cliffs to drop down into the Trisuli nullah. Here, beside a bright stream, just above the last of the firs we decided to camp (11,600 feet) and to make this our base.
The Trisuli nullah

for Trisul. We paid off the coolies, except three who elected to remain with us, and sent them back rewarded by more meat.

The first obstacle was passed. We were in the nullah which evidently led to the northern base of Trisul: so we christened it the Trisuli nullah and also gave that name to the main glacier at its head. Since beyond us the ground was entirely unknown and must be reconnoitred before we advanced further, I went on up the valley to spy out the land, leaving the others to the tedious task of making up loads of food and equipment. Soon a glacier appeared ahead, sweeping down from a subsidiary peak to the south-west, at right-angles across the nullah and completely blocking the way. Old moraines showed that formerly the main Trisuli glacier, flowing from the south, had filled the glen, pushing aside this lateral glacier. Now that the Trisuli glacier had retreated more than a mile the side glacier had straightened out and made a potential dam clean across the nullah. On the far side, where the Trisuli torrent tunnels through, the glacier presented an ice-face a hundred feet high and almost vertical; but by following up this side glacier a little way towards my right hand it was easy to drop down on to the valley floor beyond. Farther on I could see camping places on grass below the snout of the main glacier: the last resting place before we should be inexorably committed to ice and snow.

At the base camp we left Damar Singh to carry on with the plane-table survey and await Bruce. He was a Gurkha of higher caste and more intelligent than the Magars or Gurungs. On June 5th we pushed off with the three guides, four Gurkhas and the three volunteers, well laden with our high altitude outfit, across the ice-barrier, down through pale lilac rhododendron and on to the last junipers below the snout of the Trisuli glacier. We found a pleasant grassy spot in a sheltered hollow: we called it Juniper Camp (13,100 feet). In the days which followed we were to think of it often with nostalgic longing. That afternoon I shot a burrhal, caching the meet in a snow bed as a reserve against our return. The three Garhwalis went back to Damar Singh at the base camp below.
Himalaya: Garhwal

On June 6th we began the ascent of Trisul. The first day's going was easy, up the (true) left bank and along the lateral moraine of the Trisuli glacier, which provided a natural pathway. Our course was at first due south and then bent gradually to the south-west. What should we see? Was my guess right? The moraine turned sharply to our right, west, to disappear above amongst the snow and ice of the north-east face of Trisul. Glory be; we were on the right track. By two-thirty, at 16,500 feet, we made camp on the last patch of moraine that was free from snow. In front of us, as we looked toward the summit of Trisul, hidden through fore-shortening, was a magnificent ice-fall and above that steep wastes of desolate snow.

We got off at five-thirty on June 7th, steering between the ice-fall on our left hand and a line of dark cliffs on our right. The angle was steep for loaded men, but the snow was in good condition. As the slope eased off the sun became trying and I began to feel the exertion of carrying even a light load. About noon the snow slope steepened again and we soon met a strong west wind: though very unwelcome it seemed to act as a stimulant and made breathing easier, but as the wind increased in violence it whipped up the surface of the snow, driving it through our clothing, which was not wind-proof—those were primitive days; we climbed in tweeds. At two o'clock we pitched the bivouac tents on a gentler slope at 20,000 feet. By some magic Henri got one primus stove to work and gave us all a hot drink. That night the tents, low as they were, could hardly be kept standing: it was lucky that the floors were sewn in, so that the weight of our bodies held them down. But they flapped unceasingly, clapping and banging like rifle-shots, which made sleep impossible. Next morning the gale was still raging and we could not face a start. Inderbinnen was suffering from severe headache and the three Gurkhas were feeling the cold acutely, so we sent them down to Juniper Camp on the first sign of a lull, which came about noon. Then down came the wind again, worse than ever. Snow drifted into the tents but we could not even melt it for drink. I turned in with Karbir, getting him to talk of his
6. CHANGABANG FROM THE BAGINI PASS, 22.5.07
many frontier fights, which he reckoned at forty. The second night was worse than the first; so on the 9th we tore the tents up by the roots and scurried down through the bitter cold weather. We got some welcome relief from the wind as soon as we got back to the steeper slopes between the icefall and the cliffs and, having dumped some gear at our old bivouac place of the 6th, were revelling in the Capuan luxuries of Juniper Camp by two-thirty.

June the 10th was a blessed day of repose; fire and fresh burrehal meat, and we hardly noticed a light four-hour snowfall in the afternoon. Karbir had got a toe frostbitten on the Bagini pass and I tried without avail to dissuade him from persevering in the ascent; but for him the honour of his regiment was at stake. He had climbed with Bruce and Conway both in the Alps and the Karakorum and was a sound mountaineer. Mumm had developed severe diarrhoea and was quite unfit for another attempt. This was a terrible disappointment to both of us. He had stood the altitude very well, and I was certain he would have made the summit had he been fit. So next day he went down with Innderbinnen to the base camp to await Bruce, urging me to go for the top at the very first opportunity, for the monsoon might be upon us any day.

On the 11th I said good-bye to Mumm, sadly indeed but cheered by his encouragement and good wishes. Karbir was with me and the two Brocherels—redoubtable companions for what I felt was the last attempt. I knew I was the weakest of the party but was resolved to put rush tactics to the test. That 20,000 foot camp had been a horror. Of all the tissues in the body the cells of the brain are the most sensitive to lack of oxygen: the resolution to persevere must therefore be taken very early, well before the will has been weakened. So I exacted a promise from Alexis and Henri that they would not allow me to turn back whatever I might say. As I decided that we could do 6,000 feet on the last day and was sure the route was technically so easy that we could get down in the dark, we pitched the two Mummersy tents at only about 17,450 feet under the lee of the high cliffs opposite the icefall. We immediately set to work with the
Himalaya: Garhwal

primus stoves and, after a long drink all round, filled three large thermos flasks with cocoa and weak tea; the latter for the morrow's breakfast and the other two for the day's climb.

On June 12th we tried to start at 4 a.m., but I could not face the cold, which attacked my hands and feet before I could get my frozen boots on. At five-thirty we got away, the men carrying only the lightest possible loads, and I none at all. We went fast, reaching our old camping place (20,050 feet) by ten o'clock. We stayed there half an hour for rest and food. Ahead were signs of crevasses, so we roped up, for the first time on this climb. Alexis was in the lead, next Karbir, then Henri, last myself. So on up the snow slopes of the northern shoulder: steep but easy and the snow good. Wind again stimulated us with a light powder of snow. At noon the barometer made us 21,000 feet, and the slope steepened. At one time my mind wandered and I seemed to be confined in an endless chicken-run with wire-netting on each side of me. I was breathing too fast and doubted my capacity to hold the pace. Henri cheerfully offered to pull on my rope; an offer I gratefully accepted without the least qualm. Alexis pushed on hard with only the briefest pauses to recover breath. We rose rapidly and continuously, the snow being in good condition and the slope of that particular angle of steepness which enables the climber to make height most easily. All the peaks except Nanda Devi sank below us. Angles were narrowing; the slope was becoming a defined ridge; we were seeing round corners. We must be nearing the top. The bitter wind swooped down on us more strongly, rattling the icicles on our beards and moustaches. I sucked mine: a most convenient method of assuaging thirst without calling a halt. Suddenly the slope ended and Alexis turned and shouted back to me: "The top!" At four o'clock we stood together on a dome of snow and Henri stuck in the little flag of tent-cloth he had concealed in his sack, so certain was this giant of success. But I was not quite satisfied. I remembered Curzon—the top and nothing less. Just beyond us, across a dip in the ridge, was another snow point, sharply corniced on the east, which cut off
Ascent of Trisul

the view to the south and seemed to me a few feet higher than the one on which we stood: for the summit of Trisul is in form like the two humps of a Bactrian camel. Alexis insisted that the one on which we stood was the higher. Excitement made me lose all sense of fatigue, but I had no breath to shout through the gale, so passed through and took the lead. I cut a few steps in ice, up on to the cornice. Henry stood back to hold in case it gave way as I crawled to the top. I craned over on my belly to look down the astounding southern precipice. Spread below were all the middle hills we had marched through: then the foothills: then the plains with rivers winding. To the west all was clear; the whole scarp of the western Himalaya so vast that I expected to see the earth rotating before my eyes. The western foothills gave the impression of those little waves that on a calm day are born as the sea shallows and lap gently on the shelving shore of some great bay. I was very lucky. I had not the very least feeling of exultation on achievement: the reward was far greater. [Pl. 7.]

It seemed as if the first hump was the higher after all, as Alexis had said, but it was as well to make sure by climbing both and otherwise I should never have seen that wonderful view over the plains. Our breathing got easier as we descended and soon we were almost racing down. I had felt the altitude more than any of my companions; indeed success was entirely due to them. Alexis had led for ten hours, broken by one halt of half an hour, to cover 6,000 feet of ascent. Can any Alpinist wonder at my bias in favour of professionals? Of the professionals two-thirds had got up: of the amateurs, one-third: of the Gurkhas one-ninth. That is about the order to be expected. By seven o'clock we reached our bivouac under the cliffs. At this height it was still so light over the snow-fields that we bundled up the tents and continued down to our old camp (16,500 feet) on the first stones of the moraine; a descent of nearly 7,000 feet in a little over three hours. Rush tactics had certainly been vindicated this time.¹¹

The next morning was brilliantly fine. I sat at the opening of the tent with Karbir, smoking and rejoicing for the first time in our success, while Henri melted snow for breakfast cocoa.
Then Henri and Karbir started down for Juniper Camp, with instructions to get ready a feast of burhal meat. I went on with Alexis up the main Trisuli glacier for another hour and a half as I had to get a photograph from this side of the very deep gap in the great rock ridge joining Trisul with the next peak to the east. We had explored this from the south side in October 1905: a photograph from the north would enable me to fix its position more accurately. This done, we hurried down to the flesh-pots of Juniper Camp and then in the evening on to the base camp below.

It was a happy re-union, for Bruce had just arrived. His knee was all right but he had developed a mild attack of malaria. Both my companions were delighted to learn of the successful ascent. The jubilee of the Alpine Club had been celebrated in good fashion. We never made claim to any record for high altitude for we believed Graham had been higher on Kabru; but it was not until 1930, in the course of Dyhrenfurth's expedition to Sikhim, that a higher peak was climbed to the top.

That night Karbir regaled us with stories of Tara Bhot, as Gurkhas call Tibet. One dealt with a race of men whose ears are so long that they are able to sleep on one while they cover themselves with the other. I thought it astonishing to hear a story straight from Herodotus confirmed from such a source. The Garhwalis who had come with Bruce were very impressed with our ascent and asked what temples we had found on the summit. Karbir carelessly replied that there were none and looks of doubt were exchanged. Another asked him if he had been able to see the Plains. With a grave face the Gurkha replied that he had recognized the city of Bareilly; and beyond that Bombay and the Black Water. Beyond the ocean he had seen Wilayat (the far country) and he knew it was England because he had been there. So he had, as an Indian A.D.C. to the King Emperor.

We now felt that honour was satisfied and that we could henceforth do exactly what pleased us. There was the great Kamet group to the north to explore, perhaps beyond the range of the approaching monsoon. Bruce and Mumm would get
The gate of the Sanctuary

back to the “outside”, taking the coolies by easy stages. I felt compelled to seize this chance of pushing further up the Rishi to look at the gorge leading to the inner sanctuary of Nanda Devi. For this foray I started on June 14th with the lightest possible outfit, accompanied only by Kulbahadur and Pahal Singh. Following the (true) left bank of the Rishi river we reached with considerable difficulty its junction with the Rhamani torrent. Here a box-canyon stopped us, the water too deep and fast to wade. Probably this was the place mentioned by Graham as his farthest point in 1883. By means of a bridge of avalanche snow we crossed over to the right bank of the Rishi. The junction of the waters I found to be only 11,275 feet. On the north bank the going was no better. We bivouacked on a shelf of rock (11,790 feet) within the gorge and with an astonishing view up it to the very foot of Nanda Devi. Next morning, leaving Kulbahadur with the rifle in case bears smelled out our food, Pahal Singh and I climbed up the northern cliffs for nearly 2,000 feet (to 13,500 feet) trying to find a way up the gorge. This northern (right) bank proved hopeless; it was obvious that the only possible route was along the southern wall of the defile. The views of Nanda Devi were magnificent and I got some good photographs which in 1934 were of use to Shipton and Tilman, when they accomplished the memorable passage along the south wall of the gorge right into the Inner Sanctuary. We had no time for more. Led by these two redoubtable Gurungs I caught up Bruce and Mumm at the bridge we had made over the Rishi, on the evening of the same day.

On the 16th we regained the enchanted meadow, Dibrughetha, where more coolies met us and next day everything was carried up to Durashi of the desolate sheep folds. Here the snow drifts had melted and now in their place were beds of iris, primula and anemone. On June 18th Bruce and Mumm got off early with the caravan, meaning to make Surain Thota by nightfall, but I could not tear myself away and stayed behind taking photographs and watching the many small birds newly awakened to activity. The snow was all gone from the goat track up the
Towards Kamet

cliffs: there was a path, visible, care-free, with flowers springing beside. It was a day of sunlit splendour without a cloud, with no wind, and warm. Around me every peak and glen stood out absolutely clear. On my right hand was Dunagiri, ravishingly beautiful in form: up the gorge of the Rishi every detail of giant Nanda Devi was revealed. The entire ring of mountains to the south sparkled as if dusted with a myriad diamonds, and like diamonds they seemed to give forth their own light. To my left I looked down into the profundity of the lower gorge of the Rishi. Impending unbelievably high above this abyss, seeming to float in the sky, were the distant peaks over Badrinath, whither we were ultimately bound. Such was my last vision of far the loveliest region of the whole Himalaya.

We now headed north towards Kamet. This is the culminating point (25,433 feet) of a great group of peaks lying on the Indo-Tibetan water-parting. It thus forms part of the older but lower northern range of the Himalaya as opposed to the Great Himalaya to the south, through which we had passed. The glaciers of the Kamet group give birth to two southward flowing rivers—the Dhaoli on the east and the sacred Alaknanda on the west. They meet at Joshimath. We would follow the Dhaoli to its source and after exploring the glaciers east of Kanlet cross the range westward to reach Badrinath in the valley of the Alaknanda. We were bent on exploration rather than climbing for the whole area was little known and its glaciers poorly mapped. Yet climbers had been there before us. In 1855 the Swiss savants Adolf and Robert Schlagnintweiz, approaching up the glaciers on the Tibetan side, reached a height of over 22,000 feet on Ibi Gamin which was an alternative name for Kamet.

From Surain Thota our way led north through the deep water-worn gorges of the Dhaoli river. The monsoon broke, but we were only on the fringe of the great rains: the first deluge falls on the middle hills and on the great peaks to the south. These we were now leaving behind us, hidden from sight on either hand by the sheer cliffs of the river gorge. The history of the Dhaoli is that of most of the other Himalayan rivers flowing
Himalaya: Garhwal

southward from the Indo-Tibetan water-parting. They were established in their courses before the southern ranges of the Great Himalaya were heaved up. Those water-worn rocks high above our heads did not prove that the river had formerly been at that level: they tell of uplift. While the southern mountains were slowly rising, the waters still forced their way through, ever cutting down the bed at the same rate as that bed was being potentially raised; so that the water-marks themselves were lifted up above the river which had carved them. An arresting picture of immense forces.

At the village of Malari we finally emerged from the river cleft and entered a new landscape, leaving the last of the deodars, here scattered and devoid of undergrowth. On all sides the vegetation showed plainly that we were entering a drier climate. The sky was bluer; the air clearer. Hills receded from the river in more open contours; the heights were visible in the distance. We came across the first Tibetan inscriptions we had seen; old mani walls of stones inscribed with the Tibetan prayer *Om mane padme hum*, usually translated as “hail to the jewel in the lotus”—relic of the days when the mongoloid Bhotia tribes of the upper valleys were Buddhists. Their summer headquarters are two marches on at the next village, Niti, of low compactly built stone houses. In summer almost all the men cross the Niti pass into Tibet for trade, using, like the Milam Bhotias, sheep for transport besides half-bred yaks. Now the village was full, with bright-eyed intelligent-looking children and women weaving narrow lengths of woollen cloth before the houses.

Near Goting, beyond Niti, is the junction of the sedimentary rocks with the crystalline gneiss of the great Garhwal peaks. Another change of aspect; the foregrounds less chiselled, and the high mountain ridges less sculptured and less arresting in form. Ahead of us, to the north-west, opened the great Raikana glacier, wider and less shut in and far more desolate than those we had left behind. Even at a distance it was plain to see that its surface was weathered into pyramids and towers such as we had not yet encountered. Such formations, still more marked farther north
Kamet glaciers

in High Asia, are doubtless due to the combination of more continuous sunshine with drier air: the more vertical impact of the sunlight in these low latitudes is a major cause. The seracs of alpine glaciers have a totally different origin—fracture. In the far background beyond the glaciers, soaring above the intervening peaks and ridges, we saw the tip of Kamet, its dead white colour proclaiming its great height, for up to at least 23,000 feet there is dust on the snows which give them a yellowish tinge.

From June 26th to July 3rd we explored and mapped these glaciers. Eventually we reached a height of over 20,000 feet on the eastern flank of Kamet, but at this point we got into monsoon cloud which had bothered us all the week and now denied us any intimate view of the mountain. Yet recompense came during the descent for as we emerged from the cloud layer we watched its fringes thin and dissolve as they met the drier air to north-east. Over the lower intervening crest of the frontier ridge the warm brown uplands of Tibet spread out endlessly to the north in vast horizon, every detail of form and colour incredibly clear.

Owing to monsoon cloud we never had even one clear view of Kamet. What we had seen were the ends of hanging glaciers impending in series over the approaches and seeming about to discharge enormous avalanches of ice. We judged this way unsafe, though later travellers have proved that our fears were exaggerated; for it was by this route that C. F. Meade attained a camp at 23,000 feet on the high plateau between the two main peaks of Kamet in 1913; and by the same route the mountain was finally climbed by an expedition led by F. S. Smythe in 1931. They must have been a remarkable party for five out of six of them reached the top; and Kamet was the first peak of 25,000 feet to be climbed.

South of Niti by the village of Gamsali there opens to the west a considerable side valley, its upper half filled with large glaciers descending from the southern spine of the Kamet group. Up this valley lay our route for the crossing of the range to Badrinath. A long march on July 7th took us up to the foot of a glacier at 13,000 feet. Old moraines indicated that after a long
period of stability there had been a rapid and extensive retreat of the ice. We followed up the left lateral moraine of the glacier for a few hours until we came to Eri Udiar, the “Cold Cave”. We had twenty coolies with us and this roomy cavern would provide shelter for them while we explored the glaciers ahead.

Finally we decided to follow a route last taken in 1862 by Colonel Edmund Smyth. I met him later in England and he told me that the pass was known by tradition to his Bhotias, but he believed that it had not been crossed for many years before his passage, for his men lost the way and they had to spend the night on the exposed summit of the pass. He was a grand old man with an enduring affection for the beauty of these landscapes. A notable shikari, he was the first European to explore many of the remote by-ways of Kumaon and Garhwal and in 1851 and 1853 he had visited the adjacent parts of Tibet. He it was who selected and began the training of those Bhotias who were later employed on the perilous survey of Tibet, of whom the most celebrated was Nain Singh, uncle of that Kishen Singh I had met two years before on the road to Milam.

On July 11th we started off for Smyth’s pass, called by our people Bhyundar Khanta. Though only 16,700 feet it is a magnificent passage, a glacier depression immediately between two peaks of over 20,000 feet. The one on our left, Rataban (20,100 feet), a symmetrical peak of snow and ice with a sharp rocky summit, tempted us strangely, but we had no time for dallying. From the summit of the pass we looked down on to a series of glaciers quite irreconcilable with the old Survey Map. They fall, very steeply at first, from Rataban and Gauri Parbat (22,027 feet). These peaks, together with Hathi Parbat (22,070 feet) make the magnificent southern terminal of the rather dull Kamet massif. Gauri Parbat, the Golden Mountain, named for Siva’s wife, is a peak of gleaming ice-slopes: Hathi Parbat, the Elephant Peak, has a massive rock summit likened to the back of a reclining elephant, probably named in compliment to Ganesh, the elephant god. Beyond these glaciers we looked down into a valley of the richest green, balm to the eyes after the stony
Holy Badrinath

desolation we had left behind. We reached it on July 13th to find the most luxuriant meadows we had met with in this part of the Himalaya. We waded through flowers up to our waists—ferns, yellow lilies and anemones, green fritillaries, purple monkshood, blue dwarf iris, masses of forget-me-not with yellow kingcups by the streams. Innumerable butterflies of alpine forms, including at least two species of large swallow-tails, with many singing birds, were about us on all sides. We found a plot of grassy sward for the tents, all unsoiled by sheep for, as our Garhwarlis said, no flocks could be pastured there because of *dungri bhik*, an aconite which is poison to them. The charms of the place were so irresistible that we spent a whole day there.

From this vale of flowers we crossed the next ridge immediately to the west to drop down to Hanuman Chatti, named for the Monkey God, on the blessed waters of Vishnu, the Alakananda. Another march took us to Badrinath, a shrine of such sanctity that more merit is to be obtained here by the Hindu pilgrim than is to be gained by visiting any other of the thousands of shrines scattered through the length and breadth of India. A thousand years ago Sankaracharia suppressed Buddhism and restored the older Brahmanical faith, placing priests of his own Namburi clan from distant Malabar in charge of the temples of Kedarnath and Badrinath. To the present day the high priests of these two shrines are drawn from the same family and locality. To keep the strain pure and in the tradition of matriarchy, the descent is not from father to son: the chance of some admixture of local blood not truly "thrice-born", is too great. When a *rawal* dies it must be to a sister's son or other descendant that succession falls: he must come up from Malabar and assume office. The sanctity of Badrinath seems to rest mainly on its being considered as the true source of the Ganges, though other sources are recognized, especially Gangotri beyond the mountains farther to the west. The pilgrim road up from the Plains is long and laborious. The aged and infirm, longing for the holy waters before they die, are carried over the worst stages in a basket on a man's back. In the good old times the Garhwalis made a good
thing out of this traffic. A slip, and the pilgrim was shot out of his basket into the roaring waters of the Alaknanda below the path, and the coolie, like a busy railway porter, having already received his money, could turn back quickly and obtain another client. The pilgrim's soul, purified by the waters of Vishnu, was safe. Both parties could be satisfied by this abrupt arrangement.

Pilgrim roads and shrines are notoriously insanitary, nor are outcaste Europeans in place amongst such rapt devotees; so after paying our respects to the Rawal we went on to camp at the Bhotia village of Mana three miles above the shrine where caste prejudices are not so much in evidence. One day Bruce was enjoying the luxury of a good wash in a basin of hot water. As he made to throw it away he was stopped by a Bhotia woman, who begged the basin and its contents, to drink as an aphrodisiac.

In order to cover more ground we separated; Mumm going west to explore the great Satopanth and Bhagat Kharak glaciers with a view to finding some possible route to Gangotri; Bruce and I continuing on up the desolate Mana Valley towards the Mana or Chirbattia pass on the Tibetan frontier. The distance by map was only twenty-five miles, but it is accounted a four-days' journey. The upper half of the track lies over an absolute chaos of unstable rocks of all shapes and sizes. Fatigue was not relieved by the scenery, which is of a barren monotony. The weather was depressing, for the monsoon, in full blast to the south, gave us skies of grey gloom and almost continuous snow showers. This brought on a recurrence of malaria in Bruce, and he was forced to turn back.

On July 18th I branched off to the east to examine the glaciers and western approaches to Kamet, climbing a small peak of 17,550 feet as a viewpoint: but again we were never rewarded by any clear sight of the great peak which remained obstinately veiled in cloud. As we continued on up the main valley the scene became still more arctic and vegetation almost ceased although I collected a Draht, of a plant genus almost polar in its distribution, Parrya lanuginosa and Primula minutissima. At last, on July 21st, we reached the pass (18,000 feet). Its crest is formed by the
broad level Abijugan glacier. Between two widely receding spurs of crumbling rock it fans out from the hidden recesses of the Kamet peaks. Here is the sill of Tibet, the true parting of the waters, and on either side of the pass the Abijugan glacier gives birth to streams flowing in opposite directions. The southern rivulet is bound for the Ganges and the Bay of Bengal and the northern for the Indus and the Arabian Sea.

At the Mana Pass I was on historic ground. In 1624 Antonio d' Andrade, a Portuguese Jesuit missionary, travelled by this route from India to Tsaprapang in Tibet. He was thus the first European to cross the Himalayan barrier. He wrote of Deo Tal, the glacial tarn on the top of the pass, as the source of the Ganges. It has as good a claim as any other.

On July 23rd we had all returned to Mana to be greeted by the monsoon in earnest. Ever since we had been in the Kamet ranges cloud had been a bug-bear. The lower glaciers we had managed to get down on our new map, but neither had serious climbing been possible nor had we ever been able to see the upper slopes of Kamet itself from either side. All our clothes and gear were wet and could not be dried; travel during the rains is indeed a sorry business. The Brocherels were due home; Bruce and Mumm decided to make for Kashmir, and I was sorely tempted to accompany them and see the beauties of the Vale with Bruce who knew them so well. But the allure of the Middle Hills of Garhwal held me. After the Rains there is a spatial calm of bright sunlight upon them; the terraced fields are ablaze with red millet and thirty miles away the Snows are seen in full perspective, glorious and unearthly. I had no wish for more climbing and would rather stay to engrave this beauty still deeper on my mind. Only two Gurkhas, Kulbahadur and Dhanlal, should stay with me while I explored the tangled glens and unknown glaciers descending from the southern ramparts which guard the paradise of Nanda Devi.
CHAPTER 6

TIBET

I WROTE in Chapter 4 that my mountaineering plans for 1905 were to be changed into a thousand-mile walk across and round the Himalaya. In that year, after my visit to the Milam valley and the eastern flanks of Nanda Devi, the Brocherels and I travelled many miles through the valleys of Kumaon to Askot on the Kali river, frontier between Nepal and British India. There we were to join Sherring, Deputy Commissioner of Almora, and go with him north into Tibet.

The road to Tibet along the valley of the Kali river is of great beauty. In July the valley bottom was unbearably hot, but high on the hillsides above were cool forests of Himalayan oak, rhododendron, cypress and the beautiful raga spruce. We followed the narrow river trench for eight marches. When Sherring had work in the villages I would spend the mornings doctoring the sick, and afterwards wander off into the forest. One day, following a game track, I came on long-abandoned terrace-cultivation now clothed with huge pines and suddenly I came out to the forest edge to overlook the Kali far below and to see white veils of cloud drifting over the green hills of Nepal. The trees were full of birds: nutcrackers, indistinguishable from the alpine form, scolded noisily and the agitation of a white collared ouzel led me to a sight of her young, newly on the wing. Then I was arrested by a melodious whistle: brilliantly coloured black and yellow birds with short stout beaks: the Himalayan gross-beak. But of what species? I knew there was a western and an eastern variety. Where did the two species, if they were species, meet? I was about the mid point of their range. I had to shoot a pair, for no sight identification could be valid. The specimens went
to the Natural History Museum; they identified the male as *Pycnorhamphus affinis* and the female as *P. ictoroides*. One was of the western and the other of the eastern "species"! Against all the authorities I cannot but believe that these black and yellow gross-beaks became separated into a western and eastern group long enough for variation into two forms to take place; subsequently their range increased again so that they regained contact, and being really one species they interbreed.

After a week's travelling we entered the section of the "road" called the *Nirpani* track; a stretch where "no water" can be obtained, for the path is carried along a series of narrow galleries, sometimes built out over the void, hundreds of feet above the river. This is a principal native trade route with Tibet, but animal transport is impossible and loads of wool and borax from Tibet, and the grain and other items of barter from the Plains must all be carried on the backs of men and women.

Accompanying Sherring, as frontier assistant, was Pahal Singh, responsible for dealing with Nepalese and Tibetan officials. He was of the ancient family of the Rajbars of Askot and related to the ruling house of Nepal. I was to see much of him. He was the first high-class Hindu I had met; a man of marked refinement, with light skin and delicate hands. In private conversation he would lament the peaceful British rule which made it impossible for an ambitious man to carve out a state for himself, as he felt he could well have done in the good old days.

Three marches from Tibet Pahal Singh fell ill with a sharp attack of rheumatism. At his request I treated him, and the swellings abated. In his tent I noticed that a local "lama", a sorcerer rather than an orthodox Buddhist priest, sat reading *mantras*, magical prayers, in a low voice. Of course I betrayed no awareness of this breach of professional etiquette and my patience was rewarded by learning the real history of the case. Years before Pahal Singh had to visit Tibet on government business. To assure good fortune he followed the local custom of sacrificing a white goat. Now he was returned to the scene of the sacrifice and the spirit of the white goat had entered him and
8. WIFE OF THE JONGPEN OF TAKLAKOT, 16.7.05
9. (a) PLAINS OF GUZE: KAILAS IN DISTANCE, 31.7.05
(b) JYKPA AT GYANEMA, 10.8.05
Medical cases

duced those swellings. The local magician was charming the
spirit of the goat down into Pahal Singh’s big toe. When he
had got it there, he introduced a live white goat on which he
placed Pahal Singh’s foot and the spirit of the dead goat was
induced to leave the patient and enter the live goat. Thus Pahal
Singh was cured, while the lama obtained a handsome fee.

Pahal Singh was not only a well-educated, but also a very
intelligent man. He knew that European medical practice was
good, but he was much too wise to forgo any precaution. These
Bhotia lama-magicians were very powerful. There might well
be something in their sorcery. It would little become English
people, who to this day eagerly read the prophecies of astrologers
in their daily papers, to jeer. In this Bhotia community possession
by otters is by no means rare: for this the “lamas” have a cure.
A large horn spoon of great potency is held to the patient’s mouth,
and after due prayer and medication a small otter is vomited
into the spoon, and the sick one recovers. I had no store of
foetal otters in my medical equipment and it was fortunate
that I was never confronted with such a case. I can, however,
claim one outstanding success. At one camp a coolie was
brought to me “dying” of a scorpion bite which had swelled
to a big lump on his forehead. He was groaning and looked
as if he might collapse and die as primitive people so often will.
I had to create an impression. I announced that the scorpion
had introduced a devil into the swelling lump and that the pain
was caused by its trying to get out; that it was a very small devil
and that I would draw it out with a hollow needle; that in the
drop of blood which followed the withdrawal of the needle the
devil would creep out while I counted thirty; that when thirty
came all pain would cease, I would raise him to his feet and he
would walk back to his bed unaided, and drink hot tea. A
hypodermic injection of eucaine accomplished this magic. The
news went ahead and in Tibet my letters were addressed Anji rin
poche, venerable physician.

The principal Bhotia village in the Kali valley is Garbyang,
and there Sherring had to wait several days to meet officials
from Taklakhar, the first Tibetan townlet and the residence of the local Dzongpün or Governor. At last on July 14th we crossed the Lipu Lekh, a pass of 16,780 feet, into Tibet. The snow was hard and Sherring could ride; he had recently been ill and felt the altitude, as did all the people except we three acclimatized climbers. Entering Tibet is almost always a scene of transformation, for the main axis of the Himalaya constitutes a rain screen and northwards, in a single day’s march, forests change to aridity. The air, so dry and clear, is full of strong sunlight. The jaws of the pass are cliffs of many-coloured bands of sedimentary rock. Ahead the gaze ranges over seemingly immeasurable stony downs of glowing texture, apparently destitute of vegetation. The steppe is about the height of the summit of Mont Blanc. High Tartary at last.

Another march took us to Taklakot, the administrative centre of the province of Gnari Korsum. Purung or Taklakhar or Taklakot may be that Astakbark or Askabrak which was Mirza Muhammad Haidar’s farthest point in 1533 when he set out to conquer Lhasa for Islam. Though he puts it at only eight days’ march from Lhasa, yet if the passage in the Tarikh-i-Rashidi is carefully read it seems quite possible that he was still in the near neighbourhood of Mansarowar Lake. In the first battle, apparently at Kardam, his brother Mirza Abdulla was killed by a force of Katara-dar, “knife bearers”, perhaps an allusion to the kukris of Nepalese allies of the Tibetans.

At Taklakot I sat with Sherring through his first official meeting with Dzongpün. The latter was a tall handsome man gorgeously dressed in Chinese silks. This was the first time I had heard a tone-language spoken. In high-class Tibetan speech, sometimes spoken of as the honorific form, the tone is vital, completely altering the meaning of the word. My ear only gave me two out of the three tones, but although I could not understand a word, the speaking of the Dzongpün was fascinating to listen to. He was the finest elocutionist I have ever heard: his speech was music compared to the monotonous mutter of the well-bred Englishman and it was punctuated by ceremonious
movements of the head and body to assist and emphasize the variation of tone. Our interpreter was Pundit Gobaria, the principal trader of Garbyang and hence the most influential British subject of these parts. The reason of Sherring’s mission was to see that the Treaty of Lhasa, so recently negotiated by Young-husband, was being carried out and that no unreasonable vexations were suffered by our Bhotia subjects whose whole economy depended on their trade with Tibet. The Dzongpün’s wife, the Cham Kusho, was also present; stately and with a profusion of raven black hair crowned with the Tibetan form of tiara, red lacquer set with turquoise and coral. She sent for her baby which seemed about two or three years old and suckled it before the company; for children come rarely in Tibet and are a source of pride to the lucky mother. As befitted a lady of rank she had married both the brothers of the Dzongpün. I think this custom of the lady marrying an entire family of brothers comes from the background of matriarchy so evident in the Tibetan tradition. The suitor would feel less diffident in requesting marriage to his family rather than if proposing merely his humble self. Theoretically the wife will spend six weeks with each husband, but she may have preferences. Single marriages are by no means unknown. [Pl. 8.]

Those first two nights in Tibet were very memorable. Sunset assumed a new magnificence: the troublesome daily dust-laden wind fell and silence reigned. It was a time of full moon and never have I seen such moonlight with the far distant snows of Nepal shining unbelievably clear in every detail. The dusty haze and clouds of the Indian slopes of Himachal had been left behind; here was thin air clear as space itself.

Having thus duly performed our social duties as part of Sherring’s “tail”, we could leave him to routine affairs and go off on our proper business, the exploration of the vast but isolated mass of Gurla Mandhata (25,350 feet). The mountain is famed in Brahman religious and epic literature, as indeed is all this portion of Tibet, which was called Hun-des, the country of the Hunyas. The derivation Hiun-des, snow country, is probably
Tibet

wrong; Tibet is far less snowy than the Indian border, both in summer and in winter. The accepted names of these peaks, lakes and rivers, derive from the Sanskrit, but the Tibetans use other names. The topography of this massif was completely unknown and we had had no satisfactory views of it from a distance which might have given us a chance of selecting a good route. We had to explore the possibilities as if blindfolded and unless we chanced on the right route at the start, a successful ascent of Gurla Mandhata was very unlikely.

Early on 18th July, 1905 we set off on what might well have proved my last adventure. There were the two Brocherels and six reliable Bhotias from Garbyang and we carried only the lightest equipment and food for a week. A mile beyond Taklakot we crossed the Karnali, here, about forty miles from its source, an inconsiderable stream; but it is one of those rivers more ancient than the Himalaya itself, rising in Tibet and flowing down through unknown western Nepal into the Ganges. We met a caravan of wool-laden yaks escorted by picturesque highlanders armed with straight swords and long rifles with folded prong-rests. They were a wild lot and laid hand to sword on sight of us Europeans, but with reassuring shouts the Bhotias declared our respectability; they told us the escort were fighters from Kham—dour men, very big and tall, moving superbly.

Farther on we passed a massive ruinous building which might have been a monastery, but is called the Tomb of Zorawar Singh. In 1841 this Sikh freebooter led a plundering army into Tibet. They halted here unprepared for the bitter cold of a Tibetan winter and, burning their gun-stocks for fuel, were caught half-frozen by the defenders and cut to pieces.

Gurla Mandhata (25,350 feet) is called by the Tibetans Memo-nam-nyimri or Nimo-namgyal, meaning son of victory. It had never been visited by European or native, but the position and heights of four peaks had been fixed by intersection by the Indian Survey. It forms an isolated glacial massif lying wholly within Tibet to the north of the northern axis of the Great Himalaya. Political difficulties of access rather than physical
First attempt on Gurla

ones have led to its neglect, though its name is mentioned in the narratives of several British travellers of last century.

We made directly for the foot of the first western spur of our peak. From noon to 6 p.m. we toiled up the interminable stony slopes of the buttress making for the snow-line, our only source of water. Thirst, sun and altitude gave me a splitting headache, though I carried no load. The two Brocherels were quite unaffected, but the coolies suffered from breathlessness and headache and were immensely relieved when, at about 18,000 feet we told them to dump their loads, descend at once and not return to look for us till after two nights had passed. We had reached some patches of snow sheltered amongst the shadows of broken rocks, though the true snow-line, the level of continuous perpetual snow, seemed to be at about 19,000 feet. I had broken my Watkin aneroid in Nepal and had now to use a boiling point thermometer, but with only snow to boil, full of impurities, I found the instrument hopelessly unreliable. Up till now, as it turns out from the later work of others, the combined use of hypsometer and Watkin aneroid had given me excellent results for altitude; but for Gurla Mandhata I was dependent on estimation of my height by comparison with the intersected points fixed by the old survey.

On the morning of July 19th the clouds were down on the ridge above us and as I still felt unwell we decided on a day's rest. It seemed very cold, though it was 45° F. at 11 a.m. and only 30° at 6 p.m. In the afternoon the clouds lifted in the west and there, 100 miles away, shone Kamet, a mighty cone visible from base to summit across the sunlit steppe. Even to-day, after so many years, that ineffable vision of space rises clearly before my eyes.

Next morning we roused up soon after midnight and got off at two o'clock. Slowly we climbed the last of the stone slope and roping up began the ascent of a steep dome of snow. After crossing a few crevasses we worked over to our own left, towards the northern side of our spur. Suddenly we caught sight of a great lake far below us: Rakas Tal, the Devil's Lake. Cutting
off the view to the north we now saw another great shoulder of our peak, the main western ridge; a profound pit of darkness at our feet separated us from this. We climbed by moonlight, needing no lantern. Dawn came by imperceptible degrees and the moon-shadows melted slowly, revealing the valleys. Suddenly, far away to the south-east a great peak in Nepal caught the first rays of the sun, flaming red. It was surely Dhaolagiri (26,826 feet) 180 miles away, the Hill of Flame. It overtopped all its neighbours of the mighty and seemingly continuous Himalaya of central Nepal. We were like Cortez seeing the Pacific for the first time; for no other eyes had seen these peaks from such a height spread as a continuous range. I was more elated by this enormous vista of the unknown than by any other discovery or ascent that I have accomplished.

But on gaining the first snowy top of our ridge, a great disappointment awaited us. Ahead lay the intersected point, 22,200 feet. Beyond it we now saw a tremendous drop effectively cutting us off from the main peak. Unable to reconnoitre properly we had committed ourselves to a route which was quite impracticable. We must either attack by the great main western ridge now so clearly visible to the north of us, or advance up the glacier which filled the great valley between this and the ridge on which we stood. Alexis favoured the latter; I favoured the former. I could see no difficulty along this new ridge; it would be safe from avalanches; we should find the altitude less trying on a breezy ridge than toiling through the séracs and crevasses of an enclosed valley; I thought it would be a quicker, as it certainly was a more direct, route to the summit. But I sadly underestimated the length of that ridge.

We now stood at well over 20,000-feet, but there was no object in going on to the 22,200 feet point. We descended quickly to our bivouac and had some food. We packed everything and down we went, the guides very heavily loaded but going easily. Scattering a herd of burral feeding below us, we met our trusty coolies waiting at the foot of the spur. The two guides with three coolies went back to Sherring's camp at
Second attempt on Gurla

Taklakot for more petroleum for the snow-melter and more food. I went on with the other three coolies and made a camp in a sheltered corner beside the stream flowing from the Gurla glacier, as I named the main western ice-field. On the way I shot a couple of hares and a gazelle, for fresh meat was priceless after the tinned food we had to rely on at our high camps. The Bhotias cooked me a famous supper and made a great soup for themselves, thickened with tsampa, grain roasted and then ground. This stuff is normally used like brose, except that the Highlander pours boiling water on his raw oatmeal, while in Tibet the cooked flour is often just mixed with cold water and the paste licked off the finger. Firing is scarce in Tibet; a little dried yak dung for a start and then the woody roots of burtsa. I can eat cold tsampa, but I love brose; it goes on swelling in the stomach for hours after you’ve eaten it and is better ballast than porridge.

The guides got back at three o’clock the next afternoon after a very long tramp, but immediately seized my rifle and went off after a herd of burral which were grazing above the camp. They returned jubilant with a fat beast for one cartridge and everyone fell to on an orgy of delicious mutton.

At eight o’clock on 22nd July we started off with five coolies straight up the main western ridge. It was very similar to the first one we had attacked—waterless stones. We climbed almost without pause till 3.30 p.m., when we reached snow at a spot considerably higher than our first camp of July 18th-20th. We had started from over 15,000 feet and had climbed steadily over easy ground for over seven hours. The altitude of this camp must have been over 19,000 feet. As usual we sent the coolies down at once, with orders not to expect us for two or three days.

I was feeling very feeble and we did not get off till five o’clock on the morning of the 23rd. The ridge was quite easy, the snow in good condition and the weather fine. We left our bivouac standing, unwisely leaving our eiderdown sleeping-bags in the tent and carrying only a few extra clothes and two days’ food. I felt and walked better as the day wore on. At two o’clock we reached a shoulder which must have been at about 23,000 feet,
for we overlooked the trigonometrical point 22,200 feet on the south-west ridge which faced us over the main Gurla glacier in the valley between. The ridge ahead looked easy and of only moderate steepness, but the top was a long way off and clouds were gathering. What to do? If we went on we should have to spend the night on the exposed ridge, probably at an altitude of 24,000 feet. Henri wisely suggested going on to a depression and passing the night in a hole dug in the snow. Alexis and I thought it would be better to descend the southern slope of our ridge to the shelter of an outcrop of rock a short distance below us. If the rest of the descent was easy we should have the option of attacking the peak from the Gurla glacier as Alexis had originally suggested. So we left the ridge at 3 p.m., moving down with the usual precautions. At first all went well and we descended a hundred feet down snow that seemed good. I had just steadied Alexis down the full length of the rope while Henri anchored me from above. Just as I was turning to gather in the slack of Henri's rope I heard his warning cry and a hissing sound—shshshshsh—like the surge of a spent wave up a smooth shore, but menacing. The surface layer of the snow, melted by the day's sun, had parted from the harder frozen layer beneath and was avalanching under Henri. He shot down lying flat on the moving snow and swept me from my feet as the snow on which I stood started to move too. As I shot down past Alexis, I felt his hand close on the back of my coat and his struggles to stop me. But down we went together. We were lying on a bed of moving snow, heavy and wettish, not so bad as powder-snow would have been, and this was pushing the surface layers into motion ahead of us. We all tried hard to stop ourselves with the picks of our axes, but could get no hold. My mind seemed quite clear, but curious about the end rather than terrified. Thoughts passed at incredible speed, while bodily sensation was blotted out. The glacier two or three thousand feet below seemed to rush towards us, its crevasses widening and widening just as the engine of a passing express train seems to grow higher and higher as it rushes towards the platform. I had no sensation
Descent by avalanche

of physical pain, nor even of discomfort, though my hand was deeply cut. I had got turned head downwards, and seeing rocks ahead clawed off my snow spectacles to save my eyes when the smash came!

After what seemed an age I heard Alexis shout “à droite, à droite”. He was trying to get us into the relative safety of a snow-filled gully ahead, away from the outcropping rocks. But we could do nothing but try and keep on the surface of the racing snow. Still head foremost I neared the ledge of rock, rose over it on a wave of snow and dropped over a low cliff with Henri mixed up in my part of the rope. But it was on to snow already moving that we fell. Our dynamics were those of a ski-jumper, and we shot on, scarcely feeling the shock of the fall. The rope had got round my neck now, but it was easy to clear it. Then came another little cliff, but with a longer drop. Surely this must be the finish. A longish drop and then—blank. The next thing I remember was intense surprise at feeling the rope tight round my chest and I was stopped with a jerk that squeezed all the breath out of my body.

Our avalanche had fallen on to a great cone-shaped fan of snow, and thinning as it spread outwards had stopped of its own weight on the somewhat gentler slope. Henri was half-buried just above me and Alexis was above and to the right. Being the lightest I had slid on beyond the others. Our rope was of silk, for lightness, and the knot, always troublesome with silk ropes, had got so tight that I had to cut it to relieve the pressure round my chest. Getting on to my knees I called to Alexis, who was lying very still. He replied in an injured tone: “Why have you cut that rope.” He knew it had cost 100 francs and had always been particularly careful of it. It was long before he forgave my wasteful action.

We had fallen some 3,000 feet in a minute or two. The damage was a few cuts. Each of the men had broken a crampon. We had lost our three hats and worst of all our ice-axes. Now that it was all over I found that I was trembling—from shock, for I had experienced no feeling of fear, anxiety or pain. The
two Piedmontese showed no concern at all. Leaving me to select and wall in a sleeping-place in the rocks below, they started at once straight up the track of the avalanche after the ice-axes. The accident happened about five o’clock and they did not return for three hours, having climbed over 1,000 feet to well above the last little cliff. They retrieved all three axes. Theirs was a grand performance.

That night was quite bearable with our feet in dry socks inside our rucksacks; but food was getting short. Having got so far it seemed absurd to throw in our hand. In the morning we wasted some time looking for lost hats, only having found one the day before, and did not get away till six-thirty. The descent of a short gully brought us on to the Gurla glacier. This flows almost due west from the summit peak. It was obvious that if we could gain the final ridge, a little to the south of the highest point, we should make it, though the higher glacier was much crevassed. At this altitude the ice was completely covered by snow in good condition, and zig-zagging through the crevasses we made good progress: but as we neared the rounded summit so prominent at the south-east corner of the glacier, and considerably higher than the peak 22,200 feet on the south-west ridge, Alexis gave out with unbearable headache. I was in little better case. The heat in this enclosed hollow had been extreme and our inadequate headgear, in my case a pair of white flannel rowing shorts, may have aggravated our condition. It was only 3 p.m. and it seemed possible to reach the summit and descend before dark, but I did not care to leave Alexis alone. Henri appeared, as ever, completely impervious to heat, cold or altitude, and set to work to turn the butt end of a small crevasse into his ideal retreat, “une maison de neige”. He enlarged it sideways and secured a great slab of frozen snow as a roof. I tried to help but found the work too heavy at that altitude, which must have been about 23,000 feet as we were considerably higher than point 22,200. That night dinner had to be dispensed with. I coiled down the silk rope on the icy floor, wrapped my putties loosely round my legs and thrust my feet into my rucksack. I dreamed
that Sherring had sent a square khaki-coloured water-cart full of warm wraps up the glacier to us, but when it arrived it only contained Jaeger stockings, and the driver, in spite of my violent abuse, insisted that we were only entitled to one pair each. Hence I was so cold that I roused up the men at two o’clock.

After a very modest breakfast we started off by lantern light at two-thirty on the 25th, threading our way up the final icefall among big crevasses. After little more than an hour’s climbing we were pulled up, stopped by a crevasse with an overhanging wall on the far side. It was a long crevasse, perhaps the bergschlund. We tried to get across in two places but it was soon evident that we must wait for daylight to find some way round it. I got so cold that I felt incapable of climbing another step and through chattering teeth I told the men I would give in. Henri urged me to persevere. “If you turn back now and do not finish the ascent you will regret it very much when you get down into the valley.” My natural retort was that if I did not turn back at once I never should get down into the valley. Henri wished to go on alone and complete the ascent. He was sure there was less than 1,000 feet to go: I believed it was double that and could not contemplate his descending alone through the crevasses in the afternoon.

So at four o’clock in the morning we turned downwards. Moving fast on the frozen snow we soon got warm again. We reached the first rocks of the right lateral moraine at six-thirty and took a welcome two hours’ spell and finished our food; for on this day (July 25th) we were due to rejoin Sherring at Balduk encamping ground. We continued down the Gurla glacier as long as the snow lasted, but when the unprotected ice became too rough to walk over we took to the right lateral moraine. Soon the bare ice became worn into the most fantastic pinnacles, fretted by the power of the sun and by radiation and evaporation into the thin dry air. The glacier stream was a mere rivulet. Still lower down, where the ice was protected by moraine stuff, were isolated masses of dead ice, so that there was no visible
snout and it was difficult to see where the glacier ended. Certainly this glacier was in full retreat.

We began to find a few small flowers, the first vegetation of any sort we had seen for three days and I collected some specimens and a few seeds. We expected to find our six Bhotia coolies at our camping place of July 21st and after a long and tiring descent always over loose stones, we reached it about 3.30 p.m., but saw no signs of them (our rifles, sleeping-bags, Mummery tent, cooking-pot and food were of course still up at the 20,000-feet bivouac of 22nd July). Alexis had fallen a long way behind and Henri and I waited till he came in sight. I found a finger of chocolate in my pocket and divided it. As Sherring had agreed to be at the camping ground called Baldak on July 24th, and to wait there five days for us if necessary, we decided to push on to that place, intending to send coolies up afterwards to fetch our things down from the 20,000-feet bivouac. At 4 p.m. Henri and I started on, followed by Alexis who was getting very feeble. He had a four-ounce tin of jam, the last remnant of our provisions, and knowing the arrangement about Baldak quite rightly revived himself with a draft of jam and water made by shaking up the mixture in his water-bottle. After a toilsome walk Henri and I reached Baldak at 6.30 p.m., Alexis being in sight half a mile behind. There was no camp nor any sign of one. I had no map, but knew that there was another camping ground with water some miles to the north-east called Sekung; here I thought Sherring must have decided to camp, though we were very much chagrined that he had not sent anyone to look out for us, as he knew, and had said himself to the Brocherels, that our food could not last beyond the 24th. So we walked on in the dark over dusty gravel slopes for three more weary hours. Before this Alexis had given in, and lay down on the gravel almost a mile back. I went back and rousted him up, as this place is notorious for robbers and he might have got into trouble alone. We reached the Sekung stream at 9.30 p.m. but saw no camp or lights, so lay down amongst some low tufts of *caragana* and went to sleep.

[128]
The Jykpa

It was cold and we started before sunrise on 26th July. On rounding the first corner we saw a Tibetan tent and some sheep. Armed with our ice-axes we repelled the dogs and approached. Out came an obvious Jykpa (a highwayman) with long straight sword, red cloak, long loose hair, bare breast, and magnificent carriage. He was evidently undecided what to do, so to give him time and show we weren't afraid of him I admired the coral-studded pommel of his sword. Then out came another Tibetan, a shepherd trader, who could speak a few words of Hindustani, and who excitedly told us to be off, evidently afraid of what the Jykpa might do. I asked where the Pombo (Sherring) was, and he replied that he wasn't there, which we knew already. Then I asked for food, and was offered some strips of raw yak skin: then for flour, and was told they hadn't any. Another man and a woman had meanwhile appeared from the tent, and remembering that Henri had got two four-anna pieces I offered one of these. They gave us two handfuls of coarse flour with alacrity, and united, except the silent Jykpa, in telling us to be off. We went off about 100 yards and started eating the flour till we choked. Then we went to the stream, and made it into a paste with water, which went down much better. Across the stream was an obvious track, and the guides said they recognized the boot-marks of Sherring's police escort. If this were correct Sherring must be camped somewhere on the shore of Mansarowar. Yet I could not believe he could have been so rash as to go on so far with no news of us since July 21st and knowing that our food must be exhausted. I thought he must have been delayed at Taklakot, behind us, by illness or some other unforeseen cause.

However, I had the Brocherels to think of and accepted their view that he was ahead of us. We waded the stream and toiled on over the unending slopes of gravel towards the Gurla Pass (16,200 feet). Alexis and Henri began to flag, and in spite of my urging them on, sat down to rest at more and more frequent intervals. They asked how I could go on walking without food. I answered "because I must", and that anyone could do anything
Tibet

if he’d got to. I couldn’t help feeling pleased that I had beaten them in endurance, in spite of their superior strength. It was probably their great weight against my light weight that told against them. Finally I left them both lying by the track and pushed on up to the pass alone. Some way further on I saw another Jykpa riding with rifle slung across his back and a little flapping pennon attached to the folded prongs of his rifle-rest. He saw me too. When he was about 300 yards off I shouted to him in the most authoritative way I could summon to come to me. Hindustani was Greek to him, but had the desired effect of making him sheer off the track and circle away round me. Anyhow as he was alone, I was probably in no danger, but this was very likely one of the band that, as we heard later, had just stolen twenty-one of Sherring’s yaks.

At last I reached the pass with its cairn like those which crown nearly all Tibet-Himalayan passes, and are added to by all Bhotias and Tibetans. They must, however, be passed on the left-hand side, if the short prayer uttered while casting the stone is to be of benefit to the traveller. I could see no signs of Sherring’s party having crossed, because all tracks were overlaid by innumerable footprints of yaks and sheep. Actually Sherring’s camp was only a few miles distant on the shores of Mansarowar Lake, but was hidden from me by a spur about a mile away. Now, quite alone, I had to decide on one of two courses: either to assume that Sherring was ahead, and push on to bring succour to the Brocherels, or to assume he was behind and make my way back to Taklakot while my strength lasted. I feared that if I went on to Mansarowar I might fail to find the camp even if it were there and be left without the strength to get back to the guides. On the other hand I could trust myself to reach Taklakot next day if I started back at once, and I could get help from the Bhotia traders there. So back I trudged, and picked up the guides waiting for me below. They still insisted that Sherring must be ahead while I thought he could not be. Anyhow, as they were not fit to face the ascent to the pass we had to turn back. So we retraced our steps to Balduk, and a terrible walk it was;
Hospitable Tibetans

my reserve of strength was nearly exhausted and I began to lose
courage.

We reached the camping place at Baldak at about 6 p.m. and
found a Tibetan shepherd, who understood a little Hindustani,
encamped there with his family and some sheep and donkeys. I
sat down as unconcernedly as possible and asked news of Sherring.
He said he had passed on, that meant towards Mansarowar.
Then I began bargaining for a sheep, though I had no money.
He asked six rupees, and I smacked him on the back and laughed,
offering three rupees, and promising to pay him at Taklakot.
He handed over the beast. The guides killed it at once and cut
out the liver: on a fire of twigs and yak dung we singed and ate
pieces of it; and then we fried slabs of the carcass and felt better.

Another old Tibetan, very poor, who had been in British
territory and spoke Hindustani, gave me a little green tea, which
I accepted, although as we had no vessel of any sort and could
hardly have boiled water on our “fire” it was really of no use to
us. He assured me that Sherring had gone on to Mansarowar
Lake. I wrote him a note telling him that we were too done to
catch him up and asking him to send my servants and camp back
to Taklakot, whence I would make my way back to India alone
—this shows that I’d got pretty low. One of the daughters of
the family gave us six chupattis which were very welcome. We
slept on the ground in the open for the fourth consecutive night,
but were given the fly of an old tent which formed a very welcome
covering.

During the last two days my eyes had been giving me a good
deal of trouble. The dust and glare of the bare sandy gravel
which covers this part—and most of Tibet, was quite sufficient to
account for it. By the morning (July 27th) they were so bad
that I had to keep a wet handkerchief constantly over them,
leaving one eye at a time to see with. All this time I had no hat,
and I wore a pair of white flannel rowing shorts and a scarf on
my head, with a waistcoat or coat if the sun was very strong.
We breakfasted on mutton before sunrise, while the Tibetans
packed up their camp and set out for Taklakot. I gave them a
chit for three rupees, an I.O.U., with which they were quite contented.

The two guides felt so much better (while I felt rather worse) that they gallantly agreed to go up to our 20,000-feet bivouac and bring down the things we had left up there. I arranged to go along towards Taklakot and wait for them by the Gurla glacier torrent. Suddenly, when rounding a corner, I met three of our Bhotia coolies. They seemed as pleased to see me as I was to see them. The good fellows had of their own accord been up to the 20,000-feet bivouac to look for us, but had left our baggage there believing that we intended to return to it. The other three had early this morning gone up again to the bivouac, and would meet the Brocherels on the mountain. I turned back with them towards Baldak, but fearing Jykpas, they refused to stay near the track, so we withdrew above it into a little hollow. I had at once sent one of them after the Tibetans, who were only a short way ahead, to pay the three rupees I owed for the sheep. Then I laid down and rested, feeling very done now that the strain was over. I must have looked a sorry figure. They gave me some goor—brown semi-liquid sugar, which I ate with the greatest relish, and the rest of the morning I spent bathing my eyes with glacier water. I had not then discovered the almost immediate relief given by drops of castor oil.

The guides came down about noon with the other three coolies, and all our belongings: on the way they had seen a "blue" bear—Ursus isabellinus—the Abominable Snow Man! The Bhotias assured me that Sherring was encamped on the shore of Mansarovar and so I now decided to make my way to him, sending off two coolies to a Tibetan camp to buy goor and ata with money recovered from our 20,000-feet bivouac. That night the coolies insisted on having one of the rifles with them, as they were very much afraid of Jykpas.

In the early morning we walked very slowly over the stony downs back to Sekung, and I saw my first Kyang, a beautiful chestnut and white wild ass with the smooth coat of a horse, some gazelle and two black wolves. I was feeling very weak,
Mansarowar Lake

but my eyes were less painful. So at Sekung we camped. After we had pitched our little Mummery tent I saw approaching a rider wearing the kulla, the pointed cap round which Moslems wind their turbans, but he turned out to be a Kunawari, the Thakur Jai Chand, British trade agent at Gartokh under the Lhasa Treaty. Sherring had sent him back to look for us, but as we had camped the day before a few hundred yards from the track, he had missed us. He was a charming man and spoke English. Like the rest of his family, he had four thumbs of which he was quite proud. He gave me welcome gifts of dried apricots and rice, but his tobacco, which he offered me, was heady stuff which I smoked with more interest than pleasure, despite my long abstinence.

I had caught a cold, probably influenza, and this made me feel worse than ever. Jai Chand insisted that I should ride his horse, but I didn’t like doing it, and insisted, much against his will, in our taking turns. We crossed the cairn-crowned pass again, with very different feelings on my part this time and early in the afternoon we reached Sherring’s camp beside Mansarowar.

Mansarowar, the Lake created from the Mind of Brahma, is the holiest in the world. Bathe in it and all your sins are forgiven; not only those you have already committed, but also those which, alas, you may be going to commit. I bathed: I hope this has stood me in good stead. The lake called by the Tibetans Tso Mapham—the “unconquered”, or “precious lake”—is 14,950 feet above the sea and its waters are sweet, not salt as are so many lakes in Tibet. Very blue it was as we saw it in the continuous deluge of sunlight which so often illumines this country north of the cloud-gathering Himalaya: its extended coasts were bright gold, with the glaciers of Gurla to the south and the snow-capped cone of still more famous Kailas to the north. Gulls and terns were fishing and wild geese (Anser indicus) swam off the shore, with ruddy sheld-ducks (Casarca ferruginea) followed by their broods. I saw a very handsome black crane on the wing and once the rare white falcon gleaming as it soared in the sunlight. Of vegetation there was scarcely any; only the Tibetan gorse

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(Caragana spinosa) which, with dry dung of yaks, is the poor fuel of the country. This gorse grows but a foot high, in sheets like heather, so spiny that neither flocks nor the wild ass will browse it. On the twigs swayed brilliant rosy finches (*Ochthodromus pyrrhothorax*) and over the sand between the tufts scurried the tiny brown ground-chough (*Podoces humilis*) with diminutive curved beak; "sand-peckers" I called them, not then knowing what the bird was.

Our route took us along the narrow hilly neck of land which separates Mansarowar from Rakas Tal which the Tibetans call Tso Lagnak, Lake of the Black Rock, perhaps from an island in it. At the northern end of this dividing neck Jiu monastery overlooks a channel which connects the two lakes. This shallow water-course was first described by Henry Strachey in 1846. Savage Landor in 1897 had denied its existence, but it is hard to believe that he really went there. Sherring took a panoramic photograph of its whole extent, later deposited with the Royal Geographical Society. The flow varies from year to year, depending on the snow-fall, though at the time of our visit (30th July, 1905) there was little water and no perceptible current.

Near Jiu were gold diggings and recently a nugget "as big as a dog" had been found, but its removal had so enraged the Thunder God, who in Tibet lives under ground, that it quickly had to be reburied. The principal goldfields lie further north at Tok Jalung, beyond the sources of the Indus, whence there is an official gold route to Lhasa. Placer mining is used and long shallow trenches are dug and the sight of figures appearing and disappearing out of the ground may have given Herodotus the tale of his gold-digging tribe of human ants.

We were now traversing the plains of Guge, crossed by Andrade and others of the seventeenth-century missionaries to Tibet. They have described it in winter as a cold desert, bleak and wind-swept, High Tartary. But now it was all sunny spaciousness of a timeless calm only broken by crazy "dust-devils", columns of sand caught up like water-spouts, which singly or in groups of two or three, danced fantastically across the wide barren
Sunset and stars

floor over which we rode. The sky seemed so high above the
head that I was intoxicated by a sense of liberation, almost as
when in a dream we rise from the earth and fly. The air is dry
and of an exquisite clearness; no haze conceals the sculpture of
the steppe nor the distant mountains. Day after day the same
peak would serve as a beacon to march on, seeming never to
come any nearer. [Pl. 9a.]

Night after night I watched the counter-glow, the eastern
rays of sunset. As the sun sinks below the distant horizon, the
shadow of the earth climbs the eastern sky. This shadow is
dark inky purple. The sun sinks further and the upper rim of
the shadow band is seen to be curved, not straight; a small seg-
ment of the great disc of Earth. The unshadowed sky above is
rosy. Then, radiating from an invisible centre, which is below
the horizon and at the exact opposite of the set sun, a geometrical
pattern of flaming rays spreads widening almost to the zenith.
Our people called it the Ranee's Fan. As it fades the stars come
to life: not as with us like pin-pricks in black paper, letting the
light through from behind, but veritable lamps hung at different
levels in the firmament so that the depths of space become visible.
Aply do the Gurkhas call this country Tara Bhot—Tibet of the
Stars.

Ancient and medieval writers believed that Mansarowar was
the source of the four great rivers of Hindustan. The Indus was
reputed to flow from its northern side; the Tsangpo-Bramaputra
from the eastern; the Ganges-Karnali from the southern; and the
Satlej from its western shore. The Tibetans call them respectively
the Lion's Mouth, the Horse's Mouth, the Peacock's Mouth and
the Elephant's Mouth. Geographers had disputed this over-
simplification for centuries and the veil was lifted only in 1812
by that most remarkable traveller William Moorcroft,* whose
end is shrouded in so much mystery. His memory was held in
honour for decades from Waziristan to Lhasa. A man to class
with Doughty.

Only one of these rivers, the Satlej, can properly be con-
sidered to have its source in Mansarowar. The waters of this
Tibet

lake flow, at times at least, through the channel just described into Rakas Tal. At the extreme north-west corner of this second lake, Henry Strachey in 1846 traced the dry bed of the Satlej till he came to running water. Only a few miles west of Rakas Tal I walked ankle deep through the infant river bound for the Arabian Sea. The mightier Indus rises beyond Kailas, the great mountain always our pointer to the north since we had entered Tibet. This peak (22,028 feet) is arrestingly isolated, solitary: a great pyramid of black rock capped with snow. It is Ti-se of the Tibetans, sometimes written of as Kangchen Rimpoche, the Precious Ice Mountain, the centre of the universe. It is as celebrated in Asia as is Olympus in Europe—the throne of Shiva, as Trisul is his Trident. Even on Rennell’s map of 1782 it is shown as Kenlaisre, the Crystal One. The narrow line of black cliff which runs horizontally round it is the mark of the rope cast by the Devil god when trying to pull it down. Another story of this Demon tells how he had induced Shiva to give him a magic bracelet of power such that whomsoever he touched with it should turn to ashes. Later when he tried to seduce Parbati she insisted that he should first dance before her: in the whirling dance the bracelet touched his own head and he was consumed.

Both for Hindus and Buddhists the circumambulation of Kailas is a pilgrimage of the highest merit. The real devotee will perform it by measuring his length lying flat on the ground, and rising up prostrate himself again at the point where his fingers scratched the sand, and so on for days. In 1926 Hugh Ruttledge and his wife walked completely round the mountain in three or four days, the first Europeans to accomplish the feat. At the same time his companion, Colonel R. C. Wilson, ascended Kailas to over 20,000 feet, bringing back the first account of the terrific 6,000-feet precipice on the northern face.88

As to the Brahmaputra-Tsangpo its sources lie to the north-east of Gurla Mandhata. I treasure a letter from my old friend Edmund Smyth describing the first visit by Europeans thereto, in 1864, which was conveniently ignored by Sven Hedin when claiming its first discovery. The Karnali, a main affluent though

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not technically the source of the Ganges, rises a few miles south-west of Rakas Tal. Thus has the picturesque cosmography of Mansarowar been shattered; yet it was not far from the truth.

Sherring's duty was now to visit Gartok, a centre of summer trade, several severe marches further north on one of the headwaters of the Indus. But my influenza was no better and, with a high temperature, I was no fit companion for such a journey. It was hard for me to give this up; but there was no choice. At these high altitudes it is almost impossible to recover condition and with the Brocherels I must make for the south and cross over into the better climate of Garhwal, as indeed had been my original intention. So we parted at the hamlet of Missar on 6th August and I rode sadly away on a yak.

My face was turned south toward the barrier of the Himalaya and I had to make my way to Gyanema, another summer trading camp of the Bhotia caravans, to get transport over one of the passes to Niti in our territory. It was three longish marches; at first over grassy meadows starred with edelweiss; then knee-deep through the Satlej. Next day we climbed the Chutom pass (16,500 feet) with its rich red-brown rocks. The third march was a twelve-hour stage leading us out of the mountains and on to the plain of Gyanema by moonlight.

At Gyanema I was laid low for more than a week with severe illness, and doubted if I should ever move camp again. The Brocherels nursed me and the tedium was beguiled by the annual fair in full swing, with dancers and mountebanks. The poorest Tibetans protruded the tongue as a sign of respect and humility, as if offering it to be cut off. Very different were the proud homicidal Khampas from the north who here mingled peacefully with Ladakhis from the west and Bhotias from Garhwal. [Pl. 9b.] The principal bartering was over Tibetan wool and borax. The plain was covered with grazing yaks and sheep, the latter widely scattered by their search for the scanty food plants and watched against wolves by fierce Tibetan sheep-dogs. A grazing flock looks like a migration, the sheep almost racing from tuft to tuft as they snatch each mouthful.
We started again on August 18th. I was too weak to walk and had still to ride a yak. Six other yaks carried our baggage, and we had a Tibetan and a Bhotia driver, the latter serving just adequately as our interpreter. For travel in High Asia there is no beast to compare with the yak. These black, long-haired, long-horned cattle are stubborn creatures but excellent beasts of burden: they will carry 200 pounds weight and more over the loftiest passes; they cover only two miles an hour, but graze as they go on the rare tufts of grass scattered singly over the steppe. At night, if not secured, they may wander far and their collection and loading usually takes much time in the morning. If they dislike their load they will quite solemnly buck it off.

I decided to make for the little-known Shalshal pass, rather than use the ordinary caravan route over the Niti. Our way led at first due west, an entrancing journey over the open plains: "silent, bare, under the blanching, vertical eye-glare of the absolute Heavens." In the afternoon we forded the Dharma Yangti, strong and deep, which in 1846 Henry Strachey plausibly suggested might well, as the longest branch, be considered as the true source of the Satlej. Its waters combine with the Gun Yangkti and Chu Naku to form the Chu Kar, which carries a greater volume of water than the recognized stream of the Satlej, into which it flows. After crossing the infant Satlej itself and the three turbulent tributaries of the Chu Kar, I am inclined to agree with Henry Strachey, though there is no accepted rule as to what does constitute the source of any great river.

Strong enough for only short marches I had ample time to enjoy the life around me at our camping places. Of birds the most interesting was a Siberian plover, a brilliantly-coloured dotterel (*Agialitis mongolicus* [Pall.]). Several pairs were breeding on flat stony ground. This was very far south of its then known range. The little tail-less mouse-hare (*Ochotona sp.*) was very common, the ground being in places undermined by its burrows. The Tibetans call it *shippi*, the Whisperer, from its nearly inaudible chattering call. I captured a grasshopper which was determined by Uvarov as the type of a new genus (*Hyphino-*)
Shibchilum

mis fasciata sp. n.) coming between two genera limited to the Western Mediterranean and to Siberia. He wrote: "I do not know any other records of Orthoptera from such an extraordinarily high altitude as this one." Again, during the Everest expedition of 1922 I obtained a stick-insect (Phasmid) of a decidedly sub-tropical group. It is worth while collecting the dullest-looking creatures in out-of-the-way places, for the additions to our knowledge of distribution and adaptation may be considerable.

Of larger game the graceful Kiang, the Tibetan wild ass, ranged in scattered groups; allowing of near approach they would suddenly gallop wildly off in a cloud of dust. We saw also a few of the big Hodgson's sheep but I was not strong enough to obtain this coveted trophy. An occasional black wolf watched us from a distance.

On August 20th we reached Shibchilum. Kedyar Singh, an influential trader from Niti in Garhwal, offered to assist me on my further journey and his aid was welcome. Few of the Tibetans here had ever seen a white man and they crowded round, putting out their tongues in salutation. One, coming repeatedly to stare, was so drunk that I was able to buy his prayer-wheel, a possession from which they will seldom part. The Dzongpün of Dhaba with an official from Lhasa, and also the agent of my old friend Kishen Singh, came to see me. From the Dzongpün I got fresh yaks and a driver to take me back to India. To him I paid the hire at six rupees a day for the rest of my journey.

It was a hard march to Dakar through broken country. Flocks of red-billed choughs accompanied us. We only made eight or nine miles and yet were not in till five o'clock. Next day, wind-buffeted, we entered the hills. Around us were outcrops of hard red rock which looked eruptive, volcanic. The 25th was an overcast day with cold storms of hail as we travelled up and down hills and along steep ravines. In the narrowest of these were permanent ice-drifts, kar of the Tibetans, like starveling glaciers, prevented from melting by the shade of converging cliffs and a covering of rock debris. After many disappoint-
Tibet

ments we finally crossed the Shalshal pass (16,390 feet) into Garhwal territory and made the long descent to the basin of Hoti, full of small alpine flowers and whistling marmots.

In the night our Tibetan driver, a fine-looking young man in red breeches and long embroidered boots, bolted with the yaks, leaving us stranded. No doubt he feared that if he took us over the Chor Hoti pass on to the Niti side we should force him to continue to lower levels where he believed his yaks would die. Months later, when staying with Philip Howell, then of the Guides Cavalry, on the North-west Frontier, the postman brought me a postal order for six rupees. I never found out what this was for till I returned to Niti with Charles Bruce and Mumm in 1907. It then turned out that it was sent by the Dzongpun of Dhaba as a refund for the last day’s hire which I had paid; the march his man had burked. Honesty typical of a Tibetan gentleman.

Without transport we must either abandon our gear, or wait upon chance. In fact we had no choice as I was still too weak to cross the last pass on foot. Food was short. The Brocherels set themselves to shoot marmots, traditional sport of their Piedmontese home. On this diet, though over rich, we did well. On August 28th Kedyar Singh’s son overtook us with a train of yaks and convoyed us over the Chor Hoti pass (18,000 feet) down to soft airs, warmth, trees and flowers.
CHAPTER 7

NEPAL

Nepal is a closed land. Except for the British representative at Kathmandu no foreigner is allowed to enter it without special permission, and that is hard to obtain. Yet through this fascinating country stretches for 500 miles the very finest part of the Himalaya, unexplored by Europeans, a treasure stored up for future generations of travellers. Mysterious Pokhra, tropical, low-lying by a lake and closely backed by the immense peaks of Annapurna, is still beyond our ken.

Nepal is an independent sovereign state, but was for a hundred years the ally of the King-Emperor. Its history is of war and conquest and a military form of administration sits lightly and naturally upon the people. The government is in reality an oligarchy dominated by a Prime Minister who holds all executive power and whose office has been held for more than a century by the great Rana family of Bimsen Thapa, ancestor of the still more famous Jung Bahadur, man of many hair-breadth escapes and single-handed catcher of elephants. The office may descend to a brother, a son, or a nephew, and there have been cases of a ruler voluntarily abdicating in favour of the next in succession. The system resembles that of the Merovingian Mayor of the Palace or that of the Shogun in old Japan: except that his title is Maharaja. The hereditary King, the Maharajadhiraj, though sacrosanct, has no executive responsibilities, though he formally appoints the Prime Minister.

The country is inhabited by many different tribes. The most famous are the Magars and Gurungs, backbone of our Gurkha regiments. Inhabiting deeply dissected valleys, separated by high mountain spurs, these tribes are isolated from each other.
Paying a call

and speak different languages, some of which are still known to scholars only by name. The native tribes are mongolian; a smiling, laughing people; but when the Moslem Tagluks under Allah-u-din sacked Chitor many aryans Rajputs fled to these hills. They founded the small kingdom of Gorkha in central Nepal and became the ruling race, retaining their Hindu caste status, still wearing the brahmanical thread and speaking the Khas dialect. Thus we find a Hindu caste system of Brahmins and Kshattiyas imposed on a mongolian and even on a Buddhist background. I cannot believe that any other country in the world contains so many and such varied problems of interest awaiting revelation to western eyes.

The Kali river, up which I had travelled with Sherring to Tibet, forms the western boundary of Nepal right from the Terai, on the edge of the Gangetic Plain, up to the Tibetan frontier. During that journey in 1905 I was naturally tempted to cross the river and to set foot in Nepal. So Pahal Singh, Sherring’s frontier assistant, diplomatically arranged for me to call on the Nepalese governor of the district on the opposite bank. As Nepal is a closed land the Kali is not bridged, except for a flimsy structure above Garbyang, the last village in our territory. But at Darchula, two marches above Askot, a rope is stretched tightly across cliff-sided narrows, the confined river flowing in malignant swirls below. Over the fixed rope runs a wooden crutch, from which depends a rope sling as a seat and which can be hauled back and forth across the river. My crossing was watched intently from both sides, for signs of panic which I concealed.

The Lieutenant Sahib, with picturesque Nepalese badge of rank in his turban, received me and showed me over his jail, a clean, open compound with the usual grass hut for sleeping quarters. The inmates seemed to be well treated and my host was at pains to impress upon me that the administration of justice was so strict in Nepal that even he could not keep a man in prison without bringing some charge against him; in fact there was a form of our *habeas corpus* act, probably unique in eastern countries.
A few days later, Sherring being detained at the Bhotia village of Garbyang at the head of the Kali valley, I seized the opportunity of making another small incursion into Nepal. This extreme north-west corner of the state is isolated by a half-circle of snowy mountains, so that Nepalese officials had to travel through British India to enter or leave it. The highest peaks of the isolating range are Api (23,382) and Nampa (22,162 feet). A. H. Savage-Landor wrote an account of his ascent in 1899 of a peak he called Lumpa over 23,000 feet high and described how between 5 a.m. and 6 p.m. he had ascended and descended 10,000 feet in a straw hat, shoes and a “cane”, for he considered alpine traditions, and especially the Alpine Club, as fit only for ridicule. This was all very intriguing, and, with three of the Garbyang men who had accompanied him, we entered Nepalese territory. Avoiding the village of Tinkar we skirted wide grassy meadows under the cover of pine woods, but were soon overtaken by Nepalese frontier guards who had spotted us crossing the Kali, here only a rivulet. Diplomacy was called for, so I pretended to misunderstand them and assuming them to be merely game-wardens, promised I would not dream of shooting any game without permission, ostentatiously sent back my rifle to Garbyang, and further gave my word to clear out in three days.

Under the leadership of Landor’s men we reached the glaciers, sketched in their topography, and found Landor’s old camping place. I had picked up a double pan-pipe lying in the grass; the two tubes of hollow bamboo were decorated with finely incised geometrical patterns and with this and a mouth-organ owned by another of the Bhotias we had a most delightful musical evening. No caste Hindus were present; the men could relax round the same fire with the servantless sahib and the two Brocherels; tea and cigarettes could be circulated. Music under starlight, seated round a crackling camp fire.

Beside the main glacier we found Landor’s last and highest camp (13,600 feet) and thence were led to the upper glacier basin (15,200 feet). Here our guides turned from the direction of the

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highest peak in sight and led us to our right up loose steep slopes leading on to the crest of a spur running down from the peak which Landor must have been making for, though it was not Api itself, nor was any mountain of 20,000 feet accessible from this spot. The mystery was cleared up when we were shown Landor’s cairn (about 16,500 feet) and assured that no one had ever been any further. Landor had taken artistic licence, which indeed might have been inferred from the illustrations in his book.

* * * *

Four years later I paid a longer visit to Nepal as the guest of the late Colonel J. Manners-Smith, who had won a V.C. in the Hunza campaign and was then our Resident at Kathmandu. The railway ended on the frontier at Raxaul. It was night. I got into my palanquin at once and the easy swaying motion of the bearers padding smoothly along with grunting chorus, soon sent me to sleep. So the fever-stricken Terai was passed and the rare grass shelters of the gentle primitive Tharus, “untouchables”, whose race would long ago have become extinct were they not immune to malaria. At Churia there was breakfast and a small riding-elephant ready saddled. These are ridden astride and run along the rough track with a very smooth and easy pace. After Churia we entered glorious heavy jungle, the great sal forest stretching for a thousand miles along the first low outward swellings of the Himalaya. That night I slept by the old fortress of Sisagarhi. Next morning the snows stood out bright in the November air along the whole northern horizon, the huge mass of Gosainthan holding the eye, and Gaurisankar so long confused with Everest which is out of sight far to the east. Then, still astride a small elephant, we descended a rough winding track through hilly country very like Kumaon, with occasional villages and cultivation. Ahead rises the Chandragiri pass (6,600 feet), the entry to the vale of Nepal, its ancient stone stairway to be climbed only on foot. On the far side is a descent of some 3,000 feet, mostly a stone staircase of huge slabs; and at the foot a surprise—a landau
Nepal

waiting on a perfect carriage road. Thus was a cordon sanitaire against European infection cast round this blessed kingdom.

We were now in the old Newar kingdom which had lasted 2,000 years, being conquered by the Gurkhas only in 1768. The Newars are of mongolian affinity, many of them still Buddhists, a cultivated race of fine craftsmen. The fields and villages have a Japanese neatness superior to any others met with in the Hill Tracts.

Kathmandu, city of palaces and temples, is surpassed by Patan, the older Newar capital. Here are stupas, Buddhist memorial chapels, severely simple domes of brick, raised by Asoka about 250 B.C. The architecture of the many pagoda-like temples strongly suggest Chinese influence: the colours are rich brown of wood with bronze and gilding; whitest stone; bricks red and green; blue tiles, with Buddhist and Brahman decoration intimately mingled.

At Kathmandu Manners-Smith took me to call on H. H. the Prime Minister. Maharaja Sir Chandra Shamshere Jung Bahadur Rana, though a small man, was of striking dignity and distinction. His steady eyes reflected a force of character which made me feel my own inferiority. Yet he talked easily, Manners-Smith translating. The two were evidently great friends, having complete confidence in each other. A great ruler and father of his people, the Maharaja was reforming the penal code and even abolished slavery, always a particularly difficult problem to tackle, though in Nepal it was of very moderate extent and domestic in type. His successor H. H. Sir Joodha Shamshere Jung Bahadur maintained the reputation of his house at the time of the disastrous earthquake in 1933 by a remarkable resourcefulness. His instant control of the price and distribution of food saved a most critical situation: an example which might well have been followed by the Bengali Cabinet during the recent famine.

The Nepalese nobility are passionately devoted to the pursuit of big game and for Christmas 1909 the Maharaja had arranged a shoot for Manners-Smith, to which I was invited. Our camp
Tiger shooting

was to be near Tribeni on the Gandak river, some 100 miles west of Kathmandu. Roads across the intervening ridges and valleys were poor and to get there we had to return to British India by the way I had come and recross the Nepalese frontier near Tribeni. We rode on elephants across the flat swampy Terai to the edge of the great tree jungle of the Bhabar tract. The forest is of sal, a fine evergreen hardwood, with teak and the red-flowering cotton tree, and at the forest edge is the flame of the dhak tree, whose flowers come out before the leaves. From camp we could look up the deep valley of the Kali Gandak straight to Dhaolagiri, the Hill of Flame—it catches the first glow of dawn. Seeming so close it was an unforgettable contrast to the semitropical jungles around us.

The Nepalese method of hunting tiger requires a hundred or more elephants. Elephant custom and talk is different here to that used elsewhere in India. The mahout is called phenait: he drives with a small stick and not with the goad (ankus). An assistant (puchtva) stands above the elephant's tail, keeping his balance by means of a rope attached to the surcingle and armed with a mallet to enforce obedience. A tiger is marked down in a particular part of the jungle. The elephants start out at dawn in single file, moving with uncanny silence through pathless forest or grass higher than themselves. The guns are spaced out at intervals between the working elephants. Without apparent warning, but at a spot which the head shikari has decided on, the leading elephant swings off to the right and the second to the left, each leading a line which will eventually form a complete circle round the spot where the tiger is harbouring. At this stage you can see not more than one elephant to the front and one in the rear. Yet after twenty minutes or so the ends of the two files will meet: a great circle has been formed perhaps a mile in diameter. All the elephants now face inwards and the phenaits signal their position by the imitated call of the barking deer. When all is ready the circle of elephants, each now thirty to fifty yards from the next, closes inwards. We still move in complete silence. No shot must be fired except at the tiger, though a
Nepal

leopard may be seen or a bear. The heavy sambhar, wide-eared stag of the jungle, slips past. Perhaps a herd of the beautiful spotted chital with slender antlers is met; they also will glide back through the circle, not alarmed, for they seem to see only the elephants. The smaller hog-deer will creep through the grass. Most beautiful of all is the tiny four-horned antelope. There are peacocks and red jungle-fowl. Gradually the space between the elephants is reduced and the circle becomes evident. Now the elephants are allowed to move less cautiously and the men even speak. The tiger will have been skilfully moved into the most convenient open bit of the jungle and a halt is called when the circle is about two hundred yards across. The grass is over six feet high with stems an inch thick, making hunting on foot hopeless. A staunch elephant enters the still circle to locate the tiger and the excitement grows intense.

Just as the closed circle of great beasts came to a halt, I saw what looked like an ant-hill, such a great nest of hard mud as termites build. But I knew there could be none there and by a sort of intuition reached for my camera; but too late. The ant-hill stood up. It was a rhinoceros: the real king of the jungle which hardly any elephant will face. The Indian rhinoceros (R. unicornis), unlike the African, has true tushes. He does not fight with his horn, which he uses for rooting up food plants from the swamps, but charges with his head up and will seize an elephant by the foot or bite him in the belly. This one gave a hoarse challenging grunt. On the side of the circle that he faced, the line opened out and the elephants, quite out of control of their masters, left him a clear path. This was the tiger’s chance and he now showed himself behind the rhino. But the elephants were backing and swaying; the line was broken and no one could take a safe shot. The tiger followed the rhino out of the circle to safety, moving at his leisure; turning his head from side to side he grinned at us with the most exasperating derision.

The Indian rhinoceros is now confined to the dense grass-jungles of Nepal and Assam, but in 1527 the Emperor Babar
invading Hindustan found numbers in the jungles of Peshawur, close to the North-west Frontier. Since that country would not now offer sufficient food or cover or water for these great beasts we may safely assume that the rainfall is far less than in those times. Both for its hide, from which shields were made, for the medicinal value of its blood, and most of all for the cups made of its single horn which would detect poison, it has long been mercilessly hunted. Both in Nepal and Assam it is protected; but the Maharaja had given me leave to shoot a specimen, which is now in the Natural History Museum.

Tigers usually have a certain consistency of behaviour which increases the chance of getting on terms with them. Their feeding and drinking times, where they will lie up and when they will move back to a kill, can frequently be calculated. With panthers it is very different: they will do the most unpredictable things. I have had much more exciting times with them than with tigers and once I experienced a terrifying example of their behaviour. Villagers reported that a panther had killed one of their cows whose carcass had been dragged into the bed of a dry nullah below a cliff at a right-angled bend in its course. The opposite bank of the nullah was only some three or four feet high. During the day I left a villager to keep vultures and jackals from the kill and decided to sit up for the panther that night. I reasoned that it would return down the nullah, and that if I sat under the low opposite bank below the bend I could take the shot to the left, without moving my body, as it turned round the corner of the right-angle in the bottom of the nullah. I had to sit on the ground, for there was no tree in which a machan might be built, nor could I dig a rifle-pit. I sat alone. The moon rose, following the sunset so swiftly that I hardly knew it was night. In those days I had the most acute hearing. Dead silence. I began to feel rather nervous. Then I heard a beast moving down the nullah, out of sight round the corner, but towards the kill, and I felt better. Suddenly all sound ceased. My mouth got dry. Next I distinctly heard a pebble turn over a few yards behind me. Then still nearer my back a dry leaf
Nepal

cracked. The beast had got out of the nullah and was stalking me from behind. I must remember to swing left-about as I rose, so as to get a quick shot. But before I could move my hat was pushed up from behind and down over my eyes. I have never been so terrified. Automatically my right hand left the trigger and pushed the hat up and back over my forehead. As I did so I glanced up and saw against the sky-line, on the top of the little cliff on the opposite side of the nullah, the outline of a beast looking down upon the kill. I realized that it never had come out of the nullah behind me, fired at the white spot on its chest and dropped it. The peculiar behaviour of my hat had merely been due to my hair standing on end.
CHAPTER 8

EVEREST

Only some ninety years ago, an Indian clerk burst into the office of the Director of the Survey at Dehra Dun, exclaiming: "Sir, I have discovered the highest mountain in the world." His claim was not altogether absurd. He was employed as a computor and was working out altitudes from the angular observations recently taken by the surveyors. Amongst many other peaks they had intersected an unobtrusive point on the unexplored frontier between Nepal and Tibet. The computor had found that the average of their observations for this point worked out at 29,002 feet. This peak lies far back from the Plains and from the Darjeeling hills only the summit is visible, the mountain being masked by the more impressive form of Kamalung, commonly called Makalu. From Kathmandu it is hidden by Gaurisankar, with which it was long confounded. It had no Indian or Nepali name and its Tibetan name is still dubious. So it was called after the previous Surveyor-General. By a fortunate chance his name was Everest.

I believe that the existence of the highest mountain in the world at this particular spot is due to the fact that there the usual two parallel ranges of the Himalaya have been squeezed into one, so that the force which heaved up the Himalayan axis here exerted its greatest effect. The occurrence of earthquakes in the region of Kathmandu is a symptom of persisting instability and stress. It has been claimed recently that a higher mountain has been seen from the air beyond the Burma "Hump", but I think this is unlikely for at its eastern end the Himalaya splay out into a series of parallel ranges which must reduce the effect of lateral pressure upon any one of them.

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Clinton Dent was the first to suggest the possibility of climbing Mount Everest. In the Nineteenth Century of October, 1892 he published an article entitled “Can Mount Everest be Climbed?” He thought it could; an opinion shared by very few others at that date. But in 1893, on the polo ground at Chitral, Bruce discussed with Younghusband the chances of exploring the approaches with a view to climbing the mountain. There followed a long pause, with Bruce engaged almost continuously in bloody affairs on the North-west Frontier.

The failure of our plans in 1907 has already been dealt with in these pages. In 1908 Bruce’s second plan, with an approach through Nepal up the valley of the Dudh Kosi, also founded on political and religious prejudice." In 1913 Colonel C. G. Rawling, who had accompanied Younghusband to Lhasa, made plans for an approach from the north, through Tibet, and again I was invited to take part; but the first German War intervened, in which Rawling was killed. Then in 1914 Captain J. B. Noel attempted a quick approach through Tashirak, a route untraversed by any other European, but was turned back by the Tibetans. To-day people may realize the hopeless frustration of battling against political difficulties of access; it was only such difficulties which so long debarred us from exploring and attempting to climb Mount Everest.

The first Everest expedition set off in 1921, led by Colonel C. K. Howard-Bury. Oliver Wheeler discovered the approach by the East Rongbu glacier and with Mallory and Bullock climbed the North Col (22,990 feet). Their explorations confirmed the forecast of the problem which I had ventured to make in 1908." During this expedition Dr. A. M. Kellas died suddenly at Kampa Dzong, and his death was a very severe loss to Himalayan mountaineering: he had done more high climbing than any other man, and this with the sole assistance of Bhotias and Sherpas whom he had himself trained.

Private affairs had prevented me from taking part in the first expedition, but for the second, led by Bruce in 1922, I was free. He had collected a most remarkable party of men with whom it
Second Everest party

was a privilege to travel. Second in command was Colonel E. L. Strutt, one of the most experienced of alpine climbers. He had been elected to the Alpine Club while we were undergraduates together at “the House”. In 1918 he had conducted the late Empress of Austria to safety in Switzerland and whenever her train was stopped he mounted guard on one side with his revolver while his batman stood with a rifle on the other. George Leigh-Mallory came for the second time; he was our star climber; a man of the greatest personal charm, and in character comparable to Adrian Wilson. “Teddy” Norton (now Lieut.-General) was a celebrated Indian sportsman and had shot chamois on unpreserved ground in Savoy because he could go where the local men could not. He had learned to climb at the historic “Eagle’s Nest”, built above Sixt by his grandfather Alfred Wills, one of the founders of the Alpine Club. Major Morshead, topographer to the first expedition, came this time as a climber; he had been with Kellas in an attempt on Kamet and like the latter was a mountaineer of the utmost courage and resolution. George Finch (now F.R.S.) had many remarkable guideless climbs in the Alps to his credit and owing to his scientific attainments was to lead the attempt with an oxygen apparatus which was to be tried out for the first time. T. H. Somervell was the most versatile member of the party; a first-rate climber, a very fine surgeon and a painter. He was also a musician and would take some scrap of paper out of his pocket and record Tibetan airs by the camp fire or even on the march. Dr. Wakefield, tougher even than most Cumberland men, was a fine climber and an ideal traveller; quite imperturbable he was never known to complain under any circumstances. Captain J. B. Noel, the famous army pistol shot, had already penetrated into Tibet alone and was in charge of photography and the cinema outfit. Colin Crawford, of the Indian Civil Service and the Alpine Club, had already climbed in Sikhim and Kashmir. Both he and Captain John Morris had served with Gurkha regiments and so could speak with our Sherpa porters. They organized and led the teams which carried the various camps above the base and on
Eve rest whose efforts the success of our venture depended. Our youngest member was Geoffrey Bruce (now Major-General), a cousin of our leader. He had excellent language qualifications and though he had never done any mountaineering, he was probably the finest athlete in the Indian Army and was chosen by Finch as his companion for the attempt with oxygen.

I came as doctor and naturalist. General Bruce and I were too old for really high climbing and he would necessarily have to be much at the base. Both of us were very concerned over the danger of avalanches in the Himalaya, a danger so very much greater than in the Alps. This was no idle fear, as has since been proved several times, particularly by that catastrophe on Nanga Parbat in which seven German climbers and nine Sherpas were blotted out in their sleep. Bruce wanted someone who would see to it that camps were safely cited and after the death of Kelh I was probably the most experienced in the vagaries of Himalayan snow. I had no liking for all the hurly-burly of a big expedition, but the real inducement for me was that I should be able to revisit Tibet under the most favourable conditions, personally conducted and relieved of all the difficult negotiations with Tibetan officials and the worry of obtaining supplies and transport. I would buy a decent pony and enjoy at leisure every moment of the journey. Most of the men who had taken part in the several Everest expeditions will admit that they got much more pleasure from the approach through Tibet than they did from trying to climb the mountain.

The 300-mile journey from Darjeeling through Tibet to Everest took about a month. From the tropical valleys of Sikkim we climbed slowly up to the Jelap La, where the first primulas were opening at the edge of the winter snow and the giant peaks of Kangchenjunga are spread to the west; on down into the lovely glades and alpine forests of the Chumbi valley, to emerge without warning, in the matter of a mile, on to the bare Tibetan plain of Phari, into a new world. Then followed long days of riding through the high desert to the hill fort of Kampa Dzong and on past Tengki, its massive monastery walls reflected
Not an easy mountain

in the mirror of the lake, the haunt of bar-headed geese, so un-
molested by man around this sacred spot that they are quite
tame. Still westward across more vast spaces we came to the
dream crag of Shekar Dzong, hung with fort and monasteries like
martins’ nests on a cliff. So after more days travelling we dis-
mounted on the summit of the Pang La (17,000 feet) to take our
first near view of Everest, our base camp on the Rongbu glacier
now only three marches distant. For the naturalist, throughout
this 300-mile journey, there was unending pleasure in seeing the
succession of new flowers, butterflies, birds and animals, and
not least the friendly Tibetans, hospitable and smiling, enjoying
their hard pastoral life. To experience all this is worth the
penalty of being condemned to try to climb the monster: for
monster it is, this relic of primordial chaos, the home of devils,
not of gods. [Pl. 10 and 12a.]

Everest is a forbidding mountain. It has no athlete’s grace
of form but the brutal mass of the all-in wrestler, murderous and
threatening. Technically I cannot agree that it is an easy peak,
as has been so often said. The strata of the upper slopes of the
north face slant downwards like tiles on a roof. Too often they
are covered with powder-snow, for above 25,000 feet snow hardly
melts; nor does it solidify; it must either evaporate or be blown
away by the terrible winds which scourge the mountain. Until
this happens the footing is ever insecure. At about 28,000 feet
above the great couloir which seams the north face, there is a
steep difficult section of several hundred feet which must be
climbed before the final ridge below the summit can be reached.
Again, before the real climb can begin, there is the constant
danger of avalanche on the steep slope leading up to the North
Col, where the base camp for the climbing party must be estab-
lished. There was a fatal accident here in 1922, when seven
Sherpas were killed, and several narrow escapes occurred here in
later expeditions. [Pl. 11.]

During all the effort of climbing at very high altitudes the
body, and particularly the brain, suffers from lack of oxygen.
Resolution must be made automatic, for the brain is numbed
while facing the dreadful struggle and unless the determination
to persevere has been irrevocably taken, the urge to turn back, to
go down, is almost irresistible. The memory cannot be trusted
and the effort to take notes is difficult, while the handwriting
becomes almost illegible. Already starved of oxygen the ex-
tremities lose their power of resistance to cold and the danger of
frost-bite is enormously increased. No one has yet succeeded in
making two trials of the final climb during the same expedition;
indeed it is only exceptional men who will tackle Everest again
another year.

In 1922 I had the unenviable job of watching men start for an
attempt on the summit when I could have no part in the desperate
struggle which I knew must follow. Mallory, Norton and Somer-
vell climbed the great ridge from the North Col to almost 27,000
feet: Morshead had to turn back on the last day of this great
climb. They were all frost-bitten, Morshead severely. [Pl. 12b.]
Later Geoffrey Bruce and Finch, using oxygen, got to over 27,000
feet. At this point a glass joint in Geoffrey’s oxygen apparatus
was broken, but before he lost consciousness Finch ingeniously
connected him with his own apparatus while he repaired the
damage. They got back safely. Thus on this expedition both
assault parties had raised the altitude record by 3,000 feet: they
were the first men to reach 8,000 metres.

It is wise to use oxygen at the highest camps to counter the
tendency to frost-bite, but at present it can only be used in its
gaseous form and for high climbing enough cannot be carried.
When the mechanical difficulties of using it in its liquid form
have been solved, the greatest obstacle to the ascent will be over-
come. The other vital factor is the acclimatization of the climber.
In my experience the climber loses strength and resistance to cold
the longer he remains at a very high altitude. The oftener he
goes above 20,000 feet, the better; but the fewer nights he passes
continuously above 20,000 feet, the fitter does he remain. At
such heights most men lose a pound of weight every day, though
individuals vary greatly in their reaction: there has even been a
case of a man temporarily losing his reason. I cannot avoid the
12. (a) INSIDE THE FORT AT KAMBA JONG, 12.4.22  
(b) COLONEL STRUTT WITH THE FIRST CLIMBING PARTY: L. TO R. MORSHEAD, NORTON, SOMERVELL AND MALLORY, ALL FROST-BITEN, 23.5.22
13. SALTO RO PASS FROM BILAFOND GLACIER, 14 6.09
Later expeditions

belief that really well-acclimatized men will have the best chance of success if they can manage with only one camp between the North Col and the summit; but this must be not less than 27,000 feet.

It fell to me to take home the casualties. Morshead had to be got down to a low altitude as quickly as possible to give his frost-bitten hands and foot the best chance of recovery. Strutt's heart was affected by too many nights at Camp III and Finch's heart was in even worse case. For all three a speedy return to normal surroundings was the best medicine. By making a short cut over the Serpo La and down the Lachen valley we took only twenty days to cover the 330 miles from the base camp to Darjeeling. The two heart cases recovered quickly, but Morshead lost the tips of several fingers and a toe.

During the next expedition, in 1924, Norton and Somervell made the first serious attempt on the summit. Somervell was suffering from a badly inflamed throat which interfered with his breathing. Despite this he accompanied Norton to nearly 28,000 feet, when a paroxysm of coughing forced him to stop. Norton went on alone to the foot of the cliff bounding the far side of the "great couloir". He told me afterwards that if he had had someone to back him up, he thought he might have climbed this cliff. No one is yet known to have got higher than Norton.

Then, in the same expedition, Mallory and Irvine made the last shot. Mallory was full of resolution and confidence, but I felt that he should never have been urged to take part in this his third hazard of the mountain. As it was his third expedition he might well have been disappointed that he was not chosen second in command in case Bruce fell out, as he did with malaria. But in his last letter to me, a month before he died, he generously wrote "thank you for that fertile suggestion that Norton should be our second in command—he turns out to be perfect as you may imagine". He also wrote most confidently of Irvine, who had greatly improved the oxygen apparatus they were to use; he concluded that together they would "stamp to the top with the
Eve

wind in our teeth”. How high they got is uncertain: it may have been to the top, but they were never seen again; so the veil falls upon these paladins. Odell, during his great effort to support them, thought that he had seen them moving “quickly” up the first or second “step” on the east ridge, but considering that the distance must have been at least a mile, and bearing in mind the difficulty of picking out a party moving at a similar distance in the Alps, I think he must have been mistaken. Odell had proved to be extremely slow in gaining toleration to altitude, yet in the end he climbed alone, on two consecutive days, from the camp on the North Col, past camp IV, right up to the last camp of all—and back again. An astonishing feat, unequalled on Everest.

The fourth expedition was led by Hugh Ruttledge in 1933. Wynne Harris and Wager found an ice-axe, which must have belonged to Mallory or Irvine, below the “second step”, at about 28,000 feet. This axe would never have been left behind had they been ascending. It may be evidence of accident on the descent, perhaps due to failure of the oxygen. Also in 1933 F. S. Smythe, who seems to improve rather than to deteriorate the higher he climbs, reached the great couloir at 28,000 feet alone, his companion Eric Shipton being too ill to go on. The small practice party led by Shipton in 1935 was as remarkable as any of the later expeditions. It was discouraged from making an attempt to reach the top. So Shipton split up his men into several groups which between them climbed twenty-six peaks of 20,000 feet and over, a number greater than the total of all previous successful ascents in the Himalaya.

In the expedition led by Hugh Ruttledge in 1936 the weather and the conditions on the mountain never gave the climbers the slightest chance. Tilman, with a record in Africa and the Himalaya second to none, led the last expedition in 1938; but again the weather was impossible. In April and early May the north face of Everest is often bare of snow, which has been blown off the mountain, but at this time the cold would probably be insupportable. If the snow held off and the monsoon did not
Conditions needed for success

break till the middle of June, then the chances of success would be at their best.

To climb Everest it is necessary that two experienced climbers, not too young, with unusually slow pulse rates and elastic lungs, should start fit and untired from a camp of at least 27,000 feet. The weather must be fine with little wind and the north face free from snow. This postulates a late monsoon—and, as ever, obtaining Tibetan consent the year before. With great gallantry many men have battled with Everest: may they never be forgotten. I hope and believe that one day it will be climbed. Then when no higher “altitude record” is possible, mountaineers can turn to the true enjoyment of the Himalaya, most likely to be found at about 20,000 feet or less.
CHAPTER 9

KARAKORUM

The mountains of Bolor, the Belut Tagh of medieval Moslem writers, were named the Karakorum Range by that great traveller William Moorcroft in 1820. Karakorum is a Turki word meaning black splintered stones. Natives use this name only for the historic eastern pass; the mountains they call simply Muztagh, the Mountains of Ice.

In the number and altitude of its great peaks the Karakorum is second only to the Himalaya. For nearly 250 miles, from Hunza to the longitude of the Karakorum pass, extends a succession of lofty snow-clad mountains and deep valleys filled with huge glaciers. The Karakorum lies 150 miles north of the Himalaya and the two great ranges are separated by the trough of the upper Indus valley. Unlike the Himalaya the Karakorum forms a real continental water parting, dividing the waters of India and Chinese Turkestan. Again, unlike the Himalaya, it offers no practicable caravan routes over its main axis. Inaccessible and austere its peaks lack names of any antiquity such as adorn the Himalaya.

As their angular unweathered forms show, these mountains are geologically of recent age, being at least as young as the Cretaceous period and perhaps even as the Tertiary. At about the centre of the range K, rises to over 28,000 feet; probably the second highest mountain in the world. This peak was first observed in 1856 by Montgomerie, from a high point in Kashmir, to the south. He named it Mount Godwin-Austen in commemoration of that officer’s brilliant work in executing the first glacier survey in this forbidding region. But the Indian Survey is over modest and will not accept personal names: so it
Younghusband’s explorations

remains K, just as in Montgomerie’s original field-book. Chogo-ri has been given as the Balti name for it: this only means “great mountain” and is of general application.

The western half of the range was fairly well known from Godwin-Austen’s surveys, Conway and Bruce’s great pioneer journey of 1892 and from subsequent visitors. But concerning the eastern section information was extremely scanty. In 1835 Vigne had attempted to reach the Saltoro Pass, the existence of which he had learned from native tradition. In 1848 the indomitable Henry Strachey reached the lower part of the “Saichar” glacier, source of the treacherous Nubra river.

Strange chances lead travellers on their several ways. What took me to the Karakorum was a map. In the ’nineties my father had given me a sketch map of the Karakorum and adjacent ranges. I had studied it often and as my knowledge of maps and mountains increased I was struck by a remarkable patch of cartography in the centre of this map. Mountain ranges can assume many forms; but here was a manifest impossibility. In 1889 Younghusband had forced his way to the Karakorum from the north. He was brought to a halt by a steep ice-pass which appeared to him to lie on the main axis of the range. He had fixed his position by observation. Now the compilers of my map were firm in the belief that the Saltoro Pass, fixed from the south by the Indian Survey, lay on the main axis of the Karakorum. The two conceptions were irreconcilable. The Saltoro pass is some twenty miles south-south-east of Younghusband’s pass. Therefore the map-makers brushed aside Younghusband’s observation of his latitude. They stretched his route and distorted their map to make these two passes coincide. As for me the look of the thing was enough to convince me that Younghusband was right. I was certain that if I could gain the Saltoro Pass a “blank on the map” of some 500 square miles would stare me in the face.

Thus when in 1909 Bruce’s second plan for an Everest expedition fell through, I had not far to look for consolation. I must cross the Saltoro Pass. So set was I on the solution of this
The Duke of the Abruzzi

problem that I had refused Scott's invitation to join his last expedition to the Antarctic, one of the greatest compliments I have ever received.

I had the good fortune to travel out with the Duke of the Abruzzi, the most successful mountain explorer of his generation. There was no escapism about his travels, his objective being always carefully selected and his expeditions meticulously planned. He was a first-class climber with a fine alpine record. When Mount Saint Elias in Alaska had defeated three expeditions, he was successful. He made a "farthest north" before Nansen's great drift in the Fram. After Ruwenzori, the Mountains of the Moon, had defied all comers he, or members of his party, climbed nearly every peak and mapped the whole range. He had hoped to tackle Everest this year, but negotiations with Lhasa broke down, so now he was bound for K2 in the Karakorum. He did not get to the top but established a high altitude record on a neighbouring peak. His right-hand man was the very charming scholar and writer de Filippi, who became my lifelong friend. There was also Vittorio Sella, greatest of mountain photographers. The Duke's guides were of course Piedmontese from Courmayeur. The chief was Petigax, and he had my own old companions Alexis and Henri Brocherel amongst others.

Mountain ascents formed no part of my plans, so this time I had no need of alpine guides, but I badly wanted a companion who could lead a string of coolies over crevassed glaciers. I was lucky to get Morris Slingsby who was then a subaltern in the 56th Rifles, Frontier Force. He was a nephew of the great pioneer Cecil Slingsby, famous in Norway as in the Alps, and with him he brought two riflemen, Gulab Khan and Attar Khan, excellent Pathan Khattaks.

Like two-fifths of India, Kashmir was an independent Indian State. Though predominantly Moslem the country was ruled by a Hindu Maharaja and power was in the hands of the Brahmins. No tinned beef could therefore be taken through the Customs. But foreign affairs were controlled by the Imperial
Karakorum

Government acting through a British Resident and fortunately for me Sir Francis Younghusband was the Resident at this time. Together we went through the old note-books of his journey. He was insistent that the main axis of the Karakorum was wrongly laid down on the map and feeling sure that it was farther north, he was whole-heartedly for my plans.

At Srinagar I found that Arthur Neve, the medical missionary who devoted his life to the poor of Kashmir, was in need of a few weeks' holiday: and though it would make our party bigger than I liked, we invited him to join us. As a result, the sick flocked to our camps. It was almost a Biblical sight to see the halt, the maim, and the blind waiting patiently for his arrival. Many times I saw him operate for cataract by the roadside. He worked with incredible speed and dexterity, and would bind up the eye and tell the patient not to remove the bandage till his return in a month's time. I envied him the skill I lacked, but it was a grand experience to see and help him at the work.

It is usual for the visitor to Kashmir to engage a tail of servants, but they rob and ill-treat the villagers and coolies: the Kashmiris are a poor lot. I engaged a head Shikari and sacked him on the first opportunity, pour encourager les autres. Henceforth I was admirably served by a lowly Moslem tiffin-coolie named Ahmedu; he was a good man on the hill, enduring, courageous and passably honest.

Our way lay through the lovely Vale of Kashmir, then in all the beauty of spring. The flat roofs of the grey mud houses were sheeted with blue iris: plane trees, the celebrated chenar of Kashmir, each a perfect specimen, dotted the landscape. After a night crossing of the Wular Lake, past summer palaces of the Moguls, we rode up the alpine valley leading to the Zoji La. This is the lowest pass across the Himalaya, only 11,300 feet, yet still under snow when we crossed it on May 26th. Thus we entered Baltistan where absence of summer rain and the consequent dryness and heat of the valleys prevent any forest growth, though there are orchards of apricot and some walnut trees on the irrigated cultivation beside the villages. At higher altitudes
the melting glaciers nourish a rich scrub of willow, birch and juniper with abundant wild rose bushes.

On June 1st we reached Kharmang on the Indus (8,150 feet). To the north was a side glen which led up to the Ganse La (17,100 feet), a short cut to Khapalu on the Shyok. We were told it was impossible to cross the pass "till the apricots are ripe". This was too good an opportunity to miss: here was a chance to establish our reputation. Arthur Neve most considerately offered to take the baggage down the Indus to its junction with the Shyok river and thence up the valley of the Shyok to Khapalu, where we would rejoin him. So on June 2nd Slingsby and I struck off from the usual route. He had his two orderlies and we took, in addition, four Balti coolies and Ahmedu. These Baltis are Moslems but are much pleasanter people than the Kashmiris, who have consistently oppressed them in the past; they are rather timid and lacking in initiative. We crossed the Indus on a swaying rope bridge of plaited birch and hazel twigs, a heady affair with the river swirling below between sheer granite cliffs. So we came to the beautiful hamlet of Orashi and entered the nullah leading up towards the Ganse La. There were fine old moraines in the nullah and yet to my astonishment, after we had been going for eight hours and at a height of over 12,000 feet, we came across the remains of old terrace-cultivation. Even the hardy grim, a bearded barley, would not ripen here under present climatic conditions, which must have deteriorated since the time of this settlement. We camped at about 14,500 feet amongst the last of the brushwood.

It was cloudy next morning, with light snow. The four Baltis being most unwilling to go on, we thought it good policy to send them back, saying, very much to their astonishment, that we could find our own way over the pass and carry the loads ourselves. We had taken care that the two sepoys should carry very little the day before and now that Slingsby and I were to carry our own rucksacks they made it a point of honour to carry heavy loads themselves. We made a late start at seven-thirty, toiling up endless slopes of loose boulders and across occasional
Karakorum

snow-beds. When the sun came out the heat was very trying and I got a headache and could not eat; but Slingsby did not turn a hair. The final slope was very steep and the snow soft. Ahmedu, the Kashmiri, was on his mettle and came out very strong, leading our party up to the pass (17,100 feet) over a steep rock-slab in great style. We did not reach the crest till three o'clock and cloud hid the view of the mighty peaks to the north which we had so much desired. We got clear of the snow on the north side at six-thirty and finding a little old dried yak dung for fuel, camped. Soon the sky cleared and the moon shone.

We were up late, after a good night's rest, on June 4th. The descent was steep down a desolate rock-strewn glen with no track. The view was enthralling. It was our first sight of the Karakorum range; in sculpture more rugged and forbidding than anything I had seen in the Himalaya. We were too low to identify more than the blunt summit of Masherbrum: K was hidden. The character of these mountains was indicated by the palisade of splintered crags on the farther bank of the Shyok. Below us, beside the Shyok river, we could see the villages of Khapalu and Saling. Around fields irrigated by laboriously-built water channels, were trees innumerable in a setting of vivid green. We were soon down at Khapalu (8,350 feet) and camped in a pleasant spot under poplar trees. In the afternoon we went to visit the Rajah, Shere Ali Khan, friendly, courteous and of ancient family. Both he and his cousin Nasr Ali Khan knew of the traditional existence of two routes over the Saltoro pass, one leading to Yarkand and the other to the Nubra Valley, but said that no man living had followed these ways.

Neve rejoined us at Khapalu on June 5th, having followed up the Shyok river from its junction with the Indus. We had now to cross the Shyok to enter the valley of its tributary the Saltoro river. On the 7th we descended into the bed of the Shyok, torrid from the reflected heat of the cliffs above. At the hamlet of Chogogron the zaks were ready for our crossing. A zak is a raft of thin willow branches supported on inflated goat skins: two men row with light bladeless poles and the current carries the
raft down-stream at a great rate. The zak gets lower in the water as the weight of the cargo forces the air out of the skins: the crew violently unlash the openings in the floats and blow furiously into them, usually at some alarming moment when the raft is spinning or tossing about. If you are lucky you may land less than a mile down-stream. The only real danger is striking a rock and cutting the skins, but the boatmen know their water—and they cannot swim.

We had landed just above the place where the Saltoro river enters the Shyok and could now follow a good path along the south (left) bank, where the valley is deep and wide up to Dansam, the chief village. The river, split up into several channels, winds over its flood plain and sweeps round the bases of several large alluvial fans. These are irrigated and their pleasant green contrasts with the prevailing brown of the crags on either bank. Then the path mounted: we turned a corner and opposite Paro, across the river, an astounding sight faced us. Enormous spires of sheer granite shot straight up for 5,000 feet from the river bank. It is the most tremendous array of aiguilles I have ever seen, set close together—"one adamantine dominion and rigid authority of rock."

At Dansam the Kondus river joins the Saltoro, flowing down a wild, rugged glen from the north. Above this village the valley narrows and there is a waterfall, very unusual in these parts, though rapids are common. A march farther on, near Palit, fragments of an old lateral moraine still clung to the valley walls 1,000 feet above our heads, marking the level of the glacier which had filled it in recent geological times.

I was intrigued by the form and sculpture of these valleys. Ice is a poor excavator for solid water can never be so powerful a denuding agent as liquid water. The longer ice glides over a bed of rock the smoother that surface will become and the more is the grinding power diffused. But water concentrates its action. Ice polishes: water cuts. Moreover the valley had obviously been there before the glacier. The rocks on the right bank are of granite: the splintered crest on the south side is of slate.
SALTORO PASS.

Scale of Miles

0 10 20
Ghyari

We camped at Goma (10,800 feet), the last village where evening and morning Neve attended the sick who had gathered to see him. Here the Saltoro valley splits into three terminal glens, each leading up to large glaciers. We followed the northernmost, the Ghyari nullah. Above us on our left was a peak of 21,870 feet. On both sides were fine granite cliffs and towers, suddenly illuminated and then vanishing under gently drifting veils of thin misty cloud. On our right, through deep gashes between granite needles three steep narrow glaciers descended to terminate among the shrubs of the valley floor. At the time of our visit these were all actively advancing and our people said this had been going on for ten or twelve years. The Baltis consistently used the word rüzu for glaciers as distinct from kha snow and it is curious that in the Alps reuse is an old Valaisian patois word for a glacier.

A longish march took us to the snout (12,400) of the Bilafond glacier, main source of the Saltoro river. The place is known as Ghyari and is annually visited by shepherds. Here, in this inviting spot where we made our base camp on June 11th, there was grass and lovely thickets of willow, tamarisk, pencil-cedar (Juniperus excelsus) and bushes of wild rose in full flower. A pair of the beautiful and rare ibis-billed curlew (Ibidorhynchus struthersi) greeted us with wild cries. They were evidently nesting, but I did not know that their eggs had never been found and made no search for them. However, I had already collected a very pale-coloured weasel, a new species, which was handed down to posterity as Mustela longstaji.49

The Baltis looked most picturesque and cheery at night round a huge fire. It was such an ideal camping place that, tired with the long journey from Kashmir, I wished I could just stay there and do nothing. But the plane-table survey had to be started, so next day we went a little way up the glacier and set it up on a spur (14,900 feet) overlooking the Chumik glacier which joins the Bilafond from the east. On June 13th we made our real start for the pass. We took eighteen Baltis; our headman was Mullah Halim, village priest of Goma, a grand chap. He had travelled
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much and understood Hindustani; also he knew his own district very well. The glacier, which had been called the Salgoro glacier by the Khans of Khapalu, is locally known as Bilafond (n nasal, d mute), which we understood to mean “butterfly”. Swarms of migrating butterflies, killed by storm, are often seen on glaciers and this suggests a possible origin for the name. We hugged the right (true) bank of the glacier over horribly unstable moraine. Well-disposed glaciers leave a road between themselves and their containing wall; but this was an overbearing monster, full to the brim and steadily advancing, piling its moraines in fearful confusion against the very base of its confining cliffs.

After seven hours’ grind, having covered six miles, we got off the ice on to a steep, grassy slope on the right (true) bank, and camped at 14,400 feet. This was marked Ali Bransa on the old survey map and is therefore probably the spot reached by Vigné in September, 1835, though the real Ali Bransa is a very long march farther up the glacier. Our people called the place Naram, “snug lying”, because of the “softness” of the rocks. There was light snow or thin frozen rain most of the night.

On the 14th we continued on up the glacier and soon we managed to slant across on to better level moraine and thence on to the central band of “dry” glacier. It is odd that bare glacier ice without moraine or snow upon it, should always be called “dry glacier”: in actual fact it is always wetter because the sun can act directly on its surface. But it is certainly pleasanter to walk on. The peaks, especially on our left-hand, looked strangely new and unweathered; abrupt gothic spires on a gigantic scale. Many secondary glaciers join the right edge of the Bilafond and two largish ones enter on the left. Their moraines become medial moraines of the main glacier and this material prevents the ice underneath from melting at the same rate as the “dry” glacier, so that the medial moraines are raised up on weals of blue ice, contrasting strongly with the white finely honey-combed surface of the bare ice. Ahead, to our right was a rocky spur sloping down to the glacier, which we were told was Ali Bransa. We got off the ice on to it. Here were the last flowers.
Across the Saltoro pass

It was a windy, uninviting spot (16,700 feet) and there was much labour to make tent platforms. It was unpleasant working with the plane-table, but the Saltoro pass was in sight and our route clear ahead. There was again snowy hail all night. [Pl. 13.]

At seven next morning we scrambled down from our camp and took to a rough rocky hollow beside the glacier. Soon we came to the real Ali Bransa: three low walls, bransa, named after some forgotten Ali, the resting place of those that formerly used this pass. There was not even a bit of wood-ash there, and very probably because it had not been visited for 100 years none of our men had been able to locate it properly. It would have been a far better camping place than that of the previous night. We roped and took to the glacier, for snow was now overlying the crevasses but the slope was easy and at ten-fifty we reached the pass (18,200 feet). In his elation Mullah Halim cried the testification loudly: "There is no God but God and Mahomed is his Prophet." We had taken only twenty-six days' travelling from Srinagar and we were on the top of the Saltoro Pass.

Now for the "blank on the map"; and a puzzling sight it was. A broad easy snow-covered glacier led gradually downwards at our feet, flowing north-east, and shut in on either hand by walls of peaks rising to over 20,000 feet. The view was disappointingly confined. We could see, at right angles to the glacier on which we stood, a narrow strip of a great ice-stream at a lower level. Beyond this was another glacier at a higher level. From the confined view we had from the pass it was very difficult to tell in what direction these glaciers were flowing. Beyond and above them we had a glimpse of a great new range of mountains. If these were the Karakorum, then the Saltoro pass was certainly not across the main range. The scale of the country was staggering and all was still surmise.

After rather unsatisfactory work with the plane-table we continued towards the unknown. It was now nearly midday and the snow was appallingly soft. The leader sank to the waist at every step and crawling on hands and knees was no better. The

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coolies with their heavy loads wanted to camp on the snow until the night frost hardened the crust. We roped everyone, in three parties, for the danger from concealed crevasses was great and it was here that poor Chenoz lost his life three years later with the Workman expedition. Taking turns in breaking the track we got to bare ice at four-thirty at the birthplace of the right lateral moraine (16,900 feet). After a brief storm from the Saltoro pass had blown over we had a glorious evening. The gentle inclination of the glacier made dead ground which prevented us from seeing more of the glacier system ahead, but the new range in the distance seemed ever greater. [Pl. 14.]

That night the creaks and groans of the slowly moving ice beneath us so frightened the coolies that, despite the cold, they left their tents and huddled up in the open. Apparently they did me the honour of christening this glacier after me. The Workmans* were the next visitors and put the name Lolaphond glacier on their map. Lolaff was the nearest the Baltis could get to my name.

Next morning the going was better but we made only a short march. It was impossible to get through a series of huge seracs and a confusion of wide crevasses with dubious snow-bridges across them on to solid ground on the right bank of the glacier; so we bore to our left, making for the spot where the left lateral moraine of our glacier joined the right lateral moraine of the main ice-stream ahead of us. Here, in a shallow depression we camped (15,875 feet). There was an inexhaustible supply of stones to lay on the bare ice under our tents and pools of surface water for drinking.

Here two of the Baltis told me that they had heard the name Teram (pronounced Terrum) in connection with this region; and tradition said that from Teram men had reached "Chang Thang", the "northern plains". This suggested the sources of the Yarkand river of Chinese Turkestan.

From this camp we now realized that we had entered upon an enormous glacier, by far the biggest any of us had ever seen. It was fully three miles wide and we could see twenty-five miles of
its length. It was flowing from north-west to south-east. But where it ultimately went we could not tell. Not less astonishing was the huge wall of peaks to the north of us across this monstrous glacier.

Near the head of our "Teram" glacier about fifteen miles distant from us was a well-defined saddle in the ridge of the northern range. I felt convinced that this was no other than the uncrossed pass Younghusband had seen from the far side in 1889.

These Teram peaks were very high and quite unknown. In 1907 Colonel Burrard had written that "there is no more likely spot than this for great undiscovered peaks to be existing". Here they were and I christened the highest Teram Kangri (ice peak of Teram). Very unwisely I decided to try and measure it instead of being content to guess it at 25,000 feet. On June 17th, with the help of Slingsby and Neve, a base-line of 1,000 feet was roughly measured with alpine ropes on the level glacier. But the angles to the peak from the ends of the base-line were too acute and I never succeeded in getting a third ray. As a result I made a mistake of three miles in its distance and so the altitude of the peak worked out at 3,000 feet too high! Alternatively I may not have sighted on exactly the same point from each end of the base-line, for there were clouds about when I took the observation from the eastern end. The following year the Survey Department sent V. W. B. Collins to triangulate Teram Kangri from the south-east or Nubra side. He was compelled to spend six nights waiting for clear weather at his highest station, over 20,000 feet; it must have been a horrible ordeal. He made the height 24,489 ± 100 feet. The rest of our survey and heights have since proved to be pretty correct.

The texture of this great glacier where we were now encamped was remarkable. In the centre the surface of the bare ice was honeycombed into cells one to six inches in diameter, their slender sides sticking up six to eighteen inches above the surrounding ice. These thin flakes shattered with a tinkling sound under the clumsy pressure of our climbing boots. A vertical sun beats into this deep trench between high mountains.

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and warms the small bits of stone scattered over the surface of the glacier. The ice below a warmed stone thaws and the stone sinks into the melting pocket. The sides of the ice-pockets are vertical, and thus it becomes harder for a vertical sun to melt them; so the edges of the honeycomb remain raised above the general surface. For the same reason innumerable flakes and pinnacles of blue ice jut three feet and more above the level of the glacier, often in lines like the spines on the back of a prehistoric monster.\[^{5a}\] [Pl. 15.]

From the confining mountain walls several large secondary glaciers, like the one we had descended from the Saltoro pass, joined the trunk stream on either hand. Their moraines made great parallel weals throughout the length of the main glacier, and were multiplied as each secondary glacier entered. Their continuous and geometrical regularity was very striking. By our camp were four of these medial moraines. They were of contrasting colours, the two on the true right side of the glacier were light grey or brown—debris of granites, those on the left were of dark slates, seeming almost black in contrast to white blocks of marble scattered over them.\[^{5b}\] The Teram Kangri range was therefore of or on sedimentary rocks, while the range to the south was of older granite formation. The great valley down which the glacier flowed was architecturally primeval—tectonic.

Meanwhile Slingsby had sent his two orderlies, with Mullah Halim, down the glacier. They were given a rope, to be carried by the second man, in case the first slipped down an open crevasse. They were absent thirteen hours and thought they had covered seven or eight miles down the glacier, but could not see its exit ahead. Gulab Khan brought back a beautiful specimen of alabaster picked up on one of the left lateral moraines, so that it too must have come from Teram Kangri. They reported ibex on grassy slopes above the north-east bank, but they had seen no end to the glacier and could not make sure whether it eventually turned south or bent round to the east.

But what to do next? Did our glacier burst through the
Saltoro pass re-crossed

mountains to the east and then north by the valley of the Yarkand river into Chinese Turkestan? Or did it eventually turn south to Nubra to join the Shyok-Indus system? It was our old problem: was the Saltoro pass on the main range of the Karakorum as shown in the survey map, or did the new Teram Kangri range constitute the true main axis? To the north was country uninhabited and foodless. To the south Neve was emphatic that the Nubra river would be very dangerous and probably impassable during the height of the summer melting: only the year before he had unsuccessfully tried to force his way to its source. So either solution of the problem held the prospect of starvation for us. We were a party of twenty-five in all and caution enjoined that I should get them back to supplies at Ghyari. Any severe snow-fall on the Saltoro pass behind us would be a dangerous matter.

So I took the decision to retreat for the present. I must record that Morris Slingsby was very disappointed that I would not wait longer to explore the glacier more fully and also to attempt the ascent of a high peak: but I thought our party too large to risk delay and he yielded to my anxiety. So, as the night of June 17th-18th was clear and frosty, we decided to rush the Saltoro pass while all was well. We started back at five-twenty on June 18th, roping up in three parties before we left camp. Now that the Baltis' faces were turned towards home they went very fast. I selected a much better line than before and with hard snow we regained the Saltoro pass at ten o'clock. The pace had been killing and my head ached so badly that I could not face food when we halted. On the far side of the pass the snow was already in bad condition, but we forced the pace, pushed past Ali Bransa and actually made Naram, our old camp of July 13th in twelve hours from the start. We were thankful to sleep on the "soft rocks" after four nights on ice. On the 19th we gave the coolies the day's rest they had so thoroughly deserved, while we three explored the neighbourhood in different directions.

All that night it snowed and in the morning the descent over
the unstable moraines to Ghyari was more exasperating than ever. On a terrific granite cliff on our right, near the end of the glacier, a herd of thirty ibex were feeding. But there was no good ram so we left them alone, though we should have been glad of fresh meat. We got down gratefully to the grass and copses of Ghyari, thankful to be off the ice at last.

Before leaving the Bilafond, we seized the opportunity of exploring the largest of its tributary glaciers, the Chumik ("water eye" or "spring"). It was interesting because it was actively advancing. Formerly there had been a small sheep-pasture between the side of the Bilafond and the snout of the Chumik. But this had been overwhelmed by the advance of the latter which was now solidly united to the Bilafond. We spent three days over it, sketching in the topography on my plane-table sheet. The Chumik glacier is not only steep and much crevassed in its upper part but is very dangerous from avalanches that fall from its precipitous southern walls. One of these I photographed, being actually caught in the wind caused by the fall. The minutely powdered ice-dust, blown in a cloud before the avalanche, penetrated my clothing to the skin.

It seems to me that in the Alps snow slopes appear to be steeper than they really are; that in the Caucasus they are as steep as they look; but that in the Himalaya they are steeper than they look. Be this as it may, there is no doubting that in the Himalaya snow is far more treacherous than in either of the other ranges. Avalanches in the Himalaya are vast and travel far greater distances: not only must the mountaineer be constantly on his guard against starting an avalanche himself, but he must site his camps with the very greatest caution. In places which seemed quite safe to experienced alpine climbers several camps in the Himalaya have been completely overwhelmed. Whenever possible camps should be sited on, or at the foot of, spurs: but even such a barrier may be overleaped by one of these monstrous cataracts of snow.

On June 27th we all descended to Goma. Here we had to bid good-bye to Arthur Neve as he was due back to work in his
The Rgyong La

hospital at Srinagar. I had been much impressed by his account of the great volume of water he had encountered the year before in the upper Nubra river. This, combined with other considerations, inclined me to the theory that our "Teram" glacier might be the hitherto unseen upper portion of the glacier giving birth to the Nubra. This glacier, the "Saichar", was shown on the old survey sheet as only some twenty miles long and bounded on the north by the main ridge of the Karakorum. Such a glacier would not account for the heavy melt-water of the Nubra river; our "Teram" glacier would. In 1848 Henry Strachey had penetrated two miles up the "Saichar" glacier from its snout and I can find no record of anyone having gone up the glacier since. I decided that as soon as the summer floods abated, I must attempt a thorough exploration of this glacier for this seemed the likeliest key to the problem I was out to solve.

It will be remembered that, at Goma, the Saltoro valley splits into three. Slingsby and I could now fill in time by exploring the two remaining glacier valleys east and south-east of Goma, the Rgyong and the Chulung nullahs. In the first we spent over a week, entering through a very narrow gorge, beyond which the main glacier fills the valley for about twelve miles. At its head, on July 2nd, we reached a saddle at 18,700 feet, from which we looked down very steep ice-slopes to a glacier winding away to the east. This I was confident must join the Saichar glacier of the old survey; but it seemed out of the question to think of taking coolies down such a place; nor could we see into the bed of the deep trench below us. On the far side the mountains culminated in a grand peak of great height which we took for Teram Kangri. Because of the difficulty of the route, we had taken no coolies with us and I had left the plane table below. Hence we could get no ray to check its exact position, so that it was again impossible to make a correct calculation for its height.

We had broken weather on this journey. On one such day Slingsby, scorning rest, got a fine ibex while I was consoling myself in our little tent with Vanity Fair. The fresh meat,
the unstable moraines to Ghyari was more exasperating than ever. On a terrific granite cliff on our right, near the end of the glacier, a herd of thirty ibex were feeding. But there was no good ram so we left them alone, though we should have been glad of fresh meat. We got down gratefully to the grass and copses of Ghyari, thankful to be off the ice at last.

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We had broken weather on this journey. On one such day Slingsby, scorning rest, got a fine ibex while I was consoling myself in our little tent with Vanity Fair. The fresh meat,
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despite its toughness, was very welcome to all. On the way down we saw a "glacier burst". From a small hanging-glacier high above us came a crashing roar of falling stones followed by a great rush of black, muddy water down the hillside. On July 4th we got back to our base camp at Goma.

We not only wished now to explore the remaining Chulung nullah, but to cross somewhere at its head into the valley of the Shyok river, and so avoid returning by our old route to Khapalu and following up the river from there. In the jaws of its glen the Chulung river dashes through a veritable canyon. Beside this we passed some huge boulders of beautiful green serpentine and also saw a party of four of my beloved wall-creepers, like brilliantly coloured bats clinging to the cliff face. One evening I went after ibex and got an exceptionally heavy head, a lucky shot as he stood on the sky-line in the dusk. The horns were only thirty-one inches long but had sixteen annual knob-rings and their circumference was greater than I have ever seen. The local men told us that really long horns were never seen here, and explained that the ground was so bad that a long-horned animal could never keep its balance! The ground was bad enough to keep me out till nearly ten o'clock that night. Coolies went up next day to recover every scrap of meat I had left.

Beside the glacier was a wealth of alpine flowers with sheets of huge edelweiss, over which flew mountain buntings calling gaily. We passed below the arresting peak of Garkhun, a magnificent needle of granite where a sahib was said to have lost his life when hunting ibex. On July 10th we reconnoitred a pass at the head of the Chulung glacier. I made the height 18,300 feet. It was said never to have been crossed, but Slingsby was very keen to make it and I could rely on him to get our coolies across if it were possible. We started on July 12th, and, while Slingsby and his two orderlies brought up the coolies, Ahmedu and I went on ahead over the pass to find the best line down the glacier on the far side. There was a horrid complication of concealed crevasses, but eventually we found a way off the ice, where we remained till eight-forty-five when Slingsby got the
last coolie clear. We camped on the spot (16,000 feet) on a welcome patch of grass.

We were now descending into the valley of the Shyok river and our arrival next morning at the hamlet of Korisa created great surprise amongst its shepherds for they could not understand how we had managed to get there. These people looked like Ladakis, but were still nominally Baltis and Moslems. A further long steep descent brought us to a deserted garden, full of wild roses and flowering tamarisk with a few fruit trees, where clovers, yellow and purple vetches and a large white umbelliferous flower grew rank. It only lacked a Sleeping Beauty. Then suddenly down a narrowing and steepening gorge we caught a glimpse of the turbid waters of the Shyok river and beside it the irrigated fields and apricot orchards of the little stone village of Chulungka.

We now had to cover seventy miles along the right (northeastern) bank of the Shyok to reach the valley of its tributary, the Nubra river. This route had rarely been traversed by Europeans and it cost us a week of very hard going, especially for our laden coolies. The scanty villages are all on this bank, where the people can use the many glacial streams for irrigation. They form tiny oases of barley, buckwheat and apricots in the surrounding desert of precipitous rock. The inhabitants are few and food and coolie transport were very hard to get.

On our first march from Chulungka the path took us along a gallery of rickety logs built out from the cliff face which rose sheer above the river. It was unsafe for the coolies to do the passage loaded and it took us two hours to sling the loads along a distance of 400 yards. At the very worst place one of the coolies was hit by a falling stone and would have been plunged into the roaring flood below, had not Attar Khan, ever ready, seized him by the wrist as he toppled over.

After passing Biagdangdo, a village with fine rows of poplars, it is impossible to follow the river bank and we were forced to ascend several thousand feet to a camping ground named Waris, where was a spring. We were now entering the district of
Nubra, which is in the province of Ladak. The people speak a language very close to Tibetan and are Buddhists, as opposed to the Moslems of Baltistan. At the solitary farmstead of Dzong Polas our coolies expressed their scorn at seeing the first of these kafir (pagans), saying that they worshipped images, shared their women and ate men. The latter accusation arises from the manner of disposal of the dead by casting to the beasts of earth and air; whereas the Moslem buries religiously. From our camp here we were astonished to see a herd of urial (Ovis vignei), a wild sheep usually found in waterless hills far to the west of us. This must be the extreme north-eastern limit of their range. They made a grand sight in the evening as they galloped down in a bunch to drink at the river, raising a trailing cloud of dust.

From these ridges and high capes above the river it was elating to look out over the wide panorama, especially after having been so long confined in deep gorges or glacier-filled valleys. Bounding on the south the great valley of the Shyok, spread lengthwise below us, rose the lofty range which separates Shyok from Indus: an isolated mountain sequence interposed between the Karakorum and the Himalaya. This mighty ridge was almost without glaciation, but behind us, to the north, every spine of the Karakorum gave birth to streams of ice from whose melt-water the little fields of the rare villages in the valleys below drew their life. It was a vast landscape seen under loose monsoon clouds drifting across an enormous sky.

On this high ground we crossed several glacier streams, once by a natural bridge where the upper lips of the deep-cut canyon were less than six feet apart. On July 20th we reached easier ground and got down to the river again, just where the waters were gathering together to sweep through the gorge below. This gorge must once have been blocked, for above it were very definite signs of an old lake-bed, with the remains of fluvial terraces, representing old shore lines. After a march of ten hours we reached the village of Unmaru. Slingsby supplied our scanty larder with blue pigeons and I contributed the fish—stunned by firing a shot six inches from the surface of a pool in
14. APPROACHING SIACHEN GLACIER: TERAM KANGRI PEAKS BEYOND, 15.6.09
15. FRETTED SURFACE OF SIACHEN GLACIER, 17.6.09
the river bed! We were in no lack of dessert for dinner and gorged ourselves recklessly on apricots, which alas never agree with me.

Now, along the path Buddhist monuments (chorten) and walls made of prayer-inscribed stones (mani) were common. Masses of bright blue wild lavender edged the small fields. Ahead we began to see the flood-plain at the junction of the Nubra river with the Shyok. We passed sand dunes and crossed shingly flats and all day found no water but the glacier-muddied river. The great flood plain at the junction of the rivers was studded with dense thickets of sea-buckthorn (Hippophae rhamnoides) bearing amber berries, and groves of tamarisk. Shrikes watched like sentinels from the thorn tops; hares and red-legged partridges were there for the taking.

The Nubra valley enters the Shyok at an acute angle, passing into it from the north-north-west, the course of the Shyok being north-west. Climbing over the actual corner, which is formed by an outcrop of living rock several hundred feet high, we found its upper surface rounded and in places actually polished. In the rock were deep scratches which showed that a glacier had formerly flowed down the whole length of the Nubra valley and debouched into that of the Shyok. We were looking at the sign manual of a former glacial epoch.

A glacial epoch is terminated by some improvement of climate capable of melting not only the annual snowfall but also the accumulations of previous centuries, thus causing great summer floods. We were about to experience this on a small scale in the Nubra valley.

On July 22nd, after a very long march, we pitched our tents under the walnut and apple trees of Charasa on the bank of the Nubra river. Charasa used to be the capital of the ancient principality of Nubra. The people are of mixed blood and not pure Ladakis, though, like them, predominantly Buddhist. It was captured after hard fighting by Muhammad Haidar in 1532—"and the vapour from the brains of the infidels of that country ascended to the heavens." The town is built on a
whale-back island of hard rock raised some hundreds of feet above the valley floor. The rock outcrop has merely been polished and rounded by the grinding action of the former Nubra glacier, remnants of whose lateral moraines may be seen clinging like martins' nests along the cliffs at least 2,000 feet above the flood plain. The few fields are surrounded by thick fences of dry thorn to keep out browsing ponies; for the chief industry here is the hiring of animal transport for the caravans to and from Yarkand. The grazing is profitably let to Yarkandis who arrive here with famished animals after crossing the Karakorum pass.

We had to ford the Nubra river to Panamik, now the chief village of the district. We tried at Charasa, but the current was terrific, the water numbing, and I nearly got carried away. It was the speed of the current more than the depth of the water that beat us. The orthodox method of sounding in these ever-changing channels is to throw in a stone of a certain size: if it answers *truk* you can pass: if it replies *boom*, beware. After two hours we gave up the attempt and moved farther up-stream. On July 25th a mixed bunch of yaks and ponies were to be driven across. They carried us and our baggage safely over, but the passage of the various channels into which the river split took three hours and we landed two miles lower than where we had taken to the water.

On July 28th we made an expedition up the very precipitous Popache glen, a "hanging valley" which enters Nubra a few miles above Panamik. At the head of this stands the Chunglung peak of the Schlagintweits, 25,170 feet. I had hoped to give Slingsby a chance of trying this ascent, or one of the other two 24,000 feet peaks adjacent. Despite unsettled weather we got our camp on to the glacier at 18,200 feet, but a heavy snowstorm on August 1st, lasting twenty-four hours, compelled us to retreat. The Vissers subsequently discovered our cache of firewood when they were exploring here in 1929. According to the latest reports by Major J. O. M. Roberts this fine group of peaks would be best approached from the valley of the upper Shyok.
On August 4th, with the utmost regret, I said good-bye to Morris Slingsby, whose leave was up. To my sorrow I never saw him again for he was killed in action in Mesopotamia in 1916, commanding the battalion when his colonel fell. He had won an M.C. and Attar Khan got the I.O.M. Holding a position within a few yards of the enemy he received orders to retire. He went back under heavy fire to make sure there was no mistake, and then, returning, skilfully withdrew his men, but lost his own life. He was the toughest man I have ever travelled with and yet completely unselfish and most considerate.

On August 12th I was joined by Captain D. G. Oliver, the British Joint Commissioner for Ladak. The year before he had attempted to force his way up the Nubra river to its source in the "Saichar" glacier with Arthur Neve, but had been defeated by the weight of water. He considered it was hopeless to try it before mid-September. My problem of the "Teram" glacier had to wait, but Oliver, responsible for the traders between Kashmir territory and Chinese Turkestan, had a long cherished wish to find some better route to the Karakorum pass than the terrible one usually followed by the caravans at such heavy annual cost to their transport animals. He asked me to join him in an interlude of road-hunting. This would give me the chance to see the eastern end of the Karakorum range and my impatience was further assuaged by the prospect of setting foot at least on to the edge of central Asia.

Above Panamik the south-eastern extension of the Karakorum rises to peaks of over 25,000 feet. It is in fact the end of the main axis of elevation of the Karakorum range. The Shyok river follows a remarkable course round this huge spur. Rising to the north of it, it flows in a south-easterly direction until at the eastern extremity of the mountains it turns at an acute angle and flows almost north-west to its junction with the Nubra river. It then continues in a generally western direction to join the Indus through the gorges up which I had just passed with Slingsby. Thus the Shyok river forms the eastern and then the southern boundary of the Karakorum range.
Karakorum

We were now to cross the Sasir pass (17,600 feet) which should take us across the northern end of this huge spur into the upper reaches of the Shyok river. The pass is four stiff marches from Panamik. At first, our route followed up the left bank of the Nubra river and then turned north-easterly, finally crossing a side glacier and then following another one up to the pass. We had changed to pony transport at Panamik, and though severe for horses, it was a pleasant change to ride over glaciers. Just below the pass I picked up a dying corncrake (*Crex crex*) on migration from Siberia to India, where it has been rarely found in winter.

From the summit of the pass we could see that the Karakorum extended no farther and that the Shyok river was its boundary. Beyond it to the north and east lay a tumbled mass of mountains, through which caravans must find their way to the Karakorum pass, but few peaks rose higher than 18,000 feet. Hardly a glacier was visible: it was a scene of the utmost desolation; a land of starvation.

We descended to the banks of the upper Shyok into the camp of a caravan of thirty Kirgiz; my first introduction to the peoples of Central Asia. Stately men, they wore white turbans above long gowns of brilliantly striped material and high red leather boots.

Our road-hunting was now to begin. Leaving our own saddle horses and the caravan to follow the usual route to the Karakoram pass, Oliver and I decided to force our way up the old disused caravan path along the right bank of the headwaters of the Shyok. This path had recently been overwhelmed by the Kumdan glaciers which come down at right angles to the main river valley. Periodically they form a complete ice-dam, butting against the great cliffs of marble on the river’s left bank. A lake forms above this dam, and the weight of water ultimately breaks through it, causing very serious floods in the Shyok valley and even lower down as far as Attock on the Indus. When these glaciers are in retreat the caravans prefer this route which then gives far better going than the difficult mountain ravines which
The Kayakovum Pass must nowadays be traversed to reach the Karakorum pass. In 1909 Oliver and I found that the old path disappeared beneath a blank wall of ice some eighty feet high. We took two long days to get clear of these glacier barriers, one easy march for a caravan had the path been open. In the wide, bare valley above the uppermost glacier I was surprised to see three Tibetan antelopes (Pantholops hodgsoni): this species was not until then known to extend its range so far to the west.

We followed the Shyok to its ultimate source in the Rimu ("striped") glacier, which is a vast piedmont glacier of arctic type, debouching right on to the edge of the valley plain and spreading out in a great fan. The surface is weathered into serried lines of weird pinnacles of ice. In 1869 Shaw described this view as worth the journey from Europe merely to see. The Rimu is the farthest to the north-east of the great glaciers of the Karakorum. Its vast ramifications remained for de Filippi to explore in 1913, though I was able to prove that the old survey map was wrong in extending the Shyok river miles beyond the Rimu, which is its true source.

Meanwhile Oliver’s caravan bashi, Rasul Gulwan, had brought our caravan along the present trade route through mountain defiles, over the Depsang Plains, a high desert at 17,000 feet, to the last encamping ground short of the Karakorum pass. This is called Daulatbeguldi, “the place where Daulat Beg died.” It is indeed a desolate spot (16,580 feet) with poor water and only dry dung for fuel. That night a caravan from Leh with tinkling bells, driving forward to the dreaded pass, went by in the bright moonlight. Where possible the animals pasture by day on the few dry woody plants; afterwards they are given their scanty ration of grain and then travel on by night. From Daulatbeguldi we rode up to the Karakorum pass (18,110 feet) along a track worn by generations of caravans and marked the whole way by the bleaching bones of dead pack-horses and the occasional skeleton of a camel. As I rode along I counted 100 skulls in half an hour.

Rasul Gulwan, Oliver’s caravan leader, was a great character. He had travelled through Tibet with Littledale, and with the
Karakorum

Barretts, Phelps and Church, and was rated very high by all of them. He was of the breed called Arghun, of a Yarkandi father by a Ladaki mother. Inheriting the best characteristics of both races, he was absolutely honest; he never took bribes nor offered them. His autobiography is well worth reading. As Turki was his native language I asked him about the name Karakorum. He was quite definite that it was pronounced Kārakōrum, and referred to the small splintered slabs of blackish stone at our feet.

On the far side of the pass we descended into Chinese territory to visit and repair the cairn erected to Andrew Dalgleish who was murdered here by an Afghan, Dad Mahammed, in 1888. Captain W. W. Bower was on leave in the country and finally caught the murderer on the borders of Russian Turkestan. The Russians insisted on holding him for "safe custody" that night. Next morning he was reported to have committed suicide. Moslems do not do this; but it was convenient for the Russians, who did not like the idea of a British officer gaining prestige amongst the natives by leading a prisoner back to India through central Asia.

Returning to the pass I walked a mile or so to the west over a gentle rise. Beyond it I was able to look down on a tributary flowing north-west into the head of the Yarkand river, just in the place where the head of the Shyok was marked on the old survey sheet as flowing south—almost the opposite direction. It thus becomes obvious that the Karakorum pass lies on a true water parting, separating the system of the Yarkand river from that of the Indus. Yet I must insist that this pass only crosses a relatively low secondary spur, and is not on the true Karakorum axis at all. These deductions have since been fully confirmed by de Filippi to whom I recommended the problem. It is the Sasir pass, between the head waters of the Nubra and the Shyok, which crosses the true axis of the Karakorum.

Turning south on August 26th we rode over the desolate Depsang Plains, with no sign of life except some large sand-grouse. Then we entered the mountain gorge of the Kizil-angar, constantly fording its furious red torrent, sometimes up to our horses' bellies. We camped late by the first scanty tufts of
Road-bunting

*burtsa*, the small woody plant used as fuel. Next day, through the same forbidding country, we reached the camping ground of Murgo, where the geologist Ferdinand Stoliezka died of hardship in 1874. Here we left most of our gear, and on the 29th Oliver and I pushed on with a small party, a hard long ride down a difficult gorge to the spot called Kataklik on the Shyok.

In winter, when rivers are low, travellers from Leh to Yarkand instead of turning westward up the Nubra valley and over the killing Sasir pass, turn eastward and follow the Shyok upstream round its hair-pin bend right up to Kataklik. Oliver wanted to see for himself if it were possible to make a summer track by this route. A week's examination proved that this could not be done since the Shyok in flood washes too often against the steep sides of its valley.

There was also tradition of a pass through the mountains north of the Shyok which would be a possible alternative to the Karakorum pass itself. In quest of this, from August 29th to September 6th, we explored the wildest country I have ever seen: a bare mountainous desert of purple and raw-sienna rock; it seemed, except for one welcome thicket of tamarisk, almost destitute of vegetation and it might reasonably be called uninhabitable. None of these side-glens gave a practicable route for our horses and I remember one very sinister gorge which I entered alone, wading. The walls were so high and the cleft so narrow that I had the illusion of being able to touch both sides at once. A roaring of waters grew louder as I advanced and after two miles I faced an impassable waterfall. In the confined space, with the light so far above me, it was a terrifying place.

On September 6th we got back to our people left behind at Murgo, to be kept awake half the night by the howling of wolves cheated of our ponies. In another two days we re-crossed the Sasir pass and another long march brought us back to Panamik in the Nubra valley.

Now at last I could get back to my problem of the "Teram" glacier. Was it a vast unsuspected upper reach of the "Saichar" glacier? Was it the source of the turbulent Nubra river?
Karakorum

In its upper course the Nubra runs irregularly through a flood plain hemmed in by steep walls of granite. The weight of water hurls itself first against one side of the valley and then against the other, swirling beneath impassable cliffs. At these points the traveller must ford the river in order to make his way up-stream. Now, late in the season, the nights were very cold, reducing the melting on the glaciers and lowering the height of the river in the early morning. The midday sun was still strong enough to raise its level during the day.

Oliver’s company was of very great assistance on this enterprise. He took as leader Tsering Spalzung, headman of Panamik, reputed the most water-wise man in the valley. His assistant’s name was Satan, a most excellent aid. At every doubtful point, and especially where quicksands were feared, everyone awaited their verdict before trying to ford.

We set off from Panamik with twenty ponies on September 13th and soon crossed the river to its right bank, led faultlessly by Satan. Arriving early at the hamlet of Aranu we found a nice patch of scrubby jungle and shot partridges and pigeons for the pot. Above Aranu the valley narrows. There were grand cliffs on either hand, suspended above which towered a spire of perfect snow, Shelma “the crystal”, a holy mountain—inevitably so. It is an astonishing sight: at its foot is a monastery (10,900 feet), an offshoot of the great establishment of Himis in Ladak. The monks turned out to receive Oliver and we entered camp to the thudding boom of their drums, the long rending blare of six-foot trumpets and the clashing of cymbals, a music perfectly harmonizing with the wild setting of the scene. But it is during the monastery services at night that this music is most impressive. In sight of the monks a glacier tumbles chaotically down a steep narrow ravine. By day it shows amethystine blue between walls of warm granite; at night the glimmering ice reflects a light towards which the faithful turn in adoration.

For our better enjoyment the weather now turned really fine, and the disturbance of the monsoon was finished. A mile above Gonpo, the river sweeps in to the base of vertical cliffs and on
Siachen

our third march we had to cross again back to its left bank. It was here that Oliver and Neve were stopped in 1908, but now (September 15th) we forded easily, with water only up to our girths, to reach the little fields of Warshi. These are cultivated by the monks every three years, the highest agriculture in the valley, about 11,000 feet. We camped about five miles above Warshi to wait for the lower water of morning since we had to cross again. Early on the 16th we crossed to the right bank, the icy water being very strong and up to our saddle-flaps so that I was thankful I had not to wade. That afternoon we camped (11,600 feet) in a small patch of autumn-tinted willow and wild rose which is called Siachen, “rose-place”. (Obviously the origin of the old Survey mis-nomer Saichar.) If the glacier retreated there would be pasture for a few sheep and doubtless it was formerly so used.

A messenger had followed us up with instructions for Oliver to report at Simla on October 14th. He would have to get back to Leh and then traverse the long road through Ladak, Baltistan and Kashmir, so that he ought to have turned back at once; but he insisted on seeing me well started up the glacier.

The piled snout of the Siachen glacier ended rather abruptly, heaved up on a relatively large flat flood plain. The ice was much broken and littered with moraine stuff. Down the centre it was cleaner, but here were set serried ranks of gleaming white ice pinnacles which prohibited all possibility of a reasonably quick route. Both sides of the valley were steep; the glacier completely filled its bed and there was no passage between the ice and the hillside. From above camp we could see that several secondary glaciers joined the main ice-stream on its right side. Their junction with the bigger glacier would complicate the route there with crossed systems of crevasses; so it was best to take to the left (true) side.

On September 17th Oliver and I started up the glacier together, taking thirteen coolies with us. We kept to its left side over tumbled moraine with numerous wide crevasses to negotiate. After five hours rough going we came to a side
nullah coming in at right angles. This was a remarkable sight because it was empty of ice: only a tiny milky stream flowed over a level flood plain at least 300 feet below us as we stood on the main glacier. Our glacier was bulging out over the floor of this flood plain, but it was so steep at the edge that we could not have got down into the nullah bed without expending too much time and labour. There was a sharp bend eastward about two miles up this ravine which prevented our seeing farther, but round this corner there must be a glacier which formerly joined the main ice-stream. The relative levels of the side-glen and of the main valley were the same, showing no indication of that "over-deepening" of the latter, so beloved of the textbooks.

We eventually camped (13,000 feet) on a small grassy slope on the left bank of the main glacier, the first and best possible site we had met. For fuel there was a good supply of dead juniper stumps clinging to little platforms and crevices of the rocks; for water there was the glacier. This was our last camp together. I felt very grateful for the way Oliver had fallen in with and helped on all my plans. The people looked on him as their natural protector and would do anything to help him, and travelling alone I should have encountered far greater difficulties.

On September 18th, after a regretful good-bye I went on alone with the ever-constant Ahmedu. We continued over moraine-covered ice, both carrying moderate loads and prepared to sleep out. Ahead the glacier bent to my right, and round the corner I ought to see its head backed by the main chain of the Karakorum, if the old Survey sheet were correct. But if not, what? I could now see that the lateral moraines on the right side of the glacier (to my own left) were pale grey, looking like granite, while those I was traversing on the left side consisted of dark schists and slates with blocks of white marble scattered over them. This was exactly what we had seen on the "Teram" glacier. After two hours' walking we reached a point where the glacier makes a second bend, towards the north-west. Here,
before us, the main valley extended as far as we could see. It was the “Teram” glacier: now the Siachen.

The Survey Report of 1861 claimed only that E. C. Ryall had made a “rapid sketch” of this country. He was given no time to ascend glaciers, and it was quite natural that, seen from a distance down the Nubra Valley, the high narrowing walls of the snake-bend which we had just passed through, should have seemed to be about to terminate the glacier’s course, twenty miles from its snout.

We had to get higher to make my assurance sure, though it was difficult to get off the glacier through marginal crevasses and loose moraine, which threatened to fall on us as we climbed down the steep edge to the foot of the valley wall. Getting clear, we climbed a thousand feet up broken rock to reach the top of a spur at 14,300 feet. This was some ten miles up the glacier and Ahmedu built a cairn which is visible from below to anyone who knows where to look for it. The view up the great Siachen glacier was now magnificent: its extreme breadth, about three miles, was no less impressive than its sinuous length, marked by the geometrical design of its series of medial and lateral moraines. Still, I could not see the actual spot on the glacier where I had camped with Neve and Slingsby after crossing the Saltoro pass; nor was the summit of Teram Kangri visible, for it was hidden by an intervening spur.

But on the right of the glacier, fifteen miles ahead, I could identify the last peak I had seen, and photographed, when looking down the glacier in June. Now I could photograph this landmark again and from almost exactly the reverse direction. Fortunately it had a rocky top with an easily recognizable outline, and on later comparison the two photographs corresponded. The Siachen glacier was thus shown to have a length of forty-five miles and thus to be not only bigger than any other in the Himalaya or High Asia but also the largest in the world outside the polar regions and Alaska.

It was now possible to generalize the structure of the great Karakorum range. A continuous series of vast glaciers lie in a
Karakorum

trench along its whole extent. On the west the great Hispar glacier connects at its head with the Biafo. After a relatively short distance comes the westward flowing Baltoro glacier, near the head of which rises the Siachen glacier flowing generally south-eastward. The great peaks align themselves in two axes on either side of these great glaciers. The highest, and northern range, starts north of Nagyr and follows through K₃ and the Gusher-brums on to Teram Kangri. Thence, the axis bends somewhat to the south-east, crossed by the Sasir pass, to end in the great Nubra peaks. The southern and generally lower axis starts in the west with Rakaposhi, near Gilgit, and runs through Masher-brum and the Kondus peaks. It is crossed by the Saltoro pass and continues south-east through Shelma, ending at the spur which forms the sharp corner where the Nubra river joins the Shyok. 

Younghusband was a true prophet. Colonel Burrard of the Survey had suspected the truth. The avalanche-swept pass, whose foot Younghusband had reached twenty years before, was on the main axis of the Karakorum range, which thus lay miles farther north than had been believed. We had stolen some 500 square miles, from the Yarkand river system of Chinese Turkestan, and joined it to the waters of the Indus and the Kingdom of Kashmir.
CHAPTER 10

HINDU KUSH

Between the renowned valleys of Oxus and Indus stand the mountains of the Hindu Kush. These formed the ancient political boundary between India and Central Asia. The range runs westward from the Karakorum chain into Afghanistan, at whose capital, Kabul, reigned the great Mauryan dynasty of India. It was one of these kings, Chandra Gupta, called by the Greeks Sandra Cottus, who stemmed the advance of the followers of Alexander the Great. Even after the coming of Islam the Kabul valley remained politically part of India, and Brahui, an Indian language is still spoken there. To-day the Hindu Kush is the meeting point of three empires: India, China and Russia.

Many invading hordes have swept over its western passes, but as in the Caucasus remnants of older races escaped destruction hidden in its remote valleys and glens. On the Afghan border and in Chitral persist small communities of pagan Kafirs. The Chitralis themselves are an artistic and cheerful people, noted for their treachery. East of these come the tribes of Ghizr, Yasin, Ishkoman and Punyal; then the Dards of Gilgit, and the wild raiders of Hunza and Nagyr. There is a bewildering variety of spoken languages. Furthermore, though all are Moslems, some tribes are orthodox Sunnis, others are Shias, and yet others are Maulais, followers of the Aga Khan. These differences of race, language and religion have made it a country of unending strife and blood feuds; but it was the constant attacks of slave-raiders on caravans north of the Karakorum pass which compelled the "wicked" British Empire to take steps to subdue Hunza. This epic story is told in Knight's Where Three Empires Meet; a book I knew almost by heart.
12. HINDU KUSH.
**Gilgit**

The Hindu Kush is bounded on the east by the Gilgit river and its tributary the Hunza river, whose waters flow into the Indus and together form a dividing line between the Hindu Kush and the great chain of the Karakorum. Flowing southward from its confluence with the Gilgit river, the Indus sweeps past Chilas in a great bend to the west, cutting the most profound of all Himalayan gorges to separate the south-eastern spurs of the Hindu Kush from Nanga Parbat, westernmost peak of the Great Himalaya.

The village of Gilgit, lying below the junction of the Gilgit and Hunza rivers beneath Rakaposhi (25,550 feet)—western giant of the Karakorum—is the tiny capital of a region of considerable extent reaching southward to Astor and Chilas. All this was within the kingdom of Kashmir and was administered by Kashmiri officials; but when the peace of India was Britain's responsibility we reserved the right to administer, through a British Political Agent, Hunza and Nagyr, together with a strip of potentially dangerous territory along the upper Gilgit river, bounded on the north by the jealously-guarded Afghan frontier and on the south by independent and unstable tribal states. This narrow sleeve of country meets Chitral at the Shandur pass. Our government of these primitive clans was according to the ancient forms of tribal justice, but custom was tempered with mercy and killing was firmly discouraged. Our Political Agent, with his headquarters in Gilgit, had an assistant seventy miles away at Chilas and one at Gupis, another seventy miles away along the course of the upper Gilgit river. His military adviser was the Commandant of the Scouts; and there were usually two British officers attached to the Kashmir Imperial Service troops who garrisoned Chilas, Bunji and Gilgit. The Agency surgeon completed the scattered party, a welcome guest at every post.

It was as assistant commandant of the Scouts and assistant political officer at Fort Gupis, during the Great War, that I was able to learn something of this fascinating country. I served there in 1916 and 1917. I was in luck. Before this I had always to pay my way myself, but now I was being paid more than I
Hindu Kush

had ever had to spend for doing what I particularly wanted to do. Further it would otherwise have been difficult for me to get there at all, for globe-trotters are here unwelcome. Though I had sought the post I was diffident about my qualifications, my knowledge of Urdu being limited and I knew no Persian, the polite language of these polyglot mountaineers. It took three weeks hard travelling to get from Simla to Gupis: from Kashmir the route lay over the Kumri pass (13,368 feet), on through the forests of Astor, with Nanga Parbat glorious on my left, majestic and cold: thence down to the furnace of the Indus valley, through stifling Bunji, low beside the river, but where the view back to Nanga Parbat is most magnificent, and so eventually on up to Gilgit. There I reported to Major A. D. Macpherson, then Political Agent, and to Major F. H. Bridges commanding the Scouts, originally the famous Hunza Levies raised in 1892 by Cockerill and Younghusband.

There were no roads for wheels in the Agency and transport was confined to mules. I received double pay but found I needed to keep four horses, and as usual here they were all stallions. The way beyond Gilgit up to Gupis was cooler and pleasanter than the Indus valley, but the going was worse. In one section, where the path was very narrow with a nasty drop to the river, several flights of stone steps were made in the track. It happened once while I was riding down this part of the way that my horse slipped and went over the edge. I put both hands on the pommel and heaved myself clear as he fell. He landed on his back, on a ledge some twenty feet below, saved by the iron saddle-tree, which was broken and I landed alongside with only a broken wristbone. This journey from Gilgit to Gupis, about seventy miles, was usually taken in two or three stages, though I have ridden it in a day.

Gupis was the northernmost military post in India, a small mud fort mounting two old muzzle-loading screw-guns on its projecting corner-towers. Nearby was the Chief’s house and a small bungalow for the political assistant. The aridity of the place, commanded on both sides by steep tumbled rock-slopes,
16. (a) CHILLINI GLACIER BLOCKING KARUMBAR VALLEY, 21.10.16  [p. 210]
(b) PATROL OF GILGIT SCOUTS ON TRIBAL FRONTIER, 1.9.16  [p. 199]
THE ROCKIES: "WATERS, FOREST, GLACIER AND PEAK IN ONE HARMONY", 10.7.10
was relieved by apricot orchards and a few tall poplars and there I was to live where Gurdon, Younghusband, Charlie Bruce and many another celebrated frontier officer had dwelt. I took over from Major A. G. Shea, of the 51st Sikhs of the old Frontier Force, who owing to the war could no longer be spared from his regiment. “Tim” Shea—a most engaging man and very simpatico—was already an experienced frontier officer: he had a particular affection for the tribesmen here and they returned it. He gave me unlimited information and advice, but it was no easy thing for a subaltern to take over from a major, and later I discovered that discussion had taken place among the local aristocracy as to what particular misdemeanour I had committed to account for my lowly rank at so advanced an age: assuredly rape or murder.

Shea introduced me to Murad Khan, Mir of the district of Ghizr in which lay my headquarters. I found him a charming man of late middle age, a cadet of the old family of the Khans of Skardu, in neighbouring Baltistan. He was full-bearded and of quiet countenance and I was to find in him a man as completely reliable as any I have ever met. He was a kind and paternal ruler, taking but one-third of the crop from the tenants of his scanty lands. Later, sitting with him on serious cases I found I could always support his authority; and he never let me down despite my ignorance. The Mirs were really local governors selected by us, though nominally feudatories of the Kingdom of Kashmir. To enable them to govern smoothly their authority required the support of the British. With men like Murad this was easy: in some other cases it was not so simple.

Beside Ghizr and Koh, three other territories came under my charge: Yashl, lying to the north-west of Gupis against the easterly corner of Chitral; Ishkóman, east of Yasin and stretching from the upper Gilgit river northward to the Afghan frontier; and Punyal, which lies east of Ishkóman and extends from the northern frontier ridge to the southern mountains bordering the tribal territories of Tangir and Darel. Hunza and Nagyr east of Punyal were administered by the Political Agent through two senior chiefs.
The upper valley of the Gilgit river is about 100 miles in length. Up to Gupis it is a mere trench, bare, arid and cliff-bound, subject to great seasonal extremes of temperature and with scanty rainfall: but where irrigation can be practised even grapes will ripen. On its southern side a series of extremely precipitous gorges give access to gentler valleys leading up to the frontier crest of a lower southern range of the Hindu Kush. These upper glens are uninhabited, but every year the trans-frontier tribes of Darel, Tangir and Killi drive their flocks over several easy passes to pasture, after their own southern slope of the frontier range has been scorched by the summer heats. We made them pay grazing dues to the respective Chiefs in whose territory these glens lay; but we closed the grazing, if the trans-frontier people raided or carried on blood-feuds beyond their own borders. Their herds would thereby suffer so severely that this was a far greater inducement to good behaviour than the fear of any military measures we might undertake.

When I first arrived in Gupis one Puktan Wali was talking too loudly in Darel. This pathan brigand had made himself master of that country: he was said to pull off the ears of his enemies with hot pincers or stew them in juniper smoke, which drives men mad before they die. To us he pretended that he alone could control the unruly Darelis: to the Darelis he swore that, if any one of them touched a hair of his head, the English would destroy them all: in other quarters he gave out that he would willingly lead a jehad against the British Raj. It was thought wise to show our unconcern by sending a British officer along this frontier; so Bridges ordered me to make a report on the southern glens and passes leading to tribal territory, and to create an impression I was to take a small party of the Scouts along with me.

Alas I was never to meet Puktan Wali, for six months later, on my birthday, word came that he had been murdered whilst in the hands of his barber. I thoughtlessly exclaimed, "What a splendid birthday present." At once it was assumed that it was I who had contrived his death.
I started on my tour of the frontier region from Singal in Punyal. Here a valley runs southward from the Gilgit river to Darel and from its head I was to make my way gradually westward along the tribal frontier, crossing into the heads of the other valleys that led up to it. We travelled light for there were long distances to cover and not much time and we had to be able to camp anywhere; but fortunately it was good riding country and we could drive sheep with us for food.

After the steep rise from Singal we entered a temperate and beautiful country of grassy dales, decked with a profusion of wild roses, forget-me-nots, primulas and gentians. The relief after the heat and constraint of the main valley seemed to be reflected even in the skies themselves, which, no longer brassy, were now a soft clear blue decked with white clouds. Our valley broadened, with copses of willow and willows and at its head lay a pretty lakelet, the Ase Sar. We crossed to the next valley head by an easy pass, the Paresar and approached Kinnichish (c. 17,000 feet), a fine peak on the frontier ridge. Below its cliffs a small glacier descended to the borders of another lake which, still as a looking-glass in the limpid air reflected a lovely composition of sky, snow, cliff and glacier ice.

One camp I shall never forget. There was soft turf to sleep on and wood for fires. It was called Ostonero, “where the bear dug the spring.” This ran with nectar compared to the turbid glacier-muddied water of the Gilgit river, to which I was usually reduced, and I blessed the bear. That night we killed a sheep and after supper the men sang and danced in the firelight. When, as often with these people, a local poet is available, the songs will be extemporized and topical to the occasion. The singing must be in Khowar, the tongue of Chitral, which sounds like Romany, and is more musical than Punyali or than Burushushki, which is harsh as an avalanche of falling stones. Then, making up the camp fires and leaving my small tent standing, we moved off to sleep among some rocks a little distance away. I did not really expect a shot in the dark, but it was a good trick to show the Scouts. [Pl. 16b.]
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On the frontier of Tangir is the desolate Shagachi pass, about 15,000 feet. Dismounting, we had a long stony grind up to it, finishing over snow-beds which remained even in August. Southwards we looked over a wide stretch of tossing mountains, bare and savage enough to account for the raids and feuds of its people. I wished to get a view down the Barobas nullah of Tangir and so had to make a short, unobtrusive—and unauthorized—trespass for that purpose. The horses and most of my men went round to the next valley on the west by an easier route. All the head of Barobas is very bare and herbless and the tribesmen did not normally bring their flocks this way, though for raiders it was a convenient entry. Coasting westward we got round to the head of the great dale of Chashi, whence I could regain Gupis. At the head of the Chashi nala was another lake, succeeded by smaller ones. Such lakelets, a very beautiful feature of these mountain dales, arise from small glaciers in the frontier ridge, but in these lakes the glacier mud is cast down and emergent streams of clear water flow on down the length of the valleys. To the south Chokinnibush rises to 18,000 feet, a sugar-loaf of rough rock and snow on the frontier of Kib, the finest peak in this part of the Hindu Kush. The Chashi was the richest and most extensive vale I had seen in these parts, with good grass and many copses of amber-berried buckthorn, birch, willow and small poplars. Lower down was a mixed flock of tribal beasts, whose owners were suitably reminded that they would have to pay grazing dues to Murad Khan.

Water-sheds are very convenient as political boundaries; but very often it is an impassable gorge in the lower reaches of a valley rather than the height-of-land at its head which forms the natural bar to intercourse between different communities. Such examples are common along the Himalayan frontiers between Tibet and India, and also in the Alps. In the Chashi valley, but only in the lowest reaches of the others, were the remains of old cultivation, suggesting scenes common in the Scottish Highlands, where poor ground has been forsaken for the more responsive straths.
Another march down the Chashi valley and Murad himself met us, riding at the head of his "tail". It was a picturesque sight, the men clothed in long-sleeved flowing chogas with white kois on their heads. This cap of the country is of white felt with a thick rolled-up brim which can be turned down into a sort of balaclava helmet to protect the neck and ears from winter storms: their long boots were of velvet-soft red leather. Spurs were hardly ever worn but each man carried a whip, its short stock of bone, horn, or carved wood; it has a long thick lash and it is ornamented with a bunch of vividly-coloured tassels attached to the wrist strap. That night there was more dancing and singing, with vers d'occasion by an eminent poet.

I was sorry to be returning to Gupis for it had been a very pleasant tour through country such as I had never met before in Himalayan regions, though both country and people reminded me constantly of the Caucasus. All the best families claimed descent from Sikander zu'l Karnain, Alexander the Great. Rosy cheeks and blue eyes gave a legitimate air to such claims; as also the love of poetry and the dance.

At Serbal, in the main valley above Gupis, I played my first game of polo. This was a regular social institution in which I had to take part. Bridges had given me a sack of light bamboo-root polo balls, for the native stick raises the ball abominably and the heavy chinar-wood balls habitually used here are dangerous to inexperienced heads. His thoughtfulness probably saved my life the following year. I played this first game on a Badakshani stallion with the admired curly coat of that breed. A horning mare added to the excitement.

Still farther to the west a very fine valley runs up to the frontier of unexplored Bashqar. The Bashqaris are a very primitive people, dirty, squat and ugly and their language is alleged to be incomprehensible to any of the other tribes. General Bruce later confirmed my surmise that they are a sept of the Bashgul Kafirs. They are said to be able to steal the cap off a sleeping man's head without awakening him: petty thieves, not raiders, they are adepts with the sling, use bows and arrows and have only
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a few matchlocks. I never had time to explore the farthest western valleys as I wished, though, on different occasions, I had distant views of passes leading both into Kandia and Bashqar, where the highest peak rises to perhaps 20,000 feet with several small glaciers flowing northward. In May ducks, including pintail, were apparently breeding beside the lower tarns in these valleys: in the thickets were redpolls and redstarts: most beautiful were a ruby-throat (Calliopl sp.) and a blue-throat, both in full song and nesting. The blue-throat was a form of the sub-arctic bird occasionally seen in England on passage from Scandinavia: its song is rich and varied, sometimes approaching that of the nightingale. This small community in the Hindu Kush might be looked on as a relict species isolated from its Siberian cousins, who have migrated farther north. It had evolved into a recognizably separate species, and my single specimen was identified by Dr. Hartert of Tring as Cyanecula c. abboti, extremely rare in museums. There were also exquisite water-wagtails, pure bright saffron picked out with black; but I had not the heart to kill one just for the sake of learning its correct name.

My extreme western boundary was the Shandur pass (13,500 feet) which separates the Gilgit Agency from Chitral. Here in 1895 Colonel Kelly and his indomitable Sikhs had carried over a battery of mountain guns through the snows of winter to the relief of Robertson and his tiny garrison besieged in the little fort at Chitral. That was a memorable passage. Everyone told Kelly that it was impossible to get troops, much less mule-guns, through the snow drifts on the pass, but in fact he got to Chitral before the big relief column from Peshawar. As local commandant I felt it was a place I ought to know. I visited it in May 1917, riding comfortably enough but very glad of a thick, long-sleeved choga and padded Gilgit boots, for it was bitter weather up there. The long approach to the pass leads over easy undulating ground and from a distance it is not recognizable as a depression. We passed a lake where I was told geese formerly nested in considerable numbers, but persistent egg-taking by the hungry mountaineers had made them desert the locality. We
A grazing dispute

climbed slowly upwards until at last the view opened to the west and we looked down into the upper Yarkhun valley of Chitral. Away to the north-east lay the Baroghil pass, the gate of the Pamir, the Bam-i-dunya, the "Roof of the World" of Persian writers. Treeless, wind-swept, desolate downs continued interminably: a hard land, but one I longed to travel: a land of wolves and the great sheep of Marco Polo.

Immediately north of Gupis opens the valley of Yasin, the district governed by Sifat Bahadur who was a devoted adherent of the English and had fought for us on every possible occasion. He could not understand that this did not give him unlimited licence. He was a bully, very grasping in his dealings with his subjects and I had to put on the brake.

As I started from Gupis for Yasin a great congregation of swifts made a wonderful display. They were small and almost mouse-coloured with very short tails. Sometimes the swarm swept horizontally over the river, then rising in a whirling mass they seemed to be flying in every direction at once, screaming, "maddened by the God" as the Greeks had it of the followers of Dionysos. It was a marvellous expression of vivid life. Murad Khan had ridden out with me for there was a grazing dispute to be settled between his Walia and Boyé clans. I asked why he did not settle it himself. He answered, "Sahib, if I give it to one party the other will think I have been bribed and the dispute will continue to trouble me. But whatever you say, that they will accept." Then I asked what decision he would like me to give. He replied, "That is nothing to me nor in truth to them; only give an order (hukm) and they will be satisfied." The dispute concerned steep slopes at the point where a side nullah joined the main valley. The Boyé claimed the right of grazing inside the mouth of the secondary glen: the Walia claimed this as theirs. Fortunately almost at the corner, a little way up the slope, was a rock as big as a cottage. Pointing to it I asked why they had worried their Mir when Allah had marked the boundary for them. Moslems are not consumed by our geological curiosity: "it comes from God" is a completely satisfying explanation.
That great rock must have been meant to mark the boundary. Let it be cairned at once: and in future if either clan disregarded the decision, that clan should turn out and build a wall along that line from the river bank to the sky-line. To clinch the matter I "seized" each party by cutting small sods from either side of the line and handing them to the respective headmen. The boundary award was received with acclamation: yet I never knew the rights of it.

As I rode up the track to Yasin, gaining height, high snow mountains showed ahead: the main range of the Hindu Kush. Sifat Bahadur met me with a cut-throat "tail" a mile short of his fort. So soon as I saw his foot leave the stirrup to dismount, as good manners demanded on greeting, I dismounted too, so that we should both meet and embrace on foot and that it should appear that I honoured him as the Mir. His followers fired a feu de joie over the heads of our horses, both stallions, who immediately showed signs of fight. Remounting each endeavoured to make the other lead, for it was impossible to ride side by side along the narrow track. A band of drums and flutes preceded us, and two poets, in alternate song, were in attendance. My camp had been pitched outside the Mir's fort, but before I could rest the conventions must be observed. Beside the polo ground a high pole had been erected, to the top of which was tied a gourd filled with flour. The popinjay! This had to be smashed by a shot fired from the back of a cantering horse, before the necessary game of polo could be started. That accomplished, the game began. There are no "chukkas" and play is continuous until one side has scored twelve goals. Naturally the pace is not fast, but it is furious. Meanwhile, the band plays. It has suitable conventional musical phrases for each aspect of the game; it becomes specially excited when a player is riding for goal with the ball. If he makes a winning stroke there is a burst of triumph: if he misses, the music wails in dismal disappointment. If anyone can catch the ball in the air the game becomes a sort of mounted "rugger". The losers afterwards must dance to the winners. My side won; doubtless Sifat Bahadur had given the necessary
instructions, so I was fortunately excused. The formalities of a first call being now concluded, I could retire to my tent and a bath.

For my interview with Sifat Bahadur I had taken the Maulvi, my assistant, a most excellent Ahmadiya Moslem to keep me straight, although the Mir spoke Hindustani. The wigging was delivered in private and I was able to save his face by expelling from British territory two trans-border murderers who had been giving him trouble. Undesirables constantly sought refuge in our territory and as a rule dared not give trouble, for they feared expulsion more than anything else. Neither Afghanistan on the north, nor tribal territory on the south offers good harbourage for those with blood feuds on their hands; but in those days the pax Britannica still existed.

At Yasin I visited the spot where Hayward had cut his initials in a rock just before his cruel murder. In 1870 he was the first European to visit this part of the world, and was treacherously killed in cold blood by order of Mir Wali, head of the great Kushwakt family. The Kushwakt have been at constant feud with the Burush, of which Sifat Bahadur was a scion: to him the feud was still very real. Characteristically Mir Wali was murdered by his brother Palwan, who was slain in turn by another brother, according to the best traditions of the Kushwakt family. I spoke with two old men who said they remembered Hayward: they may have witnessed his death, so bravely faced that the Yasinis still speak of his courage. They, and of course Sifat, insisted that the killing was a breach of the rules of hospitality, for Hayward had been invited to visit Mir Wali. They said Hayward showed no fear at all, only asking that he might live till sunrise to say his last prayer.

On the northern frontier of Yasin lie some of the finest mountains in the Hindu Kush. To the west are the Tui peaks and to the north the Darkot group; five peaks of from over 20,000 to over 22,000 feet. They give birth to considerable glaciers which water the vale of Yasin. The Darkot pass (15,380 feet) is a long and steep glacier route; but horses have been taken over it and
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in A.D. 747 a Chinese army from the Oxus crossed it, eventually advancing almost to Gilgit, though their success was very temporary.66 I travelled up the valley across the Plain of the Peacock and on up to the glaciers with Muhammad Sherif Khan, commander of the Yasin company of the Scouts. He was the eldest son of Sifat Bahadur and his father was extremely jealous of him. I soon came to have a special regard for him, but was greatly handicapped by my lack of Persian, the only polite language he knew. The Ataliq, Muhammed Zawil Shah, acted as interpreter between us: he was a good and thoroughly dependable man but unfortunately Sifat was too often unwilling to take his advice with regard to the treatment of his people.

I can best describe these mountains and glaciers by the repetition that they reminded me far more of the Caucasus than of anything I had seen in the Himalaya or Karakorum. They are more approachable, literally and metaphorically—more welcoming. Here is no monotony of vast ridges, but isolated mountains making separate pictures. The rocky peak of Dhulichish seems to soar up in one leap of 9,000 feet directly from the hamlet of Darkot, the gashes in its flanks seamed with the blue ice of glaciers which descend almost to the valley floor.

In October 1916 I had to pay a visit to Ishkóman. The Mir was old Ali Mardan Shah who had been the last independent ruler of Wakhan, over the border between the Hindu Kush and the Oxus. When the Russians showed up on the Oxus the Afghans from Badakshan had taken over his country with the strong hand, though it must be admitted that the defence of Afghanistan demanded it. On this Ali Mardan Shah and some of his principal followers had sought sanctuary in our territory. We had settled these people in Ishkóman and had appointed the old Mir as Governor. The Wakhis are Maulais, holding to the Bokhara Sheriat, the religious law of Central Asia. Each man becomes the follower of a particular Pir, or priest, who performs most of the ceremonies and gives indulgence against many of the restrictions which are binding on the orthodox Sunni, as on the Shia. The Wakhis are an unfriendly, grudging, grasping,
Difficult Cases

people and it was best to settle them together in a homogeneous community in this almost deserted valley in which there was previously only one small Shin colony from Punyal.

A woman was reported to have committed suicide by casting herself over the cliffs into the merciless waters of the Karumbar river. Suicide is extremely rare amongst Moslems and enquiries had to be made. In two days I reached Chatorkhand, the first village of Ishkóman, and met the Mir, the good Maulvi interpreting. The Mir was worried and talked of the weather: he kept on scratching his chest and an energetic dive into the folds of his choga was rewarded by a large insect, which he drew out and squashed. Then settling down he asked, was I a married man? I admitted it. “Then God is merciful, your Honour will understand.” Now his chief wife was a great lady, a Kator of the royal house of Chitral. (Of course I could never see her.) She was an imperious lady. It was clear that the old Mir had been captivated by the charms of another and that this had been too much for his legal spouse. I was certain it had been murder and not suicide, but there was no evidence. All I could do was to point out that he was not a prince reigning in his own right but a governor appointed by us; that if another suicide took place we should have to put in a new governor, and that this formal pronouncement should be made known in his “house”. Good manners and universal custom permitted no more direct allusion to the real culprit. Another case was just as difficult. Of Lolida I knew only her name, but it was an attractive one. She was beloved of an excellent young Pathan but had been forcibly married, against Moslem law, to another. The best solution was undoubtedly abduction by the Pathan, who should then seek sanctuary in the territory of Murad Khan, but it was difficult for a political officer to recommend such a course.

Having dealt with these and other cases I felt free to explore the valley. At its head lies the Khora Bhort pass leading to the Afghan Pamir. Leaving Chatorkhand we rode northwards up the Ishkóman valley beside the wide deep Karumbar river to the village of Imit. The path was rough and stony and often we
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took to the flood-plain on the edge of which were patches of scrub jungle. The autumn migration of teal and duck from Siberia had begun and the Mir's hawk brought in the first snipe of the season. Soon the valley narrowed, shut in by steepening mountains and across the river I noticed a large stone circle, very perfect, a miniature Stonehenge, the pillars about the height of a man. "Kafir work," I was told, meaning that it was made before the Enlightenment, the coming of Islam. Here was a fascinating problem, but quite unapproachable, for the lower Karumbar river is impossible to ford except in mid-winter.

Taking leave of the Mir I pushed on with a couple of Scout orderlies, Shins not Wakhis. I took with me the Mir's wazir, the best and most reliable Wakhi in the district. Again the easiest path was frequently the river bed. At Belhanz we mounted on to the cliff-faced terrace of a great alluvial fan, where there were some good fields of cultivation. Beyond this we came to the village of Bhort. Knowing that I came for the first time these Wakhis immediately put up a claim to some fields which had been in the possession of the wazir for years; but the case was dismissed as frivolous. Close by the Bad Swat glacier descends into the valley from the east and above Bhort village the Bhort glacier pushes down its snout. There were two distinct levels of the vast morainic silt-beds there, showing different phases of former glacial advance. The glacier was then (October 1916) beginning to retreat. At its snout was a fine ice-tunnel, its stream already reduced by the cold of autumn, so that I could take my two orderlies through it. They had never seen such a sight and were duly impressed by the contrast of darkness with the blue lights of the ice.

As we advanced we were more and more hemmed in by mountains to the east and to the west. On the far bank of the river a great rock peak towered up, broken cliff above broken cliff till the head had to be bent far back to see a snowy sky-line. I was joined here by three Kirghiz travellers, jolly fellows, so much more cheery and friendly than the mean Wakhi. From side nullahs glaciers descended into the main valley, or rather
Gorges of the Karumbar

chasm, to make a series of sometimes formidable obstacles in our path. First we came to the great Karumbar glacier flowing down from the east at right angles to the river's brink, its snout entering the water: even the Kirghiz, redoubtable horsemen, would not face the force of the current. Dismounting, we led our horses over the moraine-covered ice. These horses can go almost anywhere if led, but the crossing of the glacier cost us two hours. Soon after this we were compelled by a cliff to ford the river to its right bank. There we met the Bukh glacier in our path, and just managed to skirt under the impending ice, praying that the rocks of the moraine, balanced on the melting surface, would not slip down on to our heads. Beyond this we forded again to a spot called Zak Ban, where there was a comfortable shelf, safe above the river, with a good growth of willow and sallow and grass for the horses. A good camp and welcome after a hard eight-hour march during which we had not made as many miles.

It was a cold night, but we awoke to a really fine morning at last. I could see that this sinister gorge was going to open out ahead; there against the blue sky was a high peak which must be on the frontier ridge of the Hindu Kush. Next, on the right bank of the Karumbar, we came to the Wirgot glacier under which it was possible to creep along on foot though the horses had to take to the river. Seven years before this glacier had dammed the ravine and behind it a lake had formed; its bursting caused one of those periodic and disastrous floods to which the lower country is liable. Taking saddle above this obstruction we forded the river again. The scenery of this part of the valley was now very wild: great cliffs rose to stark spires of rock on either hand; the more lovely looked the patches of dwarf cedar, willow, birch and roses which covered all the lower ledges: ahead the narrow cleft of the Karumbar appeared to be completely blocked by the great Chillinji glacier whose surface was raised several hundred feet above the level of the river. This glacier enters from the east, its upper snow basin quite invisible from below; it seemed as if the glacier sprang new-born from
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the living rock. But its ice is fed by the snows of Kampire Dior (23,424 feet) away to the north-east. [Pl. 16a.]

The Chillinji glacier was only half the breadth of the Karumbar, but it was much harder to get our horses across. The ice was steeper, more broken with crevasses and there was less surface moraine covering to give footing to the horses. Beyond, the valley opened out and we forded the river again to its right bank, where, on a pleasant coppiced shelf, lay the camping ground of Sokhta Rabat. The altitude was about 11,200 feet.

At last we had an open view. In the foreground, just above our camp, was the small Sokhta Rabat glacier, while from far away to the north-west, streaming down towards us, the great Chashboi glacier gleamed blue and white, clean of moraine debris. Towering to the north rose the main range of the Hindu Kush, parting the waters of Indus and Oxus. Over it we knew the Khora Bhort pass to lie, leading to the Afghan Pamir. Now, at the end of October, the snow was creeping down, but my Kirghiz companions would cross the pass in two days. For me it was the end of the journey; I must not enter Afghan territory; yet I could safely confirm that the route I had just traversed was hardly likely to be taken by any invading force and again the lower gorges rather than the water-parting gave us a secure frontier.

The Khora Bhort pass has seen a "frontier incident", little known but of lasting effect. In 1891 the Russians had sent Colonel Yanoff with a strong escort of Cossacks to annex the Pamirs, proposing to take portions of Chinese, Afghan and even some Kashmir territory over on the south side of the Hindu Kush. Younghusband happened at the same time to be exploring the passes on to the Pamir and hearing of the Russian visitors rode into their camp. Yanoff was quite friendly, invited Younghusband to dinner, and showed him a map of his annexations at which Younghusband remarked that he was opening his mouth rather wide, but was told this was only a beginning. Next morning the Russians rode off leaving Younghusband encamped on the north side of the Khora Bhort. A day or two later a
Russian encroachments

clattering of hooves in the dark announced the return of Colonel Yanoff who regretted that he had to arrest Younghusband for entering Russian territory. So Younghusband invited Yanoff and his officers to dine and wine, whereupon Yanoff relented, saying he would not use force against a gentleman, and offering to let Younghusband go if he would promise to retire eastward into Chinese territory and not get back to India by the Khora Bhort. Younghusband insisted on a written order as from the Russian government, and this he eventually got. He went back to the Chinese Taghdumbash Pamir and from there crossed a difficult "thieves pass" into the Ishkóman valley, regained Gilgit, and reported. In due course Lord Salisbury put his foot down. The Russian Ambassador had to acknowledge that Yanoff's action was illegal. Then, said Salisbury, that cannot be Russian territory. This had to be admitted also, and is the reason why a narrow strip of Afghan territory runs along the northern foot of the Hindu Kush right up to the Chinese Pamir; thus preventing to this day the meeting of the frontiers of India and Russia.

Next to the east within my jurisdiction lay the district of Punyal, its northern point squeezed between the high peaks east of the Ishkóman valley and the rugged mountains of Hunza. The territory extends right across the valley of the upper Gilgit river and includes those grassy dales which run up to the tribal frontier of Darel in the south, and which have been described at the beginning of this chapter. All the villages of Punyal are in the deep trench of the main valley, hot and stony in summer and very cold in winter, so that the side streams freeze and water can only be got from the silt-stained river. The chief settlements are Gakuch on the south bank and the capital, Sher Killa, on the north bank of the Gilgit river. This is reached by a swaying suspension bridge of plaited birch twigs: just three thick ropes of it; one for the feet and one on either side as hand-rails, supported by side stays. Thus in section the bridge is a V-shaped spider's web. While crossing it is necessary to look down to watch the feet and the eye is perturbed by the water rushing through the narrows
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many feet below. An old-time dodge was to invite a neighbour to call and while he was crossing to slash through the cables on the far side so that he fell into the rapids.

Sher Killa is a straggling picturesque village, around the fort (killa) of the Mir. The houses are of timber; the better ones, with balconies and carved tracery across the upper windows, embowered in groves of apricot, walnut and fig-trees. There are even vineyards with great stone cisterns sunk into the ground to serve as wine-vats. The people are Shins or Shinakis and speak Shina, a Dard language. They are pleasant, tall, fair men and this company of the Scouts was one of our best, but there are a number of Yaghistanis, "Wild Men", refugees from Afghanistan or Tribal territory; bad characters mostly, and liable to give trouble. The Mir was Anwar Khan, very young, charming and intelligent. He was a very good shot and a keen polo-player, and commanded his own company of the Scouts. There was great play with the popinjay and polo whenever I visited him. I was very keen that he should be definitively appointed Mir as soon as possible, in succession to his father who had had to be banished to Kashmir for oppression.

Once I sat with Anwar Khan in durbar on a very instructive case. A refugee settler complained that his wife was no good and brought shame upon him, and stated that it was necessary by every law of God and man that he should kill her. The case he put up was incontrovertible. Yet though we respected the Sheriat, the law of Islam, this was going rather far. Anwar Khan turned to me: I was stumped. Then, as so often before, my excellent Indian assistant the Maulvi, came to my help. All would be well if I could see my way to condemn the woman to slavery: Anwar Khan would gain a housemaid, the woman being of very low class would be delighted at such raising of her social status, the husband would have got rid of her and any future peccadillo she committed would be the affair of the Khan and the husband's honour would never again be in danger. There need be no killing and everyone would be happy. So let it be.
I remembered being told of a somewhat similar custom prevailing in one of the hill-tracts of Upper Burma, where a friendless man, oppressed by his neighbours, could legally declare himself a permanent slave of the Chief: thus no enemy would dare to touch him and life would become tolerable once more.

In winter time the beautiful wall-creeper descended from the heights into the valley around Gakuch. In May I have pitched my tent there directly under a golden oriole's nest and watched the pair feeding their young a few feet above my head while hoopoes strutted on the ground, calling and raising their wonderful crests. The great cliff above raised other and more sinister memories, for here not so long ago Gauhar Aman used to cast his prisoners down to death.

It was the annual custom that all the Mirs should come to visit the Political Agent each winter in Gilgit, and all the five or six Europeans in the Agency used to collect there. Sports and entertainments were arranged. During this Jalsa, as the meeting was called, it was the custom for the chiefs to dine with every British officer in the station. So I met the Mir of Nagyr: an early-Victorian duke, very tall, with the nose of an eagle, who was always willing to talk about blood-sports but of little else and was a direct descendant of Alexander the Great. There was also the Mir of Hunza, premier chief of the Agency. These two, after dinner, took the seat of honour on the sofa. The Mir of Hunza gave the signal to depart; but beside the door I noticed that my bearer had placed a screen behind which Hunza retired, while the rest filed out through the door. When the last had left he emerged from behind the screen and we drank whisky toned down with ginger-wine. As a Maulai he could do this; but good manners prevented it before his brother chiefs who were abstemious Sunnis, or Shias like Nagyr.

There were many friendly evenings, and I remember with pleasure a dinner given by General Samundar Khan, an Afghan in the Kashmir Imperial Service, to celebrate the Moslem new year. We sat on a thick carpet with a white cloth spread on the
Hindu Kush

floor. Luckily I can sit cross-legged and had had the sense to ride over in pumps, which could be slipped off at the door of the dining-room. With these simple north-west Moslems, untouched by caste influence, social intercourse was easy. After meat we all thanked God together. For Jew, Christian and Moslem are all people who worship the same one God and all have the word of God in the books of Moses, Christ and Mahommed, His Prophets. The Jews they mislike, but for Christ Mahommed had especial regard: the Virgin too is always Bibi Miriam. Though we are Unbelievers in the last prophet yet we are not Heathens (kafr). So a Moslem’s oath to us is binding and he must obey a Christian government so long as it respects his religious law. Thus he need not pursue a family blood-feud in British territory, for it is against our law and not actually demanded by Islam. To a Moslem we can be as brothers: to be accepted as freely by a Hindu is more difficult.

Directly behind my bungalow at Gilgit rose a steep, bare mountain spur cut with gashes of deep ravines. I would often go up that way on the chance of a shot and every one of those days had their reward. There was Dumani, Mother of Clouds, incredibly high, straight across the river above Dainyor, a hamlet opposite Gilgit. The map name Rakaposhi is inelegant—the Devil’s “tail”, and the language is foreign to the country. On the Hunza side it presents an even more magnificent appearance, a long saw-edged crest above a vast unscalable face of whitest ice.

I was naturally very eager to visit Hunza, of which I had heard so much from Charlie Bruce; he was still known there as Pahlwan, Hercules, from his feats of strength. In 1916 Major von Dinkelmann, with a young Saxon officer who had escaped as a prisoner of war from Siberia, was making a truly remarkable trek from China, through Kansu, to join the Turks in Mesopotamia. He was carrying gold. If I was given local leave to go shooting in Hunza I might slip over the Mintaka Pass after an Ovis poli on the Taghdumbash Pamir and perhaps meet with him, but a very correct Indian Government ruled it out, directing
Major von Dinkelmann

that no British officer was on any account to cross the frontier. However, a certain plan was devised. As von Dinkelmann went on his way, two native tribesmen humbly asked if they might be permitted to travel under the skirts of his protection. Their request was granted, but below the Mintaka pass they gave signs of great uneasiness. Alas, they dared not proceed further along von Dinkelmann’s route. So great a man as he would pass safely, but for themselves they feared robbery. There were bandits ahead. If he would excuse them they would now leave him and take a tiresome and difficult route further to the south. His honour must not attempt it; it was too hard for him. Von Dinkelmann instantly bethought him of the gold in his saddle-bags. “If you can do it, I can,” said he. But this southward bend took him towards the Mintaka pass leading into British territory. Round a corner he found himself looking down the muzzles of a dozen rifles. It was bad luck, and he was very angry. “You haf mobilizt ze mountains against me.” He was angry too, because no British officer was available to escort him down to Srinagar, nor was he consoled even on learning that Ghazan Khan, commander of the Hunza company, was the heir apparent of the Mir and also a descendant of Alexander the Great. His gold, including some beautifully dragon-stamped Chinese ingots, had to be handed over to the Indian Treasury to be returned to him at the end of the war. The Political Agent was rebuked for wanting to distribute it amongst the Scouts, which would have been the correct policy.

Cheated of the chance of getting on to the Pamir I was given a month’s shooting leave in the Agency and chose Astor. Astor is the home of the finest breed of markhor, the “snake-eater”, the father of all the goats. He has a dark shaggy coat, a long beard and great curving horns like giant corkscrews. I set off early in February (1917) and made straight down the Indus valley for the northern spurs of Nanga Parbat. For markhor there is no better ground and I greatly desired to get a near view of this great mountain, whose other name is Diamir, the Fairy Peak. From all sides it dominates the landscape and it was closely
Hindu Kush
associated in my mind with Bruce and Collie and Mummery, who lost his life there.

Above one of our camps in the Indus valley my shikari found the carcasses of a markhor and an urial sheep, killed but not eaten, obviously the work of snow leopards. To me they are always “stone” leopards for their perfect camouflage of stone-grey spotted with black. They are difficult to approach, for by day their habit is to lie out on some high rocky spur commanding a wide view below, whence they spy out game. These two when we finally came to terms with them lay side by side at the top of a cliff watching a herd of wild sheep feeding on the slopes below. We made a wide detour in the darkness—not easy over that ground—so as to come upon them from above. I got the female, but the male, though obviously hit, leapt straight out over the cliff into the void and we found no trace of him.

It was up above the last of the pine trees, glittering with frost in the February dawn, that I at last got a really fine markhor. The horns were over fifty-one inches long with the perfect symmetry of the Astor breed. The horns of markhor vary markedly all over their range and an expert can almost name the very nullah they come from. It had been a long, hard stalk from a cold bivouac, and we made short work of the heart and liver on the spot, huddled before a welcome fire.

It was a day of views never to be forgotten. We stood at 12,000 feet below the great face of Nanga Parbat. Mailed with ice and ribbed with narrow spines of fantastic rock it was terrifying, a death-trap. Somewhere there Mummery and his two Gurkhas must have been killed. The German expeditions of twenty years later sought to avoid this terrible face by approaching over its outlier, the Rakiot Peak. Even so, storm and avalanche destroyed half of them.

From this face of doom it was a relief to look northwards where, in full sun, were the shining Karakorum peaks, Rakaposhi and Haramosh. Directly below and on up almost to Gilgit lay the great trench of the Indus valley. No longer shut in by the confining walls through which I had so often ridden, I now, for
the first time, saw the whole of it open to view, enormous and silent and eternal.

* * * * *

I was invalided home in October, 1917, as a result of a direct hit on the temple by a rising polo ball. I hated to leave these northern tribesmen: both in manners and appearance they were unusually attractive. We had taken over their country to stop slave-raiding and pillage; and to warn off Afghans and Russians. The poorer people had lived a life of fearful oppression under their former rulers: Gauhar Aman was still called Adam Khor “eater of men”. With modern rifles the blood-feud had become intolerable; a threatened man hardly dare cultivate his fields. We ruled them lightly, respecting their religion. They responded to honesty and justice and trusted us to give it to them. The tragedy of India is that an Indian does not trust an Indian.

I had been able to do my job at Gupis because of the character of my predecessors. It is often forgotten that the peace of India in general was due to the manner of its government by generations of isolated Englishmen, never more than a thousand for the whole country at any one time. To have been even for a short space one of the least of these was a privilege.
CHAPTER II

THE ROCKIES

It is strange that our senses should be so much less responsive to new lands than to those filled with the tradition of old civilization. The eyes and thoughts of men and the feet of pilgrims have imposed a patina upon the Himalaya such as the Western Mountains must for centuries await. Empty of this human element the Rockies and the Selkirks seem malignant and aloof. A man lost is apt to go mad. The old-timers seem to have a secret but undying hatred of the wilderness. There is no lack of beauty. The individual scale of these mountains is so small—though their extent is vast—that flowing waters, forest, glacier and peak can be seen in one harmony: a form of composition completely lacking in the Himalaya. There is nothing more beautiful in any other mountain scene, but its menace is inescapable. The secret may lie in the density of the forests and their pathlessness: here is no reassurance of ancient tracks, no passes crossed by generations of caravans. The mountains of Europe and Asia recall gods and dryads and the long procession of man. These empty wilds are peopled only by our bare imagination, apt to primitive terror: there is no past except starvation. [Pl. 17.]

From the Pacific to the Prairies mountains spread over a breadth of 500 miles. From west to east the Coast Range, the Selkirks and the Rockies succeed one another. Owing to the incidence of rainfall the vegetation is richest to the west, where arbutus trees overhang salt water; here, too, the level of perpetual snow and glaciers is lowest. In the Selkirks rain is still heavy and the extent of dense coniferous forest almost paralyses travel. The Rockies are much drier, their forests sparser and free of undergrowth. Beside clear streams are meadows of good pasture

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Alpine Club of Canada

for horses and at each camp the axe supplies tent- poles for teepis, spring- mattresses of spruce and unlimited fuel. Nowhere is life in camp so delightful as in the Rocky Mountains.

I made two long visits to these mountains, which included two meandering journeys across the Selkirks, one with a pack- train and one on snow- shoes, and many climbs in both ranges, including the most difficult I have ever done.

In 1910 my sister Katharine and I were invited to join the annual camp of the Alpine Club of Canada. Its headquarters are at Banff on the eastern flank of the Rockies and there we were met by Arthur Wheeler, founder, director and president of the club. It was also a great pleasure to meet Professor C. E. Fay of Boston, a grand old man of the mountains, old in years but young in mind and active as ever.

The system of Club meets was due to Wheeler’s drive and enterprise. Apart from the social amenities and training value for young climbers, these camps formed a very practical solution of the chief problem of travel in the Rockies—expense. In the Himalaya, living off the country, I spent about £15 a month: in Canada the cost of a “pack- train” was never less than £5 a day (it is treble that now). A country uninhabited save for a few trappers and prospectors offers no resources: everything for a trip must be carried from start to finish and only very short forays can be made by back- packing. So for a mountaineering holiday on a moderate purse the ready- made headquarters of a standing camp with ample supplies is the only solution.

That year the Club camp was in Consolation valley, a few miles in from Laggan on the railway. The camp was beautifully sited in a forest glade beside a lake; flame of fireweed covered old patches of burnt timber, and on the higher meadows the slender Indian paintbrush was still in flower. We were surrounded by a number of rock- peaks of varied difficulty and interest, including Mount Temple (11,626 feet). At night there was a huge log- fire of felled trees; very pleasant and luxurious by contrast to freezing nights in mountains when the only fuel was smouldering yak- dung. We made many charming friends

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Scale of Miles

10 0 10 20 30 40 50

Mt. Forbes
 Mt. Sir Sanford
 Glacier House
 Beaver River
 Revelstoke
 Columbia River
 Canadian Pacific R.
 Duncan R.
 Purcell Range
 Arrow Lakes
 Nelson
 Kootenay Lake
 international boundary

13. ROCKIES AND SELKIRKS.
and it was a week that I shall always remember with very great pleasure.

After the camp I was introduced by J. D. Patterson and young Oliver Wheeler to real back-packing: Patterson of Woodstock, Ontario, became a lifelong friend and Oliver Wheeler, gaining a commission in the Sappers from the R.M.C. at Kingston, was destined to become Surveyor-General of India. Our plan was to cut round through the Bow Mountains and describing a rough semi-circle get back to the railway by Lake Louise. We left the camp with very heavy packs, for these Canadian climbers carry terrific loads. Crossing the Wenkchemna and Opabin passes we camped by lovely Lake O’Hara and slept under a fallen tree so huge that all four of us could lie in shelter side by side beneath the trunk. Then crossing Abbott pass Oliver and I had a fine new rock climb on a nameless peak of 9,850 feet. The crux of the climb was a long steep chimney: it was not difficult but on the descent Oliver insisted that I, coming down last, should use a doubled rope as a precaution. Of course it stuck and like a fool I climbed back only half-way and then pulled. Down came a stone. I could not move to avoid it, so stuck my hand up to protect my head. My middle finger was doubled back, broken in three places. We used my folding pocket lantern as a splint and Oliver conned me down. When we got back to the haunts of packers one of them said with the delightful freedom of the West, “Another time, Doc, I should let it hit your head; it would do less damage.” Packers rather seem to despise climbing; their sympathies are with shooting and trapping fur.

The C.P.R. alpine guides have the inherited habit of making small cairns to mark the route, especially on to the snouts or edges of glaciers. A packer cannot resist knocking these down as unnecessary and childish aids to route-finding.

I had long wished to climb Mount Assiniboine, the Matterhorn of Canada. It lies some twenty-five miles south of Banff and is a peak of 11,870 feet, only exceeded in the Rockies by Mount Robson, far away to the north. We needed horses and a packer and, for the climb, I engaged Rudolf Aemmer, one of the
The Rockies

C.P.R. Swiss guides. We got Jimmy Simpson as our packer, with ten horses. His “horse wrangler” was James Brierley, or Caruso as he was known to his friends owing to his propensity for song. Jimmy was an ideal companion: utterly competent, utterly imperturbable, yet his varied turns of speech to refractory cayuses were a revelation to me. Up to every dodge he showed me how to preserve flour by dipping the sacks in a stream to form a protective crust against rain. From him, too, I learned the priceless secret of drying wet matches in my hair.

By Healy Creek and Simpson’s Pass, through forests of spruce, through meadow glades, past clear lakes and streams, we rode in three days to the foot of Mount Assiniboine. Only once were we held up by “wind fall”. Forest fires are the scourge of these hills, their smoke clouding the air over hundreds of square miles. The trees burn standing, like torches. They would stand dead for years, but for some great wind which blows them down criss-cross over each other like a pile of spillikins. With axe and bandsaw all hands must turn to and cut a path for the pack-horses, who graze contentedly while we sweat. It may be one hour or two days before the obstruction is overcome.

Mount Assiniboine was first climbed by Sir James Outram in 1901. It was named as recently as 1884 by Dr. G. M. Dawson, after the Assiniboine tribe, although, from fear of Bad Spirits, these Indians gave it a wide berth, hunting only in the eastern foothills. As we rode toward the mountain from the north-east it appeared as a formidable pyramid towering up against a clear sky. Its outline was jagged by horizontal stratification forming an interrupted series of vertical steps. Towards the north-east, directly from the summit, jutted out a clearly defined ridge, becoming steeper and ever narrower as it rose. This was the usual route, but now after bad weather it was smothered in snow, with ice showing on the narrow arête. It looked in no condition for an ascent and this was confirmed by Felix Wedgwood, whom we met with two Swiss guides, who had just been turned back. Rudolf and I thought we would seek an alternative route. Outram’s original ascent
had been made by the south-west face, and thence up the south ridge.

To my sister’s regret we left her in camp, and by first light (4.15) on July 4th, set off to make our way round the foot of the north face to reconnoitre. We soon reached the glacier. The going over this was very easy and by seven-forty we had made good height and stood directly under the centre of the great nor'-nor'-west face of the peak. This face is very forbidding and had never been attempted. From this spot the mountain appeared as an almost symmetrical cone; at its base were steep ice slopes, then an expanse of vertical cliff, directly above which rose the snow pyramid of the summit. It seemed a long way round to Outram’s southern route; a bivouac would most likely be needed and our time was short. In five minutes we had decided to try the face itself. The passage of the cliff was quite unpredictable for you cannot assess the possibilities of a steep rock passage from a distance; you must get your hands on it. The weather was good and we would take a chance.

We started straight up the ice slope at seven-forty-five. It soon steepened. There were a number of shallow gullies in the ice bounded by outcrops of rock; these were iced and we stuck to the gullies. Step-cutting was at first in good snow, but this soon became rotten and steps had to be cut through into the hard ice below. Rudolf cut quickly and well, but we seemed to make little height as the minutes flew by. After three hours continuous step-cutting we had to climb a short steep band of rock. Then more step-cutting up to another but more difficult band with a vertical face which Rudolf surmounted in finished style. Except for these two short passages every foot of height had been won with the axe and the strain on the guide’s arms must have been severe.

About noon we stood at the foot of the final cliff. At its base was a good snow platform, level to a width of three feet. We had constantly been forced over to our own left and seemed to have struck the cliff at its highest point. We both feared that we were beaten. There was no other possible alternative
The Rockies

but to go straight up and for the first ten or twelve feet there was no handhold. Rudolf tried in two places but had to give up: he was too heavy to use me as a ladder. Retreat was suggested; but I was terrified of the prospect of descending our icy stairway and preferred to try the cliff myself. I climbed on to Rudolf’s shoulders and then on to his head. At last I managed to find a fair hold, and prodded from below by Rudolf’s ice-axe I made a few feet. Digging the tips of my fingers into minute cracks or on to tiny horizontal edges, by main force I clawed my way up inch by inch. The cracks in the rock were full of ice; once, losing sensation in my finger-tips, I almost fell backwards. Sheer necessity compelled me to cling on. Rudolf had a good stance below, but it was a horrid drop, and the ice slopes we had ascended looked terrifying in perspective. Only the utmost concentration of will power enabled me to get up the first thirty feet; then I was able to jamb my thigh sideways into an incipient chimney and ease the strain. I have never climbed by sheer mental effort before nor since. The next twenty feet were only very difficult; a matter of just forcing a way up inch by inch and making no mistake. After about sixty feet I reached a secure anchorage where a prism-shaped rock stuck out for three feet from the face of the mountain. I could sit upon this as on a horse, with my legs hanging down free on either side. Facing outwards I had a grand grip with my thighs; my arms, shoulders and back had completely free play. If I kept Rudolf’s rope tight I could take any strain by friction over the blunt edge of the rock on which I sat. Thus I strained the rope as Rudolf started up, leaving no vestige of slack. A big man, his centre of gravity must have been a full inch farther out from the face than mine had been: he had to cling in the more. He was much heavier than I and carried a heavier sack. After a very few feet he came off, turning like a spider suspended in the air. He shouted to be lowered down: but I wasn’t having any of that. Inch by inch I hove him up a couple of feet to one handhold; further, and he took a second. As soon as he was bearing part of his own weight, the strain on my arms became less. Taking no heed of his pro-
A trying descent

tests, for a guide loathes to be hauled, I kept the rope absolutely
taut, heaving in whenever I felt him begin an upward movement.
Slowly I got him to a good enough stance just below me and
there we mutually recovered our equanimity. [Pl. 18.]

Only a few hundred feet of easy rocks now separated us from
the base of the final snow cone. At two-fifteen we reached the
summit. It was a splendid day after the recent snowfall, with
no haze in the distance nor smoke of forest fires. We were
surrounded by innumerable mountains and lakes: to the west we
could see the Selkirks beyond the valley of the upper Columbia
river, but it was in the east that my gaze lingered: there were
spread the Prairies, limitless.

I must confess that I was not in a mood to appreciate the sum-
mit view. I was mentally exhausted: I had used up all my
credit balance of nervous energy and it took me two years to
build it up again. And all was not yet over, for we had now to
descend the north-eastern arête under conditions which had just
defeated a very sound party. It is an airy ridge to start with and
to save time I put Rudolf in the lead and came down last. He
had to clear much ice from the rocks and often to cut steps. In
places the snow was worse than the ice and there were several un-
pleasant cornices. The first interrupting wall, only fifty feet,
and formed by the horizontal stratification, was bad. Rudolf
wisely insisted on my unroping and doubling our 100-foot rope
round a secure knob, while he held the lower ends tight. This
saved many valuable minutes. Then came a steeply-descending
cornice above another wall-like drop. At length we struck the
tracks of the other party and could go a little quicker, but still we
could only move one at a time and it was a hard job, coming
last, to keep up with Rudolf. There was still no relief from the
strain of continuous attention. The last and biggest step on the
ridge was fortunately the easiest and we cleared it at nine-forty-
five, after seven and a half hours climbing down from the summit.
The sun had now set, but under the welcome Northern Lights we
descended the snow-shoulder to the glacier, moving both to-
gether, but generally going down backwards as a precaution

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The Rockies

against a slip in the dark. The glacier was easy, and there was no bother with crevasses. The Lights failed us as we left the snow, but Rudolf never made a mistake and we got back to camp at one-fifteen after a twenty-one-hour day with hardly a halt: we had only eaten dried apricots and chocolate from our pockets. I count this as the hardest climb I have ever done.

After a day’s rest the three of us climbed a new peak above camp. It was later named after my sister by the Geographic Board. It was in itself a very pleasant rock climb, with white mountain goats watching us with a droll air. Its summit gave us the best and most impressive view of the north face of Assiniboine. We could see every step of our route and lived the climb over again. How much more enjoyable to look at is a mountain you have already climbed.

Returning down Bryant creek we spent a day visiting the most lovely lake I have ever seen. Surrounded by straight pines to the waters’ edge, its outline was broken by narrow projecting points through the columnar stems of whose trees the lake gleamed. It was girt by a circle of rocky peaks culminating in Assiniboine. A blue glacier discharged into a smaller lake beyond it. These two lakes have since been named Gloria and Marvel. Primitive peoples do better; we lapse into the jargon of the cinema. Continuing eastward we came to the lakes near the source of the Spray river, where very confiding rainbow trout were a welcome change after a diet of beans and bacon. I put six feet of whipcord on a teepi-pole and dangled a “bull-dog” over their noses. This particularly ferocious biting fly proved a deadly bait.

Turning northwards along the Spray river we crossed White Man’s Pass, a name which is a translation from the tongue of the Stony Indians. It is probable they called it so in reference to the pioneer missionary Father de Smet who crossed it in 1845. On our return to Banff we were disappointed to find that my old companion Mumm had left the day before with Norman Collie, bound for Mount Robson, by way of Tête Jaune Cache on the Yellowhead Pass. Here a corpse had once been found sitting
The Purcell Range

beside the ashes of a fire: nearby was a cache of food: on the ground beside the body lay a head with yellow locks still adhering to the scalp. From this unsolved tragedy the French-speaking half-breeds and later English-speaking trappers named the place.\[68\]

\[\* \* \* \* \* \* \* \* \]

In September I joined Arthur Wheeler in an exploring trip to the Purcell Range of the southern Selkirks, just west of the upper Columbia river. This renowned river at first flows north through the great Rocky Mountain Trench, which divides the Rockies from the Selkirks. About two hundred miles from its source the Columbia makes a hairpin bend to the west, to flow then almost due south, forming the north-western boundary of the Selkirks. Thus it embraces the whole northern end of this range. It continues south to enter the Pacific in Oregon after a course of about 1,500 miles. The Kootenay river behaves in an equally extraordinary way. Its upper reaches lie also in the Rocky Mountain Trench, but instead of flowing north it flows south. So close does it approach in one place to the upper Columbia Lakes, source of the northward flowing Columbia river, that a canal has been made joining the waters. Again, some 200 miles from its source the Kootenay river also makes a hairpin bend to the west, and flows nor'-nor'-west into the narrow fjord-like Kootenay Lake. This lake forms the beginning of the Purcell Trench which runs in a north-westerly direction splitting off the Purcell Range from the main range of the Selkirks. Thus the Kootenay river embraces the southern spurs of the Purcells, even as the Columbia does the northern end of the Selkirks. The Purcell Trench, formed first by the Kootenay lake, continues along Howser Lake and the Duncan river which flows into it. Passing over the low Beaver-Duncan divide it is then represented by the northward flowing Beaver river whose confluence at an acute angle with the upper Columbia river forms the northern boundary of the Purcell Range.

The Selkirks, including the Purcells, are much older than the
The Rockies

Rocky Mountains. They represent, in this region and for a distance of 300 miles, the original main axis of the North American Cordillera. As in the case of the two great parallel Himalayan ranges the younger range is now higher than the older. On the other hand in the North American Cordillera it is the younger Rocky Mountain range and not the older Selkirk range which now constitutes the Continental Divide. The southern half of the Purcell Range, like the southern half of the Selkirks proper attains no great altitude and is crossed by several trails and at the Crow's Nest Pass by the Canadian Pacific Railway. But the northern half is higher, and rises to glaciated peaks of ten to eleven thousand feet. It was very little known even to trappers and prospectors; nor was there record of any passage across it from the Columbia river to the Kootenay settlements in the Purcell Trench.

Arthur Wheeler was one of the earliest experts on photographic surveys and wished to try his methods on new ground. He took a most enterprising young Austrian guide, Conrad Kain as assistant. The country we were going to was said to be very beautiful and Byron Harman, the well-known professional photographer, joined the party. Bert Barrow, of Golden, was our packer, a most amusing card with a grand turn of speech and he brought Charlie Lawrence as cook and horse-wrangler. Packing is an art; the tenderfoot finds it very difficult to throw the "diamond hitch" which firmly secures the pack on a kicking horse's back. At one camp, just as we were moving off the cook ran up with a forgotten kettle. Cursing, the packer tied it on outside the pack. Someone said: "That's a poor pack for down-timber." Straight came the riposte: "Rum thing for you to say, you couldn't pack a teapot on a hen without breaking the handle." Only Bert didn't say teapot.

Sending the outfit ahead from Golden, Wheeler, Harman and I went forty miles up the Columbia river by stern-wheeler. The Rocky Mountain Trench through which flows the upper Columbia is a great strike-valley of pre-glacial origin. Its eastern escarpment is formed by the continuous limestone walls of the
18. NORTH FACE OF MOUNT ASSINIBOINE
ARROWS MARK ROUTE AND BAD CLIFF, 9.7.10
Beaverfoot range of the Rocky Mountain system. Between the river and this palisade are typical bench lands, old river terraces, covered by rather sparse forest of jack-pine. On the west the backbone of the Purcell range lies farther back from the river with very densely-forested glens leading up to rugged peaks, often too steep to hold the snow. At one point on the river bank stood a great column: a giant cedar, branchless, snapped clean off fifty feet from the ground. On the very top of this was perched an osprey’s nest overspreading the top of the column, enormous through generations of occupation. As the steamer edged in under the wooded bank to avoid a shallow, I suddenly found myself gazing into the unwinking yellow eyes of a great eagle owl.

At Haffner’s Landing we joined Barrow with the horses. Now we followed the old trail of the deserted Bugaboo mine into the mountains of the Purcell range. We made fifteen miles the first day, passing through a recent forest fire, still smouldering; but there was much rain and therefore no danger. Next day the going was still worse for the horses; the old trail was often blocked. Travel was going to be harder than in the Rockies: forest was heavier and horse feed harder to find. Wheeler and Kain were busy with the photo-theodolite, making survey stations. I took to the rifle for the woods were full of bear sign and higher up there were tracks of mountain goat. Barrow worked the horses up to the head of the glen, almost to the tree limit, where there was feed. The last three miles were pretty bad with “down timber”, muskeg and no trail. Just below our camp an avalanche had swept down the hillside and come to rest beside the river: its fierce wind had laid the forest flat on the opposite side of the valley.

On 4th September I went up with Wheeler and Conrad to the Divide at about 7,300 feet. We called this the Bugaboo pass after the old galena mine. On the far side we looked over into a densely-wooded valley which we supposed led to the Duncan river and so to the Kootenay settlements: to the north of us rose an astonishing array of exceptionally steep rock peaks, with small
The Rockies

glaciers flowing between them. I left Wheeler selecting survey stations and walked along the ridge, with the tree line a few hundred feet below. Suddenly I saw three grizzlies emerge from the timber, below and ahead of me, slowly making their way uphill. Running along the ridge till I got above them I sneaked down as near as I could get unseen. Grizzlies run with their dam for a full two years, and I now saw that the party consisted of an old dam with two three-quarter-grown cubs. I could never expect a more exciting introduction. I was not disappointed. Grizzlies are unattractive and dangerous brutes; moreover they were a serious menace to our horses. Not only will grizzlies attack them but horses are easily stampeded by bears and we might lose them for days. I took the dam first and rolled her head over heels down the slope. Thinking her dead I took the biggest youngster, but only broke its foreleg. However, the old dam got up and came roaring uphill towards me. They were now all giving tongue and the result was far more appalling than all the six tigers I had met put together. Perhaps in consequence of the savage noise they made it took me two more shots to finish the old one. Then another for the youngster. The third unwounded one was now pretty close and roaring like a fiend. Its nose was full of porcupine quills which may have soured its temper. It required a second shot too, but it never got up to me. When I got back to camp rather late, Conrad had a white goat for the pot. I modestly said I had only three grizzlies and was much chaffed for my attempt to pull their legs. I could hardly get the men to go up to the pass next morning to help me haul them up on to the divide and skin them.

Another day I went for a glacier reconnaissance with Harman, who turned out to be a very good goer. The ice was very clean and as we approached the glacier its blue glitter seen through the dark stems of the pines was of a breath-taking beauty. Harman spotted three goats high up on snow-covered glacier. I took a buck with nice horns as we wanted the meat. The feet of these Rocky Mountain goats are remarkable: the hinder portions are like pads of india-rubber which give these beasts a wonderful
Nunatak Peaks

facility for climbing steep rocks, but they are rather stupid animals and except for the difficulty of the ground they frequent are much easier to stalk than the wary Bighorn, the wild sheep of the Rockies and Alaska.

It was now well on in September: the weather was wet and snow was beginning to fall on the heights. But we had made some sort of a trail up to the pass and Barrow and Charlie got the horses safely over it and down to grass and shelter on the west side. Here a party of impertinent Clark’s crows, most amusing and gay birds, raided our camp, where they exchanged offensively personal remarks about us, with unrestrained freedom.

Wheeler, with Conrad, still had more stations at about 9,000 feet to occupy. He had tentatively named the principal peaks for identification on his map. Meanwhile Harman and I explored the Divide. One day we climbed a steep spur of Howser peak to the north-west which gave us our first really comprehensive view of the region. An unexpectedly large area of the Purcell range was seen to be covered by glaciers. The contrast between the formerly ice-protected alp-lands and the densely forested depths of the torrent-eroded lower glens was most marked. Both the glaciated area and the altitude of the peaks was greatest to the south; but to the north, in our more immediate neighbourhood, were a collection of the most striking aiguilles I ever saw in the western mountains. They shot up from behind the glaciers like arctic nunataks out of an ice-cap: quite sheer, without a speck of snow. Doubtless they had been seen by prospectors and trappers, but no word of these gothic spires had penetrated to the “outside”. Away to the west the “Four Squatters” hung over the misty depths of the Duncan valley and beyond this the snowy ranges of the southern Selkirks gleamed under the afternoon sun. To the east was smoke haze through which the Rockies loomed enormous.

We had now to descend westward down the valley of Howser Creek, though we did not at the time know which valley it was. It was a country of innumerable waterfalls tumbling down the side glens in every variety of form. The forest was dense. There
The Rockies

were stands of grand cedar and white pine, valuable timber, with large balsam, spruce and Douglas fir. The very beautiful hemlock grew there, most graceful of all conifers, its slender drooping foliage dark green above and silvery blue below. This hemlock is poor timber but most useful in that its wood never throws sparks and so can be safely used inside a teepi. I afterwards grew some tiny seedlings which I took back to England and they made most beautiful trees, growing thickly with many stems, their foliage always bent over gracefully and hanging downwards at the tips of the branches. The undergrowth of azalea and blueberry was dense and full of the abominable “devil’s club” whose spines are as bad as procupine’s, being armed at the tips with minute barbs. In places subject to annual snow-slides were thickets of dense alder, all bent downwards by the weight of winter snow, and costing the greatest labour in cutting a trail for horses.

Wheeler had now plotted the peaks of the divide. Our idea was to push on westwards, make up the Duncan river and recross the ranges farther north so that he could connect his new survey with known ground. But the Fall was near and there was a risk of being cut off by snow with our horses. If we could not get down quickly the pack-train must return at once by the way we had come, for in this thick forest the grave difficulty was to find horse feed. We spent six days of very hard labour cutting only twelve miles of trail: after the first four miles we found a small patch of good grass for the horses, but below that never a bite. I followed Wheeler, an untirable woodsman, right down to the main river of the valley. Several times we were reduced to felling trees to bridge the streams when forced to quit one bank for another. It requires judgment to select a tall enough tree close to the bank; too short a one is just tossed down stream like a match, while often, even when the tree is laid fairly across the river, the stem sags and is submerged in the rushing waters, whose weight cause it to bend and sway alarmingly. The first man to cross carries only an axe: his most valuable possession. If the tree holds the others cross with packs and axes. By this
time we knew that the valley was impossible for horses. They must return over our pass to the Upper Columbia and Wheeler must connect up his survey from that side as best he could.

I was resolved to get through to the Kootenay country, and Byron Harmon would come with me: a hardier companion none could wish for. Wheeler was not willing to turn back till he had seen us on a better road. On 20th September he pointed to an old "blaze" on a tree. Soon afterwards we met Billy Batz, a trapper who with his partner had back-packed their whole winter grub-stake seventeen miles up from Howser Lake to the cabin they had made here, and would spend the winter trapping. He said it would be quite impossible to get horses down. We were on Howser Creek, which joined the Duncan river three miles above its entrance into Howser Lake. There Billy could get hold of a canoe and we could make for a ranch where a motor-boat was kept. So I had to say good-bye to that grand crew with whom it had been my good fortune to travel.

With Harman, inseparable from his beloved camera, and carrying only rifle, axe and light packs, we walked "out". There were many big bluegrouse about, perched high in trees and croaking at us. It was easy to shoot their heads off and we had no fears for the larder with only two or three days to go. We passed the mouth of a canyon in which a side-stream made an exquisite waterfall, a solid mass of green water plunging irresistibly downwards without a break. Beside this, only a few feet above the river, a great spring boiled out of the living rock. A very profusion of waters, many-voiced. As we descended, the cedars got still finer and there was straight pine enough to make masts for all the ships in the world. There was beaver sign too, but Batz would never trap beaver "because they are so intelligent and really admire the scenery". It was about the only remark he ever made, for your trapper is preternaturally silent.

On 23rd September we got our canoe and paddled down to Howser. I saw Harman on to the train and then crossed the lake to Henry Hinks' ranch. The Kootenay country is dotted with delightful homesteads set in orchards and in every one the stranger
The Rockies

is made welcome. I was received most kindly and was very easily persuaded to gorge myself on apples and plums. Hinks had heard of me, for to my chagrin local rumour had already named me “the lost Englishman”. Contempt for the tender-foot is ineradicable in the West and it behoves him to walk humbly.

I took the steamer down Kootenay Lake, and to spare the deck and ease my feet I wore moccasins: I had on an Indian buckskin shirt belted over the top of a pair of untearable canvas trousers, and a ragged red beard. On the boat were two army officers returning from a shooting and fishing trip. One of them I recognized so I began talking shop. He seemed rather surprised at my temerity, though perfectly polite. Seeing that he didn’t recognize me I used his name. He called up his good-looking yellow-moustached brother cavalry officer and said “this chap was at Eton with me”. “Good God,” said his friend, and in his horror his eyeglass dropped to the deck and was smashed to smithereens.

I was to return once more to the Selkirks in 1911, to cross the Spillimacheen range on snow-shoes and come out down the valley of the Beaver river. Rather to my surprise I had been captivated by the Western Mountains: perhaps because the Trail was the freest form of travel I had ever known. There was no need for official permits; no pathways to oppose the whim of the moment; no tribes with different languages and customs to be humoured in a dozen ways; no dusty villages to be cajoled for supplies with infinite patience. My companions, packers and hunters, spoke the same language and we were all equal.

There are no bounds for travel on snow-shoe; every obstacle is buried deep; nor is there need to look for horse-feed, nor waterways for a canoe. It is the freest way to follow the Trail—except for the weight-carrying. The men thought nothing of packs of a hundred pounds. I could just stagger along with one until the tip of my snow-shoe caught under a hidden branch and I fell over. I had to shed my pack before I could get up and
Beavers

found it quite impossible to get it on to my back again without help. "Too much for a tenderfoot," murmured old Manuel Dainard.

It was May, and for the first time I watched a northern spring. It is intoxicating. It comes with a rush—almost in a day—and before the snow has melted birds and beasts wake suddenly to life. Going up the north fork of the Spillimacheen river we met beaver. They show wonderful intelligence in choosing the right spot for their dam: a point in the stream where it must form a shallow pond. In this they build their lodges, high domes of tree trunks and branches which they have gnawed down with their great chisel teeth. The entrance is under water, and under water they store their winter supply of tree stems on whose wood and bark they must live while imprisoned by the ice of winter. In spring they often lie motionless on the bank of their pond. When startled they dive in, making a sudden loud splash, almost like a rifle-shot, as their heavy flat tails hit the water. These beaver ponds gradually silt up. The beaver knows exactly how high he can safely build his dam and takes no risk, but deserts the pond when it gets too deep or too shallow, and from these old silted-up ponds come the "beaver-meadows" growing magnificent crops of grass.

As we got up into the mountains the last of the avalanches were falling. Bluegrouse were booming in the trees; mountain goats were down from the snowy tops grazing at the fringe of the timber, and black bears had come out from their winter sleep in perfect coat and were feeding on the first grasses. But the sight of my first humming-bird will always be to me the symbol of spring in western Canada. A tiny creature, long-beaked, with a metallic ruby throat-patch. It was hovering on misty wings before a yellow snow-lily, which had thrust through the fringe of a melting snow-bed. I stood bewitched. I could hardly believe my eyes. A few days later, across the Divide, where spring was more advanced, I watched these birds indulging in their dance display. The cock soars almost vertically upwards and then swoops down in a very steep curve. All this time the
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wings are a mere haze and if near enough a continual humming is heard, giving the colloquial name Hummer. On nearing the ground at the end of its dive it utters a harsh cry, surprisingly loud for so small a bird. Then it rises upward with visibly fluttering wings. It will repeat the performance four or five times.

As we tramped out down the Beaver valley in the first days of June, always on our left, one after another, rose the finest peaks of the Selkirks, their glaciers descending almost to the valley floor. Mount Sir Donald and the Illecillewat lured me to Glacier House and to the luxury of climbing from the best mountain centre on the C.P.R. From there I was bound still farther north, to the Klondyke, and a thousand miles down the Yukon, through Alaska to the arctic circle and the ice-clad volcanoes beside Bering Sea.
CHAPTER 12

SPITSBERGEN

In the days of Alexander the Great, the astronomer Pytheas, first measurer of latitude, sailed through the Pillars of Hercules to Britain. He met Brettannoi, drinking beer because grapes would not ripen in their land, and the Tin Islanders, perhaps the Irish. Passing the Orcades he sailed on northwards till he reached a place where the sun did not set on midsummer day. The world of science was incredulous, and still more so when he told of a region yet farther north where “there was no longer any distinction between earth, air and water, which made the passage of a ship impossible”. Surely he spoke of the fog-shrouded brash-ice, like porridge on the sea, so frequently met in the warmer water on the outskirts of the polar pack.

The Arctic has a strange air of aloofness; in fair weather of aloof serenity. It can be a splendour, motionless, or a chaotic blizzard of implacable ferocity. It does not threaten, but it dreads to warn and it extends no welcoming hand: it is secret and self-contained, like a woman.

The Arctic brings alpine conditions down to sea-level. Glaciers launch themselves into the polar seas to calve icebergs for the destruction of mariners. In many ways high latitudes correspond with high altitudes, but the climate, with all that that implies, is different. The climate of the great mountain regions of the world is usually continental; so is it in the cruelly forbidding Antarctic. But the North Pole is set in the sea and the climate of its surrounding islands is maritime and not continental. The far north is full of life: birds in the air, flowers on the land, beasts in the sea.

It is with ocean currents, not trade winds and monsoons,
Polar currents

that the polar voyager must reckon. I have watched an iceberg moving against the wind, six-sevenths of its bulk submerged. Across the Pole the pack is in continuous motion for a current flows from the north Pacific through Bering Strait, driving the pack over the Pole toward the northern shores of Spitsbergen. By this current wreckage from de Long’s Jeannette, crushed in the ice north of Wrangel Island in 1881, was borne out three years later. Nansen used this current and he built his Fram with a triangular section, so that when caught in a squeeze she would be forced upwards and not be crushed. Sailing through Bering Strait he laid her in the pack so that she drifted almost over the Pole down into open water off Spitsbergen. The Russians landing by plane at the Pole in May, 1937, drifted south on the ice for nine months and were picked up off the north-east coast of Greenland. This polar current forms the main component of the Greenland current, being deflected north and west of Spitsbergen by the last eddies of the Gulf Stream. Thus to the east of the Greenland current the Gulf Stream warms the shores of Spitsbergen up to eighty degrees north, so that here in summer a ship may sail to within 600 miles of the Pole. Yet obviously this route gives no practicable approach to that objective, for the pack is ever drifting south and at every halt on a sledge journey northward much of the day’s advance is inevitably lost. Phipps vainly tried this route, with young Nelson aboard, and others including the Duke of the Abruzzi.

Spitsbergen was never colonized by man, neither by Eskimo nor Samoyeds. There is no proof that the Norsemen visited it, though its new Norwegian owners have re-named it Svalbard in that contention: worse still, they have removed from the charts the historic place-names given by Dutch and English whalers in Stuart days, and used ever since. The Dutch named the island group Spitsbergen, the Spiky Mountains. Early English whalers, followed by Gay in the Beggar’s Opera confounded it with Greenland, and Russians still call it Grumant. The main island is full of alpine peaks, rising to 5,000 feet. The large island of Northeast Land is flatter and covered by an ice-cap. There are other
considerable islands and innumerable small ones in the archipelago, which, with Franz Josef Land and Novaya Zemlya, constitutes the European segment of the Arctic regions.

These islands offer great attractions to university long vacation expeditions, for apart from geographical exploration, there is intensive work to be done in every field of science, particularly in ecology, the study of the inter-relations of all the forms of life in any one area. In the arctic the number of species of plants and animals is relatively limited and there is not that complication of a multitude of forms of life jostling each other as in the tropics.

In 1921 a party of seventeen graduates and undergraduates made up the first Oxford University Expedition to Spitsbergen. It was a very interesting party, including the great ornithologist, F. C. R. Jourdain, A. M. Carr-Saunders the political economist, Julian Huxley and Charles Elton, now doyen of animal-ecologists. George Binney had the exacting task of business organizer of the expedition. (In 1941 he was knighted for running vital cargoes out of Sweden to this country under the very nose of the German fleet—a grand exploit when our fortunes were at their nadir.)

On June 11th a small advance party of the main expedition sailed from Tromsö on the sealer Terningen, chartered for the season. We were to do a week's work on Bear Island, half-way between Norway and Spitsbergen. It is an island of fogs and storms and of the utmost desolation, far more so than Spitsbergen itself; for it lies where the cold water of Barents Sea to the east meets the warmer water on the west to brew a devil's cauldron of foul weather. On our way home, in a much smaller sealer, we were caught here in a circular storm. Wind hit us from every direction out of a darkened sky, black round the horizon. Both fo'c'sle and after cabins were soon awash, with suitcases bumping about in the water. The wind fairly howled, so that the thunder was inaudible. Waves broke over us from all angles. The glass front of the wheel-house was smashed. Finally, the reefed mainsail carried to steady us, split with a shrieking report. Signing me to the bucking wheel the skipper dived to the deck to help our one deck-hand claw in the thrashing sail. The
struggling men were a grand sight seen by lightning flashes in the black darkness of the storm. That night we were blown fifty miles out of our course.

But on June 13th we were able to land on the open beach of Walrus Bay with only a wetting. It was close to the southern point of the island where dark cliffs rise to 1,000 feet and where an abandoned whalers' hut gave good shelter for our headquarters.

Bear Island is the meeting place of north European and Arctic birds. The great glaucous gull (*Larus hyperboreus*), the "Burgo-master" of sailors, replaces our herring and black-backed gulls; yet we found one nest, the first reported from Bear Island, of the great black-backed gull (*Larus marinus*) of home waters. There were both the northern (*Uria a. aalge*) and the arctic (*Uria l. lomvia*) species of guillemot nesting side by side on the same ledges. When it became evident that bad weather must delay the return of the *Terningen* I had to look to rationing. Doubling a line through the two lower joints of a salmon rod I snared guillemots on the cliffs. Both birds and eggs were welcomed; even incubated eggs could be successfully served as ham omelettes to all but the most suspicious of the party, if the beaks were taken out.

There is little soil and less sun on Bear Island. The frost-comminuted rocks degenerate into slow-motion mud, producing an instability of what little soil there is, which is very hostile to plant growth. We lived in cloud: but Jourdain was happy with his birds, Summerhayes with his botany, and Elton was always finding something new and strange.

As the storms continued we decided to send a message to the ship at Tromsö to say that we should be all right for food for another week. I asked Charles Elton to walk with me across to the north-eastern corner of the island where there was a Norwegian coal-mine with a wireless station. A wet blizzard raged the whole day and the going was atrocious. Although the distance was only seven miles we took four hours each way, always over unstable spiky rocks with swamps of mud in every hollow. It was our introduction to the bad footing of the Arctic which
causes two miles an hour to be reckoned good going. Working by compass we passed below Mount Misery—aptly named—which dominates the island, but that day its black top was never clear in the driving sleet.

We were taken off on June 23rd, and the ship sailed for Spitsbergen with the united party. The Terningen was a roomy two-masted schooner. The hold, stinking with the blubber of many voyages, was fitted up as our sleeping quarters. It had the usual auxiliary engine, nominally for work in the ice; but Norwegian sealers, to save hands, are under-sailed and the engines are run most of the time, especially when someone else is paying for the oil. Our course was set west of the main island of Spitsbergen towards Ice Fjord, the great inlet cutting deeply into the land midway up the western coast. In a gale on June 24th we encountered "growlers", hard lumps of greenish ice awash, difficult to see and capable of dealing the ship a nasty blow or breaking a propeller blade; but the wind sank, the mist cleared, and there ahead was Prince Charles Foreland, with Cape Staratschin to starboard. I climbed into the crow's nest with Julian Huxley and, as we steered in towards the narrow opening of Ice Fjord, we watched the magic peaks of Spitsbergen rise slowly above the horizon. The snowy landscape was flooded with primrose light, the true light of the far north, a thin yellow radiance totally different from the deep blue distances under higher suns in lower latitudes.

Flanking the narrow mouth of Ice Fjord stand low mountains of 1,000 to 2,000 feet with wasting glaciers shaped like the shells of turtle—"carapace" glaciers. As we passed in a wide expanse of water opened before us, fifty miles long and dotted with small blue bergs. Below the mountains the shores were green. This appears to be a sunken coast, the sea penetrating in amongst the mountains in a series of deep inlets. We visited Advent Bay, on the south shore, the Norwegian coal-mining centre (American prospectors named it Longyear City) with a rather ugly collection of about thirty houses, but enlivened by bright-coloured snow buntings singing their cheerful song from the
Klaas Billen Bay

roofs. On the low cliffs of a nearby valley Jourdain's party found nests of the barnacle goose (*Branta leucopsis*), that very handsome black and white winter visitor to Britain. Jourdain was the first to bring authenticated specimens of their eggs back to this country.

Later we steamed for Cape Thordsen, which lies between the north and east arms of Ice Fjord. Huxley and I climbed Mount Congress, 2,000 feet above the beach, to gain a first wide view. The northern inlet, fjord-like Dickson Bay, was still frozen, the sea-ice dappled with wind-rippled snow; beyond this, looking north-west, was spread mountainous King James Land, dominated by the peaks of the Three Crowns over King's Bay. In vivid contrast to these snows was the soft low green headland of Dickson Land just opposite to us. I have always longed to camp there, and see if the reported Spitsbergen butterfly really existed. 73

In the Trias beds below Mount Congress, Segnit alleged that he had discovered rare specimens of the bones of the *Labyrinthodon*; so Huxley and I were condemned to spend two days carrying down to the beach enormous loads of rock bearing the fossilized remains of this revolting beast.

The north-eastern arm of Ice Fjord is named Klaas Billen Bay after some old Dutch whaling captain. Near its head the huge Nordenskjold glacier enters the sea and its vertical ice-face, up to 200 feet high and some three miles in extent, calves the bergs which gave Ice Fjord its name. When a berg from this ice-face topples into the sea it rolls over and over, thrashing about like a whale in its death-flurry: it raises waves in a wide circle about it and a small boat may easily be swamped. From the middle of this great glacier rises Mount Terrier (3,963 feet), a rocky pyramid set on the western margin of the highland ice, which is the geographical centre of the mainland of Spitsbergen. The ice plateau extends eastward up to the backbone of the island and beyond the water parting great glaciers flow down to form a smaller ice-sheet which discharges into Barents Sea.

Conway and Garwood 73 had spent some time on the Nordenskjold side of the highland ice and the Russo-Swedish Arc of
Meridian expedition had crossed part of it from north to south, but it had never been traversed from west to east, from sea to sea. This crossing from Ice Fjord to Barents Sea was a principal objective of our expedition. Odell was to be in charge; Frazer would do the survey; and I made a third to help pull the sledge. Before starting we decided that we must climb Mount Terrier in order to select a good route over the divide and to check our compasses, for we expected fog and must be able to travel blind.

In our islands seven o'clock in the morning and seven o'clock in the evening have very definite and different connotations: in the far north they have none—the summer sun does not set until September. The time to set off on an excursion depends on the weather or the condition of the snow; a sudden clearing may induce a start at ten o'clock at night, or bad weather may prompt twelve hours' sleep at any time—for during the season of perpetual daylight lack of sleep is a normal experience—or circumstances may necessitate carrying on for twenty-four hours and more. One is compelled to use the twenty-four-hour clock, otherwise one loses count of the days.

The base camp of the expedition was now established, in charge of Carr-Saunders, close by the shore within a mile of the southern edge of the Nordenskjold glacier. The Scottish Spitsbergen Syndicate had generously given us permission to use the two huts on their coal claim, which constituted “Bruce City”. On July 26th Odell, Segnit and I left camp at seven o'clock for Mount Terrier. We soon reached the side of the Nordenskjold glacier where it was about six miles wide and much broken by crevasses which later meant bad going for our sledge. We made a wide detour towards another peak to the south of Terrier to find an easier approach, but it became clear that our original plan was best and that Terrier would command a better view over the highland ice. We had no trouble with the crevasses on the “dry” glacier, but as we gained height we got among snow bridges, some of them very rotten. Odell moved like a cat across them, but the second man broke through one up to his neck. It was a grand chance to try out one of my pet devices,
20. (a) THROUGH LOOSE PACK, HINLOPEN STRAITS, 31.7.23
(b) A FLOE OFF NORTH-EAST LAND, 7.8.23
21. (a) THE DEVIL'S THUMB, N.W. GREENLAND: ASCENT BY LEFT SKYLINE, JULY, 1934, M. H. W. Ritchie

(b) MELVILLE BAY: COAST ICE AND HEAVY PACK IN DISTANCE, 12.7.34
strangely the only time I have had to use it. While Odell took Segnit’s weight, pressing him close against the far side of the hole he had made, I went off at right angles parallel to the crevasse. Segnit was thus at the apex of an angle of ninety degrees formed by the two ropes leading to Odell and myself. We pulled, and out he shot like a cork from a bottle.

This south-west side of Mount Terrier is surrounded by a clearly marked band of vertical cliffs, above steep scree slopes. High on these cliffs hundreds of fulmar petrels were nesting, safe from their enemy the arctic fox. On the limestone screes were many lumps of coral and other fossils, with which Segnit loaded himself—and us. We had already spent nearly eight hours on the glacier before we started our climb. The cliffs forced us to our left and, by a little chimney and a couple of steep ledges, we gained the rocky south-west top, about 3,500 feet, at nineteen hundred hours, where we built a cairn which Frazer would be able to use for his survey. The great Nordenskjold glacier spread at our feet, every wrinkle, crevasse and moraine plain without any concealment and we could pick out a better route up the glacier for a sledge than we had followed that day. Over the great expanse of Ice Fjord we looked out to the open sea and all the distant alpine peaks of King James Land were clear to the north-west: to the north we had a glimpse of a great fjord, Wijde Bay, which reaching down to within a few miles of Klaas Billen Bay nearly splits the mainland of Spitsbergen into two: away to the south-east was undulating highland ice leading up to low snow-clad peaks. Over these we could see the sea: there was Stor Fjord, the old Wybe Jans Water; and Barents Island, clear for once; and Edge Island named after that stout-hearted captain who led our wh alermen’s struggle against the Dutch monopoly. The whole scene was bathed in a fairy-like softness of thin diaphanous light.

But to the north cloud was forming. The higher eastern top of the mountain still hid from us that view over the highland ice that we had come to see. Odell is a notoriously slow starter: after twelve hours going he is at his best. He looked at
the mile of abominably crusted snow on the ridge ahead of us, hesitated, and then said in the nicest possible way: "If you don't mind, Tom, I think I ought to be getting on now." We rejoined him an hour later on the rounded summit (3,963 feet) at twenty-one hours. He had just managed to see our route over the backbone of the island, and the compass-bearing of the pass, before cloud shut down on it. We left the summit at twenty-one-thirty and climbed down the mixed rock and snow of the east ridge on to the edge of the ice plateau. Returning down the Nordenskjold glacier we reached camp at seven-thirty on July 27th, distracted between the desire to eat and the desire to sleep after a twenty-four and a half hours' day.

At eighty degrees north, spring begins in June, summer in July, autumn in August, and winter in September. The summer is so brief that last year's seeds ripen alongside this year's flowers on the same plant. The soft primrose light from the low sun is a perpetual delight, but the glories of sunsets and sunrises are lacking. Then the aurora, most wonderful of all sky displays, is invisible in summer, and in winter is more often seen in Shetland than in Spitsbergen. The zone of maximal auroral frequency lies south of the tip of Greenland, just north of the North Cape of Norway, and along the northernmost coasts of Siberia and Canada. Incidentally it is now believed that the aurora is not due to electric storms arising at the magnetic pole of the earth, but is caused by streams of particles ejected from the sun which are directly connected with the sun-spot cycle. Recondite physical relations happen to cause the effect to become visible around the polar regions.

We set off on our sledge journey at a bad time of year. Autumn was upon us and the weather might break at any time. We had to be back at our base camp on Ice Fjord by August 25th, when the Scots' boat was due to sail for she would not wait for us if we were even a day late.

We began sledge-hauling up the Nordenskjold glacier on July 31st and it was not until the evening of August 9th that we reached our true starting point upon the highland ice below
Mount Terrier. Sledges are meant to be dragged over snow, but now, late in the season, snow-covering was soft and at its minimum, and the lower reaches of the glacier were rough moraine or bare ice. This means devilish pulling and racks, if it does not wreck, the sledge. Carr-Saunders, Elton and Walton helped us. We had 600 pounds of gear and used two sledges, each only a quarter loaded at a time; yet often over open crevasses we had to unload and back-pack.

We pitched our first camp on the main highland ice at 2,864 feet. Behind us Mount Terrier stood up grandly with great bastions of pink granite contrasting with dark limestone and capped by a gleaming ice-cliff: ahead stretched featureless undulating wastes of snow. It was a magnificent evening, with autumn cold beginning. There was no wind, no groaning of the level ice, no sound of running water, no sound of anything. It was here that I heard Silence for the first time, a new and fantastic sensation, astonishing but not terrifying.

We spent one more day hard at work, Frazer and Odell at the survey and I at the exacting job of rigging the sledge, before our next journey over the ice began. Frazer fixed our pass as eight miles north-east by compass from this our first camp on the plateau. In a drizzle of rain we got away at fifteen-thirty-five on August 11th. We wore only flannel pyjamas under thin wind-proofs. This was quite warm enough while hauling the sledge, but did not encourage halts by the way. We each had separate drag ropes of different lengths, to obviate the risk of all breaking through into the same crevasse at once. As a further precaution we each carried sixty feet of alpine line which could be lowered down to a man in a crevasse and anchored above, so that he could help to haul himself up. We of course used ski except on those very steep slopes where we had to haul the sledge up hand over hand on a long rope. When the surface temperature was above freezing point, as it often was in August, the sledge runners froze to the surface at every halt and had to be broken free from the tail. Our load of nearly 600 pounds was the maximum for three men under reasonable conditions, so
that this "breaking out" of the sledge was a tricky affair on ski. Two men got into position to drag; the third man went to the tail, broke it free, and pushed; then he had to rush to the front and pull before the other two were stopped by the overweight of the sledge.

This day the pulling was sticky, and we only made a mile an hour. We camped at eighteen-ten (3,468 feet) for more survey work, and leaving Odell melting snow on the primus, Frazer and I skied out to a rise from which we could lay our route to the pass. On August 12th we got to bed at two o'clock and woke to an overcast sky with drizzling rain which soaked camp and gear. We breakfasted at noon in worsening weather which turned to dense fog: so dining early we got into our sleeping-bags at twenty hours and for the first time since we had started got back into a normal time phase.

Mercifully the temperature fell sharply to one degree centigrade during the "night", giving a good surface for the sledge. We were off at eight-thirty on August 13th, steering north-east by compass for the pass, but there was low mist and soon Odell had to march fifty yards behind the sledge to keep us on our course. We pulled up at the foot of the last steep rise below the pass at eighteen hours. We back-packed half our load on to the pass and had the lightened sledge up by twenty-thirty. Instead of finding a bergschrand at the foot of the final slope just where it steepened, as in most mountain regions, there was a big crevasse at the crest of the pass. Such apical crevasses we also found on the tops of the peaks here, and I can only suppose that the rate of ice-flow is slower on these great ice-plains and that the crack comes at the point of greatest tension, the divide itself.

We found a dry camp site (3,568 feet) on scree beside the pass. Eastward a steep snow slope fell away into a snow basin which spread out to a wide, snow-covered glacier between two lines of craggy cliffs. This we named the Oxford glacier. We could see a nunatak, a naked rock summit rather like a crouching lion, about eight miles ahead which seemed to mark the end of the
The Oxford glacier

confining cliffs to the south, and from this last visible corner we hoped to be able to ski down to Barents Sea.

We awoke next morning to continuous mist and fog with a hoary north-east wind. Frazer got a solitary sight back to our cairn on Terrier and we dried out our kit. Next day the fog lifted and we measured a 2,000-foot base as an extra check to start a survey of the new ground to the east. We climbed the nearest peak (3,565 feet)—Our Lady of the Snows, Frazer christened it—on a wonderful evening, with everything crystal clear to the west and a Brocken Spectre of our moving shadows on the mist-bank to the east. The wind was bitter and we were glad to get into our sleeping-bags at midnight.

On August 16th we started down our “Oxford glacier” in a dazzling snow-scape. The sledge towed us down the steep incline, with two on the tail ropes. We descended on to a level glacier with high cliffs on either hand, where we had to steer between large areas of blue water-logged snow. Here again were uncanny silent-gliding fulmars nesting, with tracks of predatory foxes below, and two ivory gulls sailed overhead. Keeping to crusted snow we soon passed a finger of dolomite rising seventy feet above the glacier, a museum specimen of a nunatak. Large tributary glaciers flowed in on either hand. Later the northern sky became overcast and we raced against a heavy bank of mist moving upon us from the south. We made good running and camped late, on the toe of a steep scree-slope (2,278 feet) above the right bank of the glacier, where there was a blessed pool of water instead of snow to melt; this prompted a huge meal.

Our luck now failed for on August 17th snow fell continuously. Next morning came a thaw with thick mist all day, so we stayed in the tent, thankful to have a dry camp-site on scree. On the 19th the mist lifted at eight o’clock and we climbed up on to the south-west boundary ridge of our glacier to prospect. The highest point was a snow dome of 3,000 feet and from it we continued eastward, along the ridge over black “Svartoppen” (2,967 feet) as we christened it. On this bare ridge I collected
nine flowering plants and one grass, recent colonists growing singly in this cold desert. We followed on to the last summit which we called “Lion Nunatak” (2,578 feet). Beyond this, our Oxford glacier joined a vast expanse of ice flowing apparently north-east. Snowfields spread on gently downwards for miles, disappearing under white and bluish mists which several times caused one or other of us to claim sight of the sea: yet we knew that Hinlopen Strait, the nearest open water, must still be twenty miles away. By the evening snow was again falling, and we realized that there was now no alternative but to give in and get back to “Bruce City” before the boat sailed on August 25th.

It was well we turned back for August 20th turned out to be our severest day. Wet snow was falling through a thick mist; it balled under the runners stopping the sledge, making the uphill haul very hard work: snow-bridges were rotten and several times gave way under the sledge. The weather never let up but Odell held the course admirably. It took two hours to drag the sledge up the final steep incline back to the pass. At that dry, but exposed camp, we relaxed gratefully after our ten-hour pull and felt safe to eat, without restraint of economy.

On the 21st, 22nd and 23rd we were confined to the tent by a blizzard. Sledge, lashings, and tent were iced up. Temperature was down to minus five degrees centigrade. We could just melt enough snow to make pastes of glaxo and oxo and unless we abandoned sledge and gear we could not travel.

I was awakened at one-thirty on the morning of the 24th by the tent ceasing to flap with the drum-fire it had been emitting for the last three days and nights. I looked out to fog and thaw and woke the others. Setting a course for Mount Terrier we got off at four-thirty. There were no old tracks left to guide us and we pulled for seven monotonous miles, usually conned by Odell fifty yards behind the sledge. Meeting a steeper down grade we pulled up and skied on to reconnoitre. Suddenly, the north-east corner of Mount Terrier loomed up dead ahead—a good course. We made our old “first plateau” camp, harnessed
the second empty sledge on behind, and pushed down the upper Nordenskjold glacier south of Terrier. At our old camp under the peak we found Odell’s cache of geological specimens, rendered useless, for foxes had eaten up all the canvas labels. Frazer and I looked guiltily at each other as we commiserated with Odell, heartily thankful that we had not to haul those hundredweights of stone on the sledges, but we picked up our food dump and pushed on. The going was downhill but very rough over the hummocks of dry ice. One of us dragged the tandem while the other two endeavoured to prevent the sledges overturning, and by midnight, we reached the edge of the glacier. Bundling sleeping-bags, survey papers and photographs into our rucksacks, we made “Bruce City” at one-thirty in the morning of the 25th. We were on time: there was the ship. The Scots had seen us coming down over the glacier and Campbell, the miner, had a steaming hot bath ready for me—bless him.

* * * * * * *

In 1921, before our sledge journey across the ice-cap, we had sailed along the west coast of Spitsbergen northwards to eighty degrees. I was to cover much of the same ground again in 1923 when I returned with George Binney’s Merton College expedition. Binney’s main objective was the circumnavigation and exploration by sledge of Northeastland, the second largest island of the archipelago. He planned to reach its western sea-board towards the end of July when ice-conditions should be most favourable. Until then we had plenty of time to learn more of the bird and plant life in the fjords and islands west and north on the mainland. Charles Elton came again as ecologist. Hugh Clutterbuck, the oarsman, was second in command; he knew his birds well and had a remarkable eye for plants, hardly ever returning from a walk without some new find. We had chartered the Terningen of Tromsö a second time with Isak Isaksen as captain and ice pilot and Alfred Eilertsen as mate and navigator.
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The Arctic had cast its spell upon me and I felt very happy as we headed north once more from the now familiar Ice Fjord up the narrow sound between the long desolate island of Prince Charles Foreland and the mainland. [Pl. 19.] North of the Foreland is the narrow entrance to King's Bay, named for James I by the old English whalers. It is a perfect harbour encircled by sheltering mountains. At its head is one of the principal Norwegian coal mines inhabited all the year round. On an islet in the bay the rare Sabine's gull (*Xema sabini*) was nesting. It is small and delicate in shape with a plum-coloured head in striking contrast to the prevailing white of its body and it flies with the graceful flight of a tern, uttering a wild falsetto cry. We found them breeding in single pairs amongst colonies of the arctic tern, possibly for the protection afforded by the tern's habit of mobbing every predatory skua or gull which approaches, the whole flock driving off the marauder with loud clamour.

We next coasted along the mountains of King Charles Land, to Magdalena Bay, a small, snug harbour. The surrounding peaks are steep and several glaciers of alpine type descend to sea level. The most remarkable is the Waggon Way glacier; two absolutely parallel moraines wind as dark narrow lines down the ice suggesting to the old-time whaling crews the ruts of waggon wheels. By the anchorage in English Cove is an old graveyard, where coffins, which could not be buried in the frozen ground, had a few stones piled on them. Most had been destroyed by bears and foxes and the only partially legible date was early eighteenth century. It was a hot and windless day as I trudged sweating up the easy Gully glacier. Overhead hundreds of little auks flew swerving on quick-beating wings, their cheeks distended with food gathered out at sea, but twittering in chorus as they neared their nesting crannies in the cliffs beside the glacier.

The next good anchorage to the north is Danes Gat so named as the headquarters of the Danish whaling contingent. Close by, was André's balloon shed, whence he started on his fatal flight to the Pole and which was subsequently burned down by a shipload of German tourists, enjoying a summer cruise. A little
Reindeer Peninsula

farther north on Amsterdam Island is Smeerenburg, "Blubber Town", with the ruins of the old brick kilns which the Dutch whalemens used to render down blubber in the heydey of the trade.

Beyond Foul Point we rounded the bold landmark of Cloven Cliff and the north-west corner of Spitsbergen, close to the parallel of eighty degrees north but, thanks to the Gulf Stream, still in open water. Sailing eastward the high mountain land is left behind and the low flat tundra of Reindeer Peninsula spreads out. The shallow bay on its northern shore, named Wood Beach, is lined by a chevaux-de-frise of tree-trunks, many with upstanding roots. These have been washed out of the great Siberian rivers by the break-up of the winter ice and the consequent tumultuous floods; thence they are borne by the polar current almost across the Pole. One we saw was scored by Teredo worm, indicating that it must have come from the Pacific through Bering Strait.

We landed on Reindeer Peninsula from an anchorage deep in Leifde Bay. The snowfall is less than on the western coasts and had nearly all gone by July. Save for a fallen Russian cross, relic of some eighteenth-century trapper, whose hut had long perished, there was no sign of man. The land was in full flower. On a background of creeping arctic willow were spread sheets of dark pink Saxifraga oppositifolia and of white Dryas octopetala. There were other saxifrages, a ranunculus, Silene acaulis and the waxy flowers of an andromeda. The arctic poppy, rather a poor greenish-yellow but a giant, six inches high, grew in scattered drifts.

Bird-life here was fascinating. There was a flock of pink-footed geese, flightless from the moult which succeeds the nesting period. Purple sandpipers, turnstones and the grey phalarope were nesting. Among the phalaropes the incubation of the eggs is done by the cock bird, the hen taking no further interest after the laying of the clutch. I once watched a hen return to her nest but cannot prove that she did not lay another egg. There were a few arctic foxes, sandy-coloured in summer but pure white in
the winter coat. There are no hares or lemmings in Spitsbergen for it is too far over the sea ice from Franz Josef Land and the Siberian shore, but at some time reindeer made the journey and have become established.

I had many long walks over this tundra: the surface of the ground melts in high summer and the foot sinks into the mud at every depression. One day, with Charles Elton I walked for twelve hours, and doubt if we covered twenty-five miles. I found here a nest of the sanderling (Crocethia alba): the hen tried to lure me away, scuffling over the ground with twitching wings. These were the first sanderling eggs obtained in Spitsbergen, the European segment of the Arctic. The bird was known to breed in Greenland, Arctic Canada and Siberia. This find proved it a completely circum-polar species. It is an extreme example of the fact that some of the species breeding farthest north migrate farthest south, for the sanderling has been reported in winter from South Africa, Australia and Patagonia; a world-spanner indeed.

At the western extremity of Leifde Bay an inlet runs back into the mountains and the Monaco glacier, of alpine type, comes down to the sea. It was a weird primeval place, cut off from the world, and probably unvisited since the Prince of Monaco's oceanographic voyage. It is always consoling to remember that so much of the money of the gamblers at Monte Carlo was spent on the Prince's great series of voyages and on the oceanographical museum at Monaco. The Norwegians shot a White Whale (Beluga) inshore. Its skin is wasted, as Roger Pocock our wildlife chef said, in making "porpoise hide" bootlaces, for as a delicacy it rivals caviar, and the beef is also excellent if hung in the sun long enough.

A few miles east of Leifde Bay we entered Wijde Bay which extends south for fifty miles right into the centre of Spitsbergen: indeed from its head it is only a very few miles to the waters of Klaas Billen Bay of Ice Fjord. Because of the warm winds flowing down from the highland ice it is freer from fogs than most of the coast and the consequent extra sunlight is reflected in
Moffen Island

the plant growth. Near Dirkes Bay, on the eastern shore, we found white bell-heather (*Cassiope tetragona*) which only grows in the most sheltered parts of Spitsbergen, generally well in toward the heads of the deeper fjords. It is a lovely plant when in full flower, a giant amongst Spitsbergen vegetation, often growing in broad mats over six inches high. The flowers are more than twice the size of our British bell heather and pure white in colour. There was also crowberry (*Empetrum nigrum*) with a great crop of berries, tasteless, but pleasant to a palate starved of fresh fruit. There were white dandelions and even a fern (*Crystopteris sp.*).

The surprising discovery was a series of half a dozen lakes, a feature unrecorded in Spitsbergen. The biggest and farthest inland was nearly five miles long, and a mile broad. They were steep-sided, fjord-like, and bounded by rocky archæan hills rising to nearly 1,000 feet. I followed down the outlet from the principal series of lochs and found myself in a miniature canyon with a swiftly-flowing river which entered the sea abruptly through a vertical rock portal. All this was most unexpected and quite unlike the mud-shoaled mouths of all the other Spitsbergen streams we had visited or heard of.

In the open sea to the north of Reindeer Peninsula is Moffen Island, the Muften Island of the Dutch, the only spot where the first Germans (Moffe) were allowed to have a whaling station. It is a perfect atoll, but of shingle in place of coral, with one entry passage into a wide lagoon enclosed by a ring of beach, rising about ten feet above sea-level. The circle of land is quite narrow, nowhere more than a quarter of a mile across. It seemed as if here the very last eddies of the Gulf Stream, meeting and overcome by the southward flowing polar current, had swept up this last outlier of dry land just as sand-banks are formed off the Wash and at the Goodwins by the interplay of currents. We had made a landing there in July, 1921. It was a perfect day, hot and bright with not a breath of wind. From the crow’s nest we could see the edge of the heavy polar pack away to the north, which had stopped Phipps in 1773. We were on eighty

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degrees north, only 600 miles from the Pole. The stalwarts bathed overside: Seton Gordon played his pipes: Binney enjoyed a siesta on the beach: while I went ashore with Jourdain and some of the others. The larger part of the island was strewn with old lichen-covered walrus skulls, from which the tusks had been extracted. These breaking up the surface made camouflage amongst which brent geese and eiders were nesting. Burgo-master gulls, arctic terns and red-throated divers were also breeding. Little auks and Mandt’s guillemots were swimming in the lagoon. A pretty saxifrages (S. caespitosa), the arctic poppy and a few other plants were in flower. A wonderful day: but what a place in winter.

But in 1923 we left Moffen Island to the north of us and headed straight for Northeast Land. For a successful circumnavigation everything depended on ice conditions, for the polar pack may at any time bear down on to the harbourless north coast and crush any ship that it catches, against the land.

On the 29th of July I went on deck at 6 a.m. to see the icy-looking bare grey tundra of Verlegen Hook to the south of us. Across Hinlopen Strait I saw Northeast Land—ice-bound off the north-west approaches with heavy pack stretching far out into the Strait; it was the real polar stuff, rough and impenetrable. Under such conditions we had to wait: nor was it safe to land a sledger party on Northeast Land, for it might well be impossible to get them off again. So we turned and ran southward down Hinlopen Strait between Northeast Land and the mainland, heading for Lomme Bay. There on July 31st we landed our sledge party: Odell, Frazer, Geoffrey Milling and Sandy Irvine —so soon to lose his life with Mallory on Mount Everest. In default of the original plan they were to force a route across the mainland through the unknown mountainous country around Mount Newton (5,676 feet), the highest peak in Spitsbergen. Then they were to work south and come out by our old sledge route of 1921, so that the ship could be sure of picking them up in Ice Fjord. All this they duly accomplished, including the ascent of Newton. I was there when they got through and
picked them up with the glass several miles away on the Norden-
skjold glacier. I walked up to greet them, my pockets filled
with chocolate and sweets which I thought would be the most
welcome change after a long diet of pemmican and ship’s biscuit.
To my chagrin I was rewarded only by a gloomy look from
Frazer and the remark: “What! No pineapple, Tom!” It was
the juice they wanted. I had already forgotten the craving for
any fresh drink after a month of gritty melted snow tainted with
paraffin vapours.

In Hinlopen Strait there was more ice than we liked, though
tidal currents kept it loose and penetrable. The Strait is full of
islands, on many of which we landed, sheltering from changing
winds and tides which drove the floes down upon us. Isaksen
was a grand ice-pilot; he could see a weak spot in a floe and drive
the ship at it in such a way as to crack a passage through. This
requires perfect co-operation between pilot and helmsman: if
things did not go just right, Isaksen would spit from the crow’s
nest at the man at the wheel. While moving through pack,
two or three of us stood in the stern armed with long poles to
fend off lumps of ice from the screw. Despite constant care, on
August 5th, while working through a narrow lead we snapped
off a propeller blade. Of course we carried a spare propeller,
but to fit it we had to work the ship to a safe berth and beach
her by the stern. We made the lee of an islet off Cape Torrell
and had just got her stern moored to shore when the wind changed
and down came the pack upon us from the north. The engine
was cold and most of the party were ashore, but two of us
snatched a boat and regardless of the jeers of the crew who were
casting off the moorings, began by main force to tow her round
to the other side of the islet. It was very hard pulling but we
managed it just in time. Later the crew had the heavy job of
shifting ballast and spare oil barrels forward and hauling a water-
filled boat up under the bowsprit, to get the ship well down by
the head. Then at high tide we beached her astern. The rise
and fall of the tide was only three or four feet and it was all the
crew could do to get the broken propeller off at the first low tide.
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We had to wait anxiously another twelve hours before we could fit the new one. [Pl. 20a.]

We had now spent a week in the uncertain waters of Hinlopen Strait waiting for a chance to make Northeast Land. But it was not all anxiety: there were days of radiant calm when the ice in which we were embayed gleamed motionless in the sun. Such days are worth living for. We would drop over the side on to the floe to which the ship was moored and wander off on to the solid ice. Amongst the imprisoned bergs we sought bears and seals for fresh meat. The bear lives on seals; it is a creature of the floating sea-ice and not truly a land animal. The seals come up through holes they have made in the ice, lever themselves out with their flippers and sleep in the sun: but they sleep only for about thirty seconds at a time, then raise their heads and look around. The bear, invisible when motionless, or the hunter, who if lying flat on the ice will himself be mistaken for a seal, can move only while they sleep. It is necessary to creep belly to the ice to within a hundred yards, for if the seal is not shot through the head it will dive through its hole and be lost, even with a heart shot. But the bear must do even better and get his claws in. The bear usually only eats the skin and the blubber which adheres to it in a thick layer. The flesh left by the bears is eaten by the ivory gull. As soon as one of us dropped over the side on to a floe, these birds, till now invisible, would take wing from some berg or hummock of the crumpled ice and follow on the chance of a meal. [Pl. 20b.]

On August 7th, leaving the floes of Hinlopen Strait behind us, we sailed north through open water into Ulve Bay, near the south-east corner of Northeast Land. Here, in almost their last refuge in Spitsbergen waters, we saw walrus, strangely helpless-looking beasts. They feed in shallow water, especially on a mud bottom, digging out molluses with their tusks. Both hide and blubber are valuable, but the meat is only fit for dog-feed. On most of the south-east and east coasts of Northeast Land the ice-cap impinges continuously on the sea in vertical cliffs, but at Ulve Bay it was a few hundred yards back. The land here was evi-
dently rising in relation to the sea and a hundred yards up the beach of flat rectangular pebbles was a very old whale skeleton. Even on this bleak shore, where vegetation is so slow of growth the bones were covered with lichens. No whale could ever have been washed up this distance, nor did the old whalers work that way, for they had not the tackle. The land must have risen since the whale ran aground.

At last on August 9th we saw "water-sky" to the northwest. A cloudy sky looks white over sea-ice and black over open water. With no spare propeller the skipper decided we had best escape up Hinlopen Strait while we might. By August 12th we were anchored in open water in Murchison Bay, near the north-west corner of Northeast Land. Now was our chance before autumn set in to try our luck along its treacherous northern coast. We had not much time but as we sailed eastward, between the bold rocky headland of North Cape and the Seven Isles, there was calm open water and every gleaming berg and floe reflected the sun of midnight. There was an air of complete peace and security, yet, from the crow's nest we could plainly see the heavy crumpled polar pack in a continuous line a few miles to the north.

So we ran on through a marvellous night to Cape Platen, nearly half-way to Cape Leigh Smith,77 north-easterly point of Northeast Land and the crux of our voyage round the island. There was a suggestion of coming mist, but it cleared and on August 13th we entered Dove Bay and tied up to a flat berg. There was open pack here and the captain thought ice conditions most favourable. It was getting very cold and a new skin of ice was forming on the open water: if the wind came down from the north we were in for trouble. But in fine weather we continued eastward. All the coast looked utterly barren and devoid of life but there were more bear on the floes and seals in the water. By noon of August 14th we were off Cape Bruun: the heavy pack was still fast to the north and we had only light floes to bother us. It was a fine day and we were all of high hope.

Then without warning we felt a northerly breeze breathing
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a cold thin mist against our cheeks. Like a stag suddenly scenting the taint of man the ship put about and we ran for it. We turned west, but found the channel between Rep Island and the mainland closed in our faces. We ran east a little and then north trying to work through heavier ice. In the evening we scraped round Outer Rep Island in $80^\circ\ 34'$ north. Then the fog closed down and we had to tie up embayed in a heavy floe.

In the night thickish pack drifted round us and our position began to look ominous. As I lay in my bunk I could hear the ice growling along the ship's side. It was like something trying to break in—a tentative muffled scraping which enters into dreams and to which no one ever becomes quite reconciled. Towards morning the sound grew less and finally ceased: the northerly breeze was dying down. I came on deck early to find the mist thinning and a light snow falling. We got under weigh and gradually we edged out of the pack. Working slowly through floes of all shapes and sizes we broke at last into open water and ran back to North Cape.

We had failed, but there was much to console us. We had sailed round two-thirds of Northeast Land and made half a dozen landings: we had gained a lot of detailed information about its poorly charted coasts and with these beginnings George Binney was to do far more the next year. He sledged right across Northeast Land from east to west, and had two other parties out on the western ice-fields. On the east coast, which had hitherto been reported as unbroken ice-cliffs, he discovered an ice-free headland and this he named Isis Point. Later Oxford expeditions continued the exploration of Northeast Land, one of Sandy Glen's parties wintering there.

But in 1923 I was leaving Spitsbergen for the last time. Late on August 15th we made a final landing at North Cape and climbed to its summit. The main pack was again solid to the northward, and inshore the sea was like a mirror reflecting in their every detail the scarred cliffs of that massive headland. To me desolate Northeast Land never seemed more attractive than on that day as we turned west by south on our way home.
CHAPTER 13

GREENLAND

It is impossible to overestimate the influence of the arctic regions on the life of man in the habitable globe. Climate is the decisive factor in the distribution of life and the climate of the northern hemisphere is determined by the polar cold. For northern and western Europe the weather is brewed by the "cold front" of polar air south of Iceland, which, in constant combat with the warmth generated by the north Atlantic drift of the Gulf Stream, places Britain under the "storm belt". Yet this is no permanent dispensation. Eons ago the polar basin was open water and such was the climate that bread-fruit and magnolia grew in Greenland; great forests made the coal deposits of Spitsbergen; and woolly rhinoceros and mammoth roamed over a continental land, now represented by the New Siberia Islands. Then slowly down came cold and froze the sea, so that it never melted even in summer. The European ice-sheet was still extensive only 10,000 years ago, reaching down to Denmark. The storm-belt was pushed south over the Mediterranean, and beyond its fringe civilization was born. North of the Mediterranean no single city of pre-history has been discovered; but gradually the ice receded and man spread northward.

In the ninth century the Norsemen colonized Iceland. In the tenth century Eric the Red, fleeing from blood-guilt, sailed away to the westward. He called his new-found land Greenland, perhaps to encourage colonists as a modern company promoter might do. He brought cattle with him, and for 200 or 300 years settlers continued to follow him. But the climate gradually deteriorated, and we know that in the fourteenth century the Icelanders ceased to grow their bread-corn. From
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farther north there was silence. No ship, we read in a Papal letter of 1492, had come from Greenland for eighty years. In this silence the settlers vanished, leaving the ruins of their dry-stone churches and farmsteads for us to think upon. Some of these ruins show signs of fire, and esmo tradition still tells of their own invasion from the north and of battles with the Kablunaks, "the men who came from the south". But the excavation of old graves indicates that the Norse settlers were already reduced in physique by progressive starvation. It was probably but a weak and sparse remnant that was left to go down before the invaders in the northernmost settlements.

Greenland is a continental island as long as from John o' Groats to Gibraltar. Cape Farewell lies further south than the Shetlands yet Greenland's northern cape is the most northerly land known. Nine-tenths of Greenland is covered by an ice-cap a thousand miles long. It is hard to see why Greenland, with warm summers in the south and west, should carry such an enormous ice-sheet. The generally accepted explanation is that this is a relic of the Ice Age, and that this huge accumulation of ice forms its own climate which enables it to maintain itself. Once it disappeared it probably could not reproduce itself under present climatic conditions.

The eastern coast of this continental island is barred by a broad belt of heavy pack borne southward by the Greenland current from the palaeo-cryctic sea around the Pole. This obstruction can only be penetrated by ships in summer; and not always then. In most seasons any exploration of this coast involves wintering; but the southern and western sides of Greenland are accessible to ships every year during the summer months.

After rounding Cape Farewell, the southernmost point of Greenland, the shore line appears as a series of little rocky peaks intersected by long, narrow, winding fjords. At the far end of one of these inlets is Eric's Fjord, up which I passed in 1931. The soft light of a long drawn-out evening threw sculpture of rock and texture of herbage into strong relief. At the head of the fjord we came to Brattalid, the home of Eric the Red. The
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The house stands roofless but the walls, dry built, of a hard red rock, mostly remain and the stone flooring is still as it was when he and his wife trod it nearly 1,000 years ago. Inland could be seen glacier tongues emerging through the naked peaks which fringe the vast ice-cap. A short distance beyond Brattalid are the ruins of Gardar cathedral, seat of bishops in the twelfth and thirteenth centuries. The ruins are set amidst what is now the settlement of Igaliko. We passed a very few old stunted silver birch trees, up to six feet high, and this must be about the present northern limit of their growth.

At this settlement the paternal Danish administration was experimenting with sheep and cattle in an attempt to guide the Greenland eskimo towards a pastoral way of life. Seals have been so reduced in numbers that the increasing human population can no longer exist solely by hunting and fishing; but pasture will be severely limited by the slow rate of growth of arctic food plants, for one season’s grazing will take several seasons for recovery. We saw that the salt south winds had killed the potato haulms; and oats were but a foot high.

The Danish government carried on their administration solely for the benefit of the Greenlanders, and at a considerable cost to the national exchequer. No Europeans were allowed into the country without permission, and when the unique Cryolite mine on the island of Ivigtut was leased to a company, the island was put out of bounds to the natives, who were not permitted to be employed there. The Danes have done everything to prevent that deterioration which is almost inescapable when a primitive population is brought into competition with a more highly-organized community. It is to be doubted if any other nation has so successfully mastered this problem; for the Greenland eskimo have been civilized and yet have preserved the best of their native attributes.

In 1928 the Oxford Exploration Club was founded and it was decided that I should take their first Long Vacation expedition to Greenland. The Danish authorities gave us every consideration. At Copenhagen I met Knud Rasmussen, Peter Freuchen
and Dr. Lauge Koch from each of whom I gained information and advice. Our finances were very limited which ruled out the chartering of a ship, so we had to be content with a standing camp. In the event we were able to manage a Spartan holiday of nearly twelve weeks' duration at a cost of only £38 each; of this, £37 was passage money.

We wanted to study an area in which we should find biological conditions similar to those in Britain at the end of the glacial epoch, from which the present biological phase of our own country has developed. As British naturalists we would travel back some ten thousand years: also we were, in a sense, retracing that still older land-bridge which in far distant ages connected Britain with Greenland.

I had selected a site north of Godthaab where the ice-cap had retreated eighty miles from the open sea. By going about forty miles in from the wet, foggy, outer coast we could expect a comparatively genial summer climate and we should be far enough from the ice-cap to escape the rigorous effects of its close proximity. Our field must also be far from human settlement or interference, for it was into the development and organization of the free society of nature that we hoped to gain some insight. From the sea the branched spike of Hjortetakken (3,900 feet), the "Hart's Horn", is the landmark for Godthaab. Rising abruptly from the outer shore, its steep sides scarred by snow gullies, it looks higher than its modest 3,900 feet. From the summit I have seen, under the sunrise, the conical outline of the peak thrown in shadow across the sea and stretching nearly to the horizon.

Godthaab is the capital of west Greenland: a pretty settlement of painted wooden houses strung out along the shore, backed by low hills. Here live a few Danish officials and some 500 Greenlanders. Many of the girls, especially those with Danish blood, are strikingly good-looking. Their hair is long and black and their complexion fresh: in gala dress they wear over the shoulders a tippet completely covered by patterns of coloured glass beads. The under coat is short, reaching only to
the waist and edged with fur. Their breeches are of white or black leather, cut rather closely. Great ingenuity is expended on their long boots, which come right up to the crutch. These are of soft black or white seal hide with an intricate ornamentation of tiny strips or squares of white, black, red and blue patches of leather invisibly sewn on to the leg of the boot. A band of fur finishes the upper edge and the black sole is shaped like a moccasin. It is a pretty sight to see them promenading, arm in arm, usually half a dozen together, chattering and laughing gaily.

Through the courtesy of Hr. Honoré Peterson, the Danish governor, we were landed (16th June, 1928) at a spot called Isersiutilik (64° 40’ N.) forty miles up the great Godthaab fjord, where we camped for six weeks. It was low rolling country with rocky outcrops interspersed with lakes and tarns: something like a Highland moor, but cruder, with perched blocks left stranded on every sky-line by the recent retreat of the ice. Both towards the sea and farther inland, hills rose to 2,500 feet. There were no trees but much grey willow (Salix glauca) and dwarf birch (Betula nana), growing up to three feet high in sheltered places. In the most favoured nooks was a small white-flowered azalea (Ledum groenlandicum). The lower hummocky wet ground was covered by a heath composed mainly of crowberry (Empetrum nigrum) merging into bilberry (Vaccinium uliginosum) in drier spots. On the stony ridges the mountain avens (Dryas integrifolia) was widely distributed and more rarely a lovely tiny rhododendron (Rhododendron lapponicus) with delicate pale slender trumpet-shaped blossoms. In the barest spots was a soft green patchwork quilt of lichens and reindeer moss.

Members of the expedition collected 150 flowering plants and ferns besides many species of lichens and mosses. Taking Ostenfeld’s estimate of 390, for the higher plants only, as the total for Greenland, it may be noted that fifty-three of these have been found in North America but not in Europe, and thirty-two in Europe but not in America; while 200 species are circumpolar. It looks as if Greenland is not biologically a province of either
Europe or North America, but a separate entity. It had been thought that the silver birch (*Betula pubescens*), which is now found only in the extreme south of Greenland, was imported by the Norse settlers. But our botanists took samples of a thin layer of peat and microscopic examination of the contained pollen grains proved that during the warm period which caused the retreat of the ice, the silver birch flourished here, some 400 miles farther north than the present limit of its scanty growth to-day. It had seemed to us very unlikely that settlers would have brought silver birch from Iceland; and now we had proof that it was indigenous.

Over an area of eight square miles we located 727 pairs of nesting birds. The four commonest land birds were the Lapland bunting (321 pairs), the Greenland redpoll (149 pairs), the snow bunting (84 pairs) and the Greenland wheatear (61 pairs). All these took the same species of insect and plant food, though in very different proportions: but each species chose a different and special breeding habitat. My second visit to Greenland (1931) enables me to assert that by merely looking around at the country you can tell from a distance which of these birds you will find. Amongst the crowberry hummocks will be Lapland buntings; wherever grey willow or dwarf birch rises a foot above the surrounding vegetation, there will be redpolls. If you want to see a wheatear look for level expanses of bare rock: snow buntings nest amongst any chaos of broken boulders or screes, from sea-level up to 2,000 feet. Some form of intention causes each of these species annually to migrate north from their winter quarters in America, Europe or Africa, to the selected breeding habitat which is for some reason desirable to them. The mechanism of volition, of intention, in birds, eludes our human minds: but the fact of intention in the Universe has been grasped by the greatest of our physicists.

We found no dragonflies, grasshoppers or ants. There were only two butterflies, a fritillary (*Brenthis chariclea arctica*) and a clouded yellow (*Colias hecla*), but small moths were numerous. Spiders and beetles were common, though few in species. Some
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of these are found in the Highlands of Scotland. Flies swarmed, and the small biting black fly (*Simulium vittatum*) and the mosquito (*Aedes nigripes*) were a pest on windless days, compelling us to wear veils.

There were a few foxes and arctic hares on our ground, but of the reindeer, formerly so common here, we saw nothing but their old worn paths and an occasional bleached antler. There was no ice in the fjord so we had no chance to get seal meat, but the two Hanhams never failed to supply us with birds or fish. The most highly appreciated was the arctic char, a small salmon, of which they took some 400 pounds by methods of varying orthodoxy. About sugar I had been warned by Peter Freuchen. “Make the most liberal calculation: double it and you will not have brought enough.” Too true. A walking man will eat a pound a day if he can get it.

From our camp on Godthaab Fjord we made an excursion to its head, passing the great bird-cliff of Ivnajuagtok where a sea-eagle sailed grandly over us. This is the old Rangafjorthr, the Crooked Firth of the Norsemen, and at Ilulialik and Majuola we found the sites of eleventh-century farmsteads. We tried to reach the principal settlement, Arnavik, with the ruins of a church, but found the ice too heavy for our boat. This ice is calved by glacier tongues which now reach the sea, outflowing from the ice-cap. Formerly access must have been very much easier: now the whole region is entirely uninhabited. But the area is still one of optimum climate as is indicated by some bushes of alder (*Alnus crispa*) growing up to ten feet high in sheltered nooks, and the grass which was still relatively luxuriant on the old pasture fields. This was a sunny corner tucked away beyond the range of sea-fog and salt winds and backed closely by hills which cut off the cold down-draught from the ice-cap. One day Harry Hanham and I had a glorious walk inland over this range. From a height of only 2,500 feet we could see all over the snowless inner hill region some twenty miles in depth backed by the undulating infinity of the Inland Ice. Old reindeer paths wound through the low vegetation, but we saw no fresh sign. Hares
were common, their whiteness (7th July) in strange contrast to the green of the hillsides. All this country would be fascinating to explore and map, but supply and transport would be difficult without the aid of Iceland ponies.

This expedition of 1928 was unspectacular, but within its limited objective very successful. We were able to bring back an almost complete picture of all the forms of life associated naturally together over a typical arctic locality. This would hardly have been possible in a more genial, and hence prolific climate. The arctic limits life; it is a borderland where existence is only just possible. Because of this very simplification we can begin to understand some of the problems of the inter-relations of living communities that so elude us, for example, in the tropics. It is like an investigation of human life in a simple rural community compared with the distracting complications of society in an industrial town. It is a comment on the different aspect of this type of research, that is of ecology, from other more showy forms of science, that before returning to Greenland in 1931, a famous collector asked me to bring him any rarities I could spare: he was really shocked when I replied that I was only going there to try and find out why the four commonest birds were the commonest.

In 1934 I was bound still farther north, for Cape York and even with a secret design on the historic North-west Passage, with J. M. Wordie. His wide experience both of the arctic and antarctic seas and lands is complemented by such knowledge of the history of polar exploration as makes him the most interesting possible companion. As a leader he seems never to give an order; he only makes suggestions; but they always get carried out. He had invited my old friends the Hanhams and Christopher Dalgety. Pat Baird came as surveyor and geologist; T. T. Patterson as ethnologist and excavator of old eskimo settlements; W. E. Fletcher, Lieut. R.N., was lent by the Admiralty to revise the Arctic Pilot, the Bible of northern seafarers: M. H. W. Ritchie, a Texan rancher and a member of the Alpine Club came as photographer, and most beautiful were his pictures. Wordie
had chartered a small wooden Norwegian sealer, the Heimen, only 129 tons gross, with a crew of ten under Lars Jakobsen, a well-known ice-pilot.

We left Aberdeen on 24th May. We crossed every wave of the north Atlantic singly, one after the other; but the Heimen was a beautiful sea-boat, especially under sail, and the rough voyage was a delight. We sailed on north past Godthaab, through Davis Strait—but it is a wide sea—to Disko Island, so long a household word amongst the Scottish whalers. Here the Greenlanders still drink tea, in preference to the coffee beloved by the population to the south where Danish custom has so long prevailed, and, naturally given to dancing, they learned and still execute the reel.

Disko is rather a dull island of high basalt hills, draped with the withering remnants of a local ice-cap, and cut by profound, gloomy ravines. In the harbour of Godthavn lies the hulk of the Fox, the yacht which Lady Franklin fitted out for Sir Leopold MacClintock to make the last, and successful, Franklin Search Expedition. I had met him at home years before when he used to come and discuss antarctic problems with my father. He was my ideal of an admiral and an arctic explorer and I made haste to get a boat and visit all that was left of his old ship. The wreck was aground, gutted to the water-line, but I was able to extract one of the long, inch-thick wooden screws which held the diagonal triple thicknesses of wooden sheathing together, to deposit in the R.G.S. museum.

Northward there was little ice off the coast and in another two days we reached Upernivik which was then the most northerly station of the Danish administration. This is the point where the great floes of Davis Strait and Baffin Bay pivot against the land. That was a bad ice year and our chances of getting through Melville Bay to Smith Sound were considered very unfavourable. This was a great disappointment. Owing to the absence of spring gales the land-fast winter ice had not broken out. To get a look at the pack we made a short boat-journey back to the great headland of Sanderson’s Hope.
Ice Navigation

This, his farthest northing, was named for his patron by John Davis in 1587. We climbed to the top of the headland, 3,560 feet, labouring through soft snow until the final rocks were reached. Sitting there in the windless air and warm sun we were rewarded by the most lovely arctic scene. Deep fjords ran inland between palisades of rock 2,000 feet high, black, seamed vertically by narrow cracks, and contrasting with gleaming white sheets of snow which covered the almost level surface of the highlands as far as the eye could see. But it was north-west we must look. Sheets of level ice covered the sea, with farther out upstanding bergs, like islands, imprisoned in the heavy pack. We could make out a few leads, but it looked as if we should be lucky to make another fifty miles north.

We left Upernivik on June 22nd, but the open sea was closed to us by continuous heavy pack: so we took the “inside passage” between a series of islands lying off the coast, where currents and drifting bergs had split the ice. We passed Berry Island (Kingigtorsuk: 72° 55' N.) where long ago was found a Runic inscription dated the end of April or early May, 1135. Put up by three Norse settlers the inscription indicates that they made at least a temporary settlement here and provides another proof that the climate of those days was milder than at present, when the whole sea is frozen considerably south of this in the spring.

In fine weather ice-navigation was a fascinating experience. For days we crept up leads; took shelter behind safely-stranded bergs; and by main force of crashing the ship against light winter ice worked our way from one piece of open water to another. Seals were out on the floes: the islands were already invaded by birds intent on nesting and the scanty flora testified the coming of spring. Not till 1st July did we reach seventy-four degrees north. Here, off Wilcox Head, we were nearly nipped by a squeeze, but the ice loosened again and we made a dash for the lee of an island where we could anchor to shore-ice.

On 3rd July a party of us took the whale boat and pushed through, and sometimes over, the sea-ice to Wilcox Head. About a mile from the shore we came against a huge flat floe of
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bay-ice which seemed landfast. We hauled the boat on to the ice and walked across it; but as we came to the shore we were pulled up by a narrow open tide-crack. Wordie lassoed a small, thick loose piece of floe and on this we ferried ourselves across with our ice-axes. While Baird and Fletcher set up the theodolite for a latitude fix and others recorded birds and flowers, Wordie, Ritchie and I climbed to the summit of the Head (2,362 feet). It was another glorious, windless, sunny day and we opened our shirts for coolness. Almost due north we looked out to the amazing obelisk of the Devil's Thumb, the sea mark of the old Dundee whalers, their turning-point for the whaling grounds to the north-west. This isolated spike standing out black against the white background of the frozen sea caught the imagination with a challenge of inaccessibility. We saw that most of the inland bays were still frozen tight, though amongst the islands were some ponds of open water: all Melville Bay was still bound in level winter ice to the northern horizon. There was no land-lead at all. To the west the open sea was sealed by heavy crumpled pack with many great icebergs closely bound in it. Save for a gale to break the floes there was no hope of any passage north.

We filled in time visiting a number of the islands off the coast and sites of ancient eskimo settlements, returning to try Melville Bay on 10th July. Through exiguous leads we groped our way south, south-west, west and finally north-west, making, perhaps, a mile of northing before we were pulled up near the junction of the bay-ice with heavy polar pack. It was a day of immense calm and the "pond" we finally entered was a sheet of glass. Miles of level bay-ice led on one hand to the crevassed margin of the inland ice, which all along the shores of Melville Bay comes down to the sea with no rock showing. Westward to the horizon lay the rough, heavy, polar pack in all its glory—a solid ocean, dazzling. Next day I put on ski, as a safeguard against the hidden breathing holes of seals, and went out alone across the flat bay-ice to climb a particularly high berg about three miles off from the ship. It was a dream of boyhood come true, when [272]
Melville Bay

I used to walk out for miles over a calm sea to seek some undiscovered land. But now the sea was solid. In the flat calm there was no sound. The imperceptible dipping of the almost horizontally wheeling sun seemed to suspend Time itself. The magnificently heavy pack over the ocean was a place of infinite peace and repose. [Pl. 21b.]

On July 22nd that notable seaman Bob Bartlett turned up in his beautiful Newfoundland schooner Morrissey, bound north for Smith Sound with a party of American students. He agreed that it was a bad ice-year and that we must await south and east winds to open the pack. Wordie then ran for the little settlement of Kuvdlorssuak recently established directly below the Devil’s Thumb where there were eight turf-roofed low stone houses with as many families of apparently pure-bred hunting eskimo.

Perhaps it was a reaction to frustration—though a frustration the most beautiful imaginable—that had brought to Pat Baird and myself an overwhelming desire to achieve the seemingly impossible ascent of the Devil’s Thumb. The eskimo derided the idea that anyone could possibly climb it, whirling one hand round the head to indicate giddiness and then diving the other downwards to illustrate the inevitable fall: but we both knew well that until steep rock is actually handled it is impossible to be sure whether it will “go” or not. [Pl. 21a.]

Since we had first seen the Devil’s Thumb from Wilcox Head we had spent a week trying to enter the ice of Melville Bay. From every vantage-point I had examined the Thumb with a telescope. It is a wall-sided block of gneiss, elongated from east to west. The rock must be specially hard to have retained its monumental shape in this region of shattering frosts. It sheers up starkly from the backbone of the island with a southern face of utter precipice. The glass had indicated that there might be a gully on the northern flank running up to a small notch in the sky-line. On July 22nd, a cloudless day, Baird and I set out by boat to examine it from close quarters. We landed at its south-east foot below the uncompromising 1,000-foot cliff of its southern face, and walked up a steep flowery slope haunted by
wheatears and a few fritillary butterflies to look at the eastern end of the Thumb. This also being very steep and overhung at the top by a monstrous array of great split blocks, we continued to coast round under the northern cliff. There was my gully: but access to it was completely cut off below by a vertical wall of greasy-looking rock 200 feet high and without a crack in it. The western end was now our last hope. Here the ridge from which the Thumb sticks up is highest (1,200 feet), the top of the monolith only 600 feet above. This face has the form of a square-sided block, which falls away to the north as it rises and to the south narrows to a flake edge impending over the sheer southern precipice. This flake edge would lead direct to the top: but to reach it looked quite impossible. It would involve finding a way diagonally upwards and to our right over a horrid series of forbidding overhangs. A direct line of attack would bring us face to face with a smooth shield of hardest rock which gleamed, with some lustre of crystallization, like a sheet of glass.

But we must put it to the proof of touch. So we lunched and went for it (13.45). We led alternate passages: the first two went well, with good stances but no secure handhold nor belay for the rope. Then came the crux of the climb. We were forced always over to our right to avoid the glassy shield directly above us, but by neat climbing Baird made another sixty feet and I joined him where there were two stances, but still no good handhold. For the only time in my climbing career I longed for a spike (piton) to drive into the rock and secure the rope. I now saw a perfect stance on the sky-line above and to our right. But could we make it? The little overhangs were very awkward, with handholds all the wrong way. Each had somehow to be climbed round; it was impossible to climb over them. The fourth lead, by Baird, was still more difficult. He seemed to spread himself over the rocks moving continuously without pause or jerk, snaking up by balance and friction. At last came the shout—"secure"—and I followed. We were now on the actual corner of the flake with the southern precipice falling away below us. We could not see down it for it overhung. We
The Devil’s Thumb

dropped a stone and had to wait an impressively long time before the faint clink of its striking returned to us.

Once on the edge of the southern face the climbing, though still steep and very sensational, became easy and we reached the top at fifteen-fifteen after only one and a half hours on the rope. Seldom have I climbed merely for the sake of achievement and none other such climb ever gave me so much pleasure. This sort of climbing is not merely an exciting and vivid experience; it is a happy memory to have climbed a couple of hundred feet with a man, knowing that you are both done for if either slips; and that neither will.

The top was a flowery p’atform made for basking. The weather was perfect and the prospect on all sides marvellous. The solidity of the sea—berg, pack, and floe—seemed to invite exploration on foot. It was even more striking than the rolling immensity of the inland ice which filled the entire eastern horizon.

It was some time before the anti-climax came. Baird noticed a low heap of a few rounded lichen-covered stones which looked to have been artificially placed, but were not on the highest point nor on a corner visible from the sea. Certainly it was no mountaineer’s cairn. We took the stones apart: there was only dust of disintegrated rock below. Yet we were at the time convinced that some unknown seaman from the whaling fleets of a hundred years ago must have been before us, and in the cairn we made on the summit we recorded ours as the second ascent. Admiration for our supposed predecessor overcame any feeling of disappointment.

From the first Wordie would never believe that it was a cairn we had found: he was sure it must be a frost-shattered block. Between us we have since tracked down every Danish report of an ascent and in every case the allusion was to the “mountain” from which the Thumb springs and not to the Thumb itself. No mountaineers had ever been there. Peter Freuchen, Dr. Hans Bryder and Dr. Lauge Koch were united in the opinion that the Thumb had never been climbed before.

As the lighter weight I had bargained to be last man coming
down. But as I watched Baird descending in front of me it was obvious that he was the better cragsman and when we reached the good stance, above the most difficult section of the climb, to his delight I gave up the place of honour. The descent proved rather easier than the ascent had been. It was just a matter of careful balance and, in the absence of handholds, relying on friction to keep the centre of gravity in against the rock. We were down in under the hour and had a dip in a shallow, sun-warmed pool of melted snow. Pat then proceeded to shatter my elation by informing me that the climb could not be reckoned "severe" by modern British standards, but only "difficult". We reached the ship at twenty hours to find it "dressed" in our honour; they had seen us on the top.

It was in June, 1616, that William Baffin sailed past here, the first to enter the North Water and discover Smith Sound: seeking the North-west Passage in vain, he showed us the way to the Pole—that was an "open" year, but we had struggled with the ice of Melville Bay for six weeks and still conditions were hopeless. Smith Sound would probably be impassable for a tip-and-run visit to Ellesmere Land. Any idea of the North-west Passage must be given up and Wordie decided to make for the north-east coast of Canadian Baffin Land.

To circumvent the Middle Ice of Baffin Bay we had to sail far south, to sixty-seven degrees north. We made the land in a gale on 11th August. Our reward was discovery. Parry's chart of 1820 had been made from well out at sea, and this north-east coast of Baffin Land was shown with but shallow indentations. We found deep fjords leading us into a land of alpine ranges hitherto unsuspected. Here we spent the rest of our time mapping, climbing and collecting. Busy lemmings scurrying to collect their store of hay against the coming winter gave the fauna an American flavour. I even found a spider (Tarentula asiaca) of Siberian affinity. But too soon cold autumn breathed a skin of new ice over the sea and warned us to be gone.

It is fortunate that when age shuts the door on high ascents there is always the arctic to turn to. I have never been able to
Ludovico Varthema

decide whether I loved sea or mountains most: the arctic offers both. Both are ever changing, full of surprises, suddenly presenting hazard, the salt of life: nor will I venture into the cloudy realms of psychology to seek reasons for what I like to do. I am content to stand with Varthema99 who wrote:

“If any man shall demaunde of me the cause of this my vyage, certeynely I can shewe no better reason then is the ardent desire of knowledge, which hath moved many other to see the worlde and miracles of God therin.”
CONCLUSION: MOUNTAINS OF BRITAIN

I had meant to call this "British Hills". But I perceive that will not do. We cannot say a hill is under 5,000 feet and a mountain is over 5,000 feet. We are led dangerously toward a definition. With a mountain, as with a man, it is character that counts, and what does or does not constitute a mountain is easier to feel than to define. A mountain should be not too easy of access; it should dominate its immediate surroundings; it should have dignity of form. These qualities many of our British hills may fairly claim. It is true that such qualities are enhanced by the atmosphere of these islands that gives to our lowly mountains attributes that in the hard light of a continent they would not possess. Mist shrouds their tops and increases their stature; snow lies upon them; our cloud-laden air generates an entrancing play of light and shade giving constant variety to the same scene. In all our mountain districts but particularly in Ireland and the west of Scotland there is a depth of colour, and often an enveloping mystery, which I have never seen elsewhere. Many times have I gone to our mountains often returning between long journeys farther afield, and to-day I come to them still.

To the Victorians mountains and mountaineering implied the Alps. Looking back to the end of last century and the beginning of this one, the mountaineer of those days appears as a lordly leisured creature confined by no frontiers, somewhat of a dilettante an amateur and in no hurry. They came to the British hills for their own sake and not as a substitute nor as a training ground for the Alps, and sometimes they brought their Swiss guides to show them our mountains. One of these looking at Snowdon draped in winter snow, and of course not focused to
Early days

the local scale of distance, remarked that it would be a very long day’s climb to reach the top.

It was in this tradition that in 1898, I started climbing in Britain when, with my companions, I already had experience of the Alps. Ours were just new ranges which we wished to explore and we could play at mountaineering as an added pleasure. We had an especial feeling of light-hearted freedom from responsibility. Experiments could be made which in the Alps would have been unjustifiable, mainly because they would there have taken too much time to be chanced in safety. But if one route would not “go”, no matter, we could get to the top by some other way: reach the summit cairn we must, or be cheated of our “ascent” according to the law of the mountains: and we could go at any time of year and in almost any weather conditions. It was easy to know these mountains and they were so well worth knowing. In the late ’nineties and even into the earliest years of this century, the actual climbing still had the attraction of novelty. It was not long since that Haskett-Smith had astonished us by discovering, and climbing alone, Napes Needle. Collie had only recently assaulted an intractable slab on Scafell with his ice-axe, quarrying his “step” to a chorus of protest from the purists, and Owen Glynne Jones was shocking others by accomplishing “unjustifiable” climbs with complete success (the modern expert would now class these as only “moderately difficult”). We rarely met other parties on the same climb. We chose those routes which gave the longest stretch of continuous climbing to some cairned summit. With no “Climbers’ Guides” and with poor maps there was ample scope for route-finding. We climbed everything in nailed boots as in the Alps; rubber shoes were not necessary then, as they are now, to protect the rocks from destruction. Recognized leaders had hardly appeared; we all led in turn. The thrill of getting up “Slingsby’s Chimney” on Scafell, the first time any one of the party had ever seen it, cannot be recaptured by climbers led by an expert who already knows every hand and foothold.

The tragic relapse of European civilization has confined the
Conclusion: Mountains of Britain

rising generation of British climbers to their own borders. Well have they used their limited opportunities: their skill terrifies me. But some of them look on these excursions mainly as a preparation for higher ranges and these can hardly avoid thinking of our British hills as a practice ground. So each crag must be searched meticulously for the most difficult problems, and cliffs and faces are subdivided in printed "Climbers' Guides" under letters of the alphabet or numbered categories of difficulty. When reading these guide books it becomes almost impossible to see the wood for the trees—to see the mountain for the rocks. For all this there is a very natural reason. The successful ascent of an impossible-looking rock-face is intensely satisfying to the purest athletic emotion. So the thought comes to the most skilful cragsmen, "Can anything be finer than this?" And they may even ask, "Is not this as good climbing as is to be got anywhere?" As a climber I cannot agree; but then for me climbing skill is only a means to an end, for mountains will never reveal themselves without reserve to men who have not climbed them, who have not grappled with their most difficult and secret ways, who have not put hazard to the touch.

There is danger in using our mountains as a training ground for loftier ranges. Even so great an authority as Geoffrey Young writes: "British climbing may be the very reverse of preparation for the Alps." It is the change of scale that confounds us: its increase alters the margin of safety and must narrow the scope of our designs. For the same reason even the best alpine guides are often quite at sea the first time they come to grips with the Himalaya.

The athletic emotion is but one facet of the mountaineer's catholic character and there are many who have fallen simply to the charm of our island mountains. Indeed I have been asked: "Are not these as beautiful in their way as anywhere else?" Again—no. For beauty of sculptured form and variety of setting they cannot compare with the Alps, the Caucasus, or the Himalaya. But they are mountains and they have their own intrinsic quality.

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English mountains

All the world over each range of mountains has its own particular type of approach: arid sands, majestic forests or deep-cut gorges with rivers racing. But none is more enchanting than that of our English hills. In England we pass the hedged fields: those hedges—the secret charm of our countryside—home of may, dog-rose, fern and flower, and all the lavishness of green verges spared. Next, stone walls; for such must serve the dalesman against his background of unploughed hill. Beyond are mountains, firmly based in unity as part of an ancient landscape. They are very old and well do they carry the dignity of age, worn down though they are by grinding ice-sheets and the storms of ages.

There is no mountain in England without some easy way to the top. They are only slightly lower than the Scottish peaks, but incomparably easier of access. They are not remote; they are part of a pastoral hill scene; they are friendly green. They belong to man and the shepherd familiarly knows each top. In Cumberland many of the highest have the form of a writing desk; a long easy slope on one side with a precipitous drop, specially designed for climbing, on the other.

I only achieved one small novelty in Cumberland; and that by accident. We were (19th April, 1903) a large party, all of the Alpine Club, consisting of Harold Beeching, R. Cajrati-Crivelli, W. G. Clay, L. W. Rolleston and Claude Wilson, intent on an off-day at Kern Knotts Crack. I had made a very poor show trying to follow up the Crack; because of my short reach I couldn’t get out of “the sentry-box” at the bottom, without risking the disgrace of “coming on the rope”. To the right of Kern Knotts Crack is a narrow vertical cracklet which I had pointed out that morning. Now when I was stuck at the beginning of the Crack I was jeeringly recommended to try my Cracklet, where my size, it was alleged, would be a positive advantage. [Pl. 22.] When the others had got up the Crack I got them to let down a rope from above the Cracklet, to give me “moral support”. I just managed it without coming on the rope. In its length there were two places where a rest could be taken on one foot.
Conclusion: Mountains of Britain

Without that I could not have hung on by my fingers. Even so it seemed to me the limit of possibility. Years later it was rediscovered and is now a recognized climb, called the Innominate Crack. It is led, generally in rubbers, without any moral support of a rope from above. There can be no question but that the standard of our modern rock-climbing technique is very far ahead of what it was forty years ago. Yet some of the early attractions have unavoidably disappeared.

* * * * *

The mountains of Wales are not so stark as those of Cumberland. In Welsh streams the waters do not seem so dynamic, so purposeful, as in Cumberland becks: neither of them have the fierce energy of a Highland burn in spate. In Wales the rocks and gullies tend to be wetter and more draped in moist vegetation, calling for much “gardening” on new routes. The crags themselves do not seem so sound as in Cumberland. On the other hand Wales has a singular quality of wildness: Merlin still reigns there. This quality of wildness is very different from that of the Highlands, and of a character quite other than that of the Fells. Or rather it had that essential quality in those memorable days when old C. E. Matthews reigned at Pen y Gwryd. But noisy cars and easy access have their compensations. To-day North Wales is the most popular resort of English cragsmen. The great cliffs of Clogwyn d’ur Arddu and Craig yr Ysfa have been the scene of many most remarkable and daring rock-climbs; but this was all after my time, although I have since had the privilege of being on the rope both with Colin Kirkus and Menlove Edwards, two of the foremost British rock-climbers of these latter times.

Yet years before that a day stands out as one of the most memorable of my life in the mountains. It was June 10th, 1900, an exceptionally fine day after much bad weather; so I went up Snowdon alone hoping for a view; and what a view it was! Scawfell glittering under a sprinkle of new snow, over 100 miles away; the Isle of Man; the great curve of the coast from Dee mouth through Morecambe Bay to the Solway, even to the Mull
22. KERN KNOTTS CRACK WITH CRACKLET TO RIGHT, 19.4.03.
23. **ON AN STAC: SUILVEN AND CANISP BEYOND**; by Peter Lloyd, 13.9.47  [p. 287]
of Galloway, spreading clear as a relief map. I have never seen a more astonishing view anywhere. The early sun at my back made it difficult to be sure that I could see Ireland: so I stayed on reading and smoking till sunset. Sure enough the sun dipped down not into the sea but behind land—the mountains of Mourne. A peak stood against the disc of the setting sun. Slieve Donard is 2,804 feet, and Snowdon 3,560 feet, and the distance is about 120 miles. The mathematician will find that it was at least possible. Wales has many mountains; yet for me none can compare with Cader Idris. It seems to stand alone, dominating. Its lowest slopes are adorned with the last coppices of twisted oak and silver birch, rising to an almost perfect crater-like rim with far below a lake, like the eye of a volcano: but here is no rueful slag-heap nor any sign of horrid vulcanism. For a long half-circle a narrow ridge of solid rock, decked with fern, leads to the foot of the final peak: to the west is the sea; around and landwards are the lower hills. Its very isolation makes Cader Idris a more satisfying mountain than any other in North Wales.

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The Highlands of Scotland are altogether aloof from the Lowlands. They have a separate entity: race, language and tradition also divide them. There seems no gradual approach, as in Wales or England, except the prelude of the moors. Peat hags I have often cursed but yearly I marvel at their wealth of colour; brown streams and the fine texture of the yellow deer-grass; bracken that changes from green to russet red; sphagnum moss beside which rises the thin delicate stem and dropping head of the Pinguicula. Best of all the heather and the intoxication of its smell in summer. Then the grouse, our one uniquely British bird; curlew and the plaintive repetition of the golden plover; peregrine, buzzard and eagle; all are integral parts of the setting.

With the exception of Ben Nevis the Cairngorms contain the highest peaks in Britain. Snow lies long upon their shoulders.
Conclusion: Mountains of Britain

Carmaferg, Morven and Lochnagar were the first mountains I climbed as a boy and so from those Deeside outliers I was early familiar with the massive bulk of the oldest range in Britain.

In the black summer of 1940 I got seven days' leave and fled with my wife to Rothiemurchus, last remnant of the great Caledonian Forest. In the sombre shade of these old red-barked pines, freely branching in their natural growth, we heard the churrung notes of the crested tit, relic of the fauna of Britain in glacial times: a bird hardly to be found elsewhere outside the alpine ranges of continental Europe. One cloudless day we started early to walk to Loch Einach. In that enclosed hollow the blind side of Braeriach proved irresistible. We must get up and out on to the tops. It was a long pull through heather; but soon this gave way to deer-grass and then under foot a pattern of frost-splintered stones. It was like Spitsbergen at sea-level: no continuous cover of vegetation, just an arctic-alpine plant here and there. We must be getting near the top. At last the upper plateau lay bare before us and a wild sense of elation seemed to enter us from the open scene. There was a sudden remonstrance of croaking, peculiarly antediluvian and arresting, as we disturbed a family of ptarmigan. Red deer moved off over the brow as we wandered across the stony upland, over the three tops of 4,000 feet: they are only the weathered relics of this most ancient range. Above the deep chasm at our feet rose the Angels' peak. There to the south was Glen Dee and a wide view over Mar to Inverey, with the mass of Lochnagar for a background. My wife had known all that country from her childhood, and all those hills. To the east was Ben Muich Dhui, but separated from us by the cleft of the Lairig Ghru, the old foot-pass from Deeside to Strath Spey. We would circle home by this track; a rough and a long one. A headlong descent, with deer scattering, landed us on the pass. After three miles we reached the Forest, welcomed again by a noisy company of crested tits: then more miles. We were neither of us in good fettle for the hill and it was late in the evening when we forded the burn and struck a made path: as good as home now! We sank down for a rest and looking at
The Higbands each other both burst out laughing, for neither thought the other could possibly get up again. But somehow we did, and were rewarded by our host, a man not given to words, with "Aye: but ye're hardy". A grand walk, some twenty-seven miles. Then back to watch the Battle of Britain from Gravesend, together.

The fashion of the Western Highlands is very different from that of the Cairngorms. Instead of a time-worn massif we find individual mountains separated by a great complexity of valleys. The climate is more maritime and less continental, with a quicker play of light and shade. Ben Nevis rises almost from the sea: the Peak of Heaven, it draws the heavens down to itself and might better be called the Cloud Gatherer. Its snow-fall is the highest in Britain; therefore it is at its best in winter-time. In March, 1902, with quite a strong party we were fairly beaten by deep soft snow on the Tower Ridge: snow in the Pinnacle Gully up to our arm-pits. We were wise to turn back for we only made Fort William late that night. Three days later we climbed Aonach Eagach from Glencoe. I was leading, eastward, along a heavily-corniced ridge and had taken off my snow spectacles. There was a strong, cold wind from the north. Suddenly, to my horror, I found I had lost the sight of my left eye. My eyelashes were frozen together and my eyelids had to be thawed out with an ungloved hand.

The island of Skye is a fairyland and its Black Cuillin are unique in Britain, surely the most striking of all our mountains. Sculptured entirely in naked tough volcanic gabbro, they are geologically young soaring spires of rock, the original irregularity of their summits nowhere worn down to the level of uniformity of the ancient Grampians nor to the rounded summits of the nearby Red Cuillin. Rising out of the Atlantic their aspect changes quickly; shining in the sunlight with the sea glittering at their feet they are all radiance, but black with threat of storm they suddenly become menacing and wrapped in sea-mist they can be most treacherous.

The rough texture of gabbro makes the Black Cuillin a paradise for the rock-climber—and to reach the tops you must always

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climb. There is no easy back door for the walker and some degree of technical skill is demanded on every side of each of these serried peaks. Perhaps it is for this very reason that there have been fewer fatal accidents in the Cuillin than in Wales or Cumberland or than in other Scottish ranges. The climbing is obvious and straightforward so there is little need for artificial invention; indeed I know of none except the traversing of the entire ridge in a single day, a feat which has only been accomplished by a few first-rate and very fast climbers.

I had passed a winter shooting at Dunvegan and was familiar with the distant outline of the Cuillin before I had climbed any of them. Streaked and patched with snow these black crags look their best, but I recall other days when all the Hebrides were snow-covered to sea-level: to a placid sea of inky blue. But May and June are the months for climbing. I best remember a day on Sgurr Alasdair with the Robert Jeffreys. We had chosen Collie’s route—naturally a delightful one. It was a perfect day with a quiet sunny sea: across the Minch spread the Outer Isles; beyond these, incredibly raised up by distant mirage, we saw St. Kilda: to the south we overlooked Mull and the peaks of Rum, with their still persisting Norse names. Nearer was Coruisk, linked with Scavaig, most entrancing of all sea lochs, where I used to sail from Samalaman, when living in Moidart, and where I could always find a snug berth in any wind.

The name of Norman Collie will always be linked with the Cuillin, to which he returned again and again. An ardent lover of the beauty of mountains, a traveller on three continents, he was the most eminent mountaineer of the last generation. His was a very remarkable personality but hard to know intimately and difficult to draw out. Among his diverse interests were oriental art, books, gems and wine. No one meeting him for the first time could possibly imagine that he was a professor of chemistry, and in addition one of the greatest research workers of his day: he seemed able to juggle with the old elements and he discovered a new one. He chose to spend all his latter years under the shadow of the Cuillin, every corrie and crag of which he knew so well.
Coigach

I have written this book in Coigach, the extreme north-west extremity of Ross-shire, nearly 100 miles north of the Great Glen. A true mountain country, aloof from lowlands but within sight and sound of the sea. There is spaciousness here. Light and colour are always changing on hill and water. One is conscious of the continual movement of nature, in the sea, in running water and in the wind that drives the clouds before it in procession across the sky. In winter Atlantic gales and furious volleys of rain or sudden splintering hail keep the air alive and exciting. A strong harmony: “only the mightier movement sounds and passes; only winds and rivers, life and death.”

Here our mountains are small, but they are steep-sided, individual in colour, form and texture. They stand proudly in their own right. Clouds sweep over them. Snow turns them white. In fact as I see it they are true mountains. Half an hour’s walk up the hill-side and we change the world about us in all its perspective. Seaward the Summer Isles are spread like a chart below. Away to the west across the Minch lies the long horizon of the Hebrides. On a clear day the peaks of the Cuillin can be picked out seventy miles to the south-west. The whole eastern sky-line is of mainland mountains. They start with the rugged sandstone bosses of Torridon: then Slioch, over against Loch Maree: and above Gruinard Bay rise the spikes of An Teallach. The five tops of Coigach build a massy block in the south-east. Then comes Stac Polly with its cockscomb crest and strange lobster claws of rock; the crown of Cul Mor and the massive Atlantic watch-tower of Suilven. These peaks guard a wide sanctuary of moor and loch of which over 100 square miles is uninhabited. No man sleeps there. Beyond Edrachillis Bay rise the hills behind Scourie; and beyond those we can see nearly to Cape Wrath. And then behold the sky, an hundred miles of it. So many things going on at once: clouds of every pattern with play of colour on sea and land; here bright sunlight, there a black storm. An enchanted land. [Pl. 23.]

So I have come back there to live.
NOTES AND BIBLIOGRAPHY
NOTES AND BIBLIOGRAPHY

Abbreviations:

A.C. = Alpine Club.
G.J. = Geographical Journal.
H.J. = Himalayan Journal.

2. ALPS


2 For technical notes see under “New Expeditions” in Alpine Journal 19 (Feb., 1898), 61; for the Velan, p. 62; for the Valpelline climbs, p. 63; for the latter there is a correction by Alfred Top- ham in A.J. 19 (Nov., 1898), 269.

3 H. Somerset Bullock described this new climb on the Klein Eiger in A.J. 20 (Nov., 1901), 509, in an article “August 1901 in the Bernese Oberland”.

4 In a fortnight with Harold Beeching in 1904 we made eight peaks and crossed six passes.

5 See an amusing article by Martin Conway (Lord Conway), “Centrists and Eccentrists” in A.J. 15 (May, 1891), 397. In A.J. 21 (May, 1903), 377, I wrote “An Eccentric Holiday” on Conway’s theme: most of our climbs in 1902 are described in that article.

6 The best descriptions of the Julian Alps will be found in Julius Kugy’s Alpine Pilgrimage, translated from the German by H. E. G. Tyndale: John Murray, 1934. I am inclined to think this the most fascinating contribution there is to alpine literature. Kugy has also written “Fünf Jahrhunderte Triglav”, Leykam-Verlag, Graz, 1938, to which I contributed a brief chapter.

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3. CAUCASUS

The matter of this chapter is based on my diaries and on a paper by my companion L. W. Rolleston in A.J. 22 (May, 1904), 93 and 166. For W. R. Rickmers' account of his own expedition see A.J. 22 (Nov., 1904), 243 and (Feb., 1905), 339.

The classical book on mountaineering in the Caucasus is Douglas Freshfield's The Exploration of the Caucasus (2 vols.: map: ills. Edward Arnold, 1896). A more general approach is J. F. Baddeley's The Rugged Flanks of Caucasus (2 vols.: Oxford University Press, 1940). W. E. D. Allen's History of the Georgian People (Kegan Paul, 1932) is authoritative. Conditions of travel have changed a lot since my time and the mountaineer of to-morrow should make a point of reading A Light Expedition to the Central Caucasus by the late J. R. Jenkins in A.J. 50 (May, 1938), 12.

The most factual account of the ancient Greek settlements on the coasts of the Black Sea is Minns' Scythians and Greeks (Cambridge University Press, 1913). Barbarian invasions across the Steppe north of the Caucasus several times interrupted the Greek occupation, except in the Crimea, the Chersonese. Greek Theodosia became Iranian Ardabda. This was Caffa of the Genoese, who here maintained trade with China. Later it passed to the Turkish Empire. Only last century did it fall to the Russians, who destroyed all Ottoman architecture and named it again Feodosia. Novorossisk was Bata, a colony of Miletus, where Strabo the geographer was born: he mentions the Σωμανη (Svans) as notorious robbers.

Vladi does not literally mean "a key" but rather "master"; cf. the popular Russian name Vladimir, Lord of the World, an orientalism like Nizam ul Mulk, of identical meaning.

4. HIMALAYA: KUMAON

For fuller details of this journey see T.G.L. in A.J. 23 (Aug., 1906), 202 with illustrations and maps; discussion p. 255. In G.J. 29 (Feb., 1907), 201, is a shorter paper.
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Whenever Latin names are given the identification has been made and the specimens deposited at the Natural History Museum.

8. W. W. Graham published similar articles in "Good Words", in Proceedings R.G.S. New series Vol. VI (Aug., 1884), 433, and in A.J. 12, 40. Graham's veracity has often been called in question; his topographical details are difficult to follow and he is unhelpful about recording time; but in the A.J. I have frequently recorded my belief in his claims and here repeat it.


10. Sven Hedin's paper on his journeys in Tibet, 1906–1908, is in G.J. 23 (April, 1909), 353; discussion p. 424. As a comment on Sven Hedin's belittlement of the Pundits it can be recorded that in 1873 Kishen Singh, by traverse only, made the longitude of Yarkand 77° 15' 55"; in 1914 de Filippi, using wireless time signals and the best modern instruments, made it 77° 15' 46". See G.J. 62 (Dec., 1923), 437.

11. The Nanda Devi Saddle was crossed in the reverse direction by H. W. Tilman and C. Houston in 1936. See Tilman's Ascent of Nanda Devi (Cambridge University Press, 1937). He gives the height as 19,200 feet and named it after me, who never crossed it. It should properly be called the Nanda Devi Pass.

12. For the Polish ascent of Nanda Devi East see account by J. Bujak in H.J. 12 (1940), 65 maps and ills. and in A.J. 53 (May, 1941), 31.


14. In 1936 a Japanese party ascended Nanda Kot. Their account is in H.J. 10 (1938), 73. Judging from their photograph (No. 3, p. 73), conditions on the glacier must have got much more difficult in the last thirty years. This could account for their taking four days from our old bivouac to our farthest point (21,450 feet), for which we took eight hours. They found safer snow conditions on the final peak in October than we found in June. cf. T.G.L. in H.J. 11 (1939), 174. Consult also R. F. Flint and Max Demorest in American Journal of
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*Science*, 240 (Jan., 1942), 29, especially p. 61, “Thinning of glaciers during recession”. The whole paper (2nd part Feb., 1942) forms a valuable and original contribution to the study of glaciers.

5. HIMALAYA: GARHWAŁ

Our doings have been more fully described in Five Months in the Himalaya, by A. L. Mumm: Arnold, 1909.

For further details see also my papers in *A.J.* 24 (May, 1908), 107, and *G.J.* 31 (April, 1908), 301.

In 1927 I spent a month with Hugh Ruttledge and his wife exploring the sources of the Nandakgini river which rises in the glaciers on the flank of the great western face of Trisul. We were the first to penetrate these. See *G.J.* 71 (May, 1928), 417, and *A.J.* 40 (Nov., 1928), 281.

18 Correspondence and leader in *The Times*, 18th March, 1907. See also *G.J.* 31 (April, 1908), 389, and *A.J.* 24 (May, 1908), 190.

16 Trisul is shown on the old Survey Map as 23,406 feet. Since that was published the survey has systematized its methods of calculation and accepts a value of 23,360 feet. To this should probably be added sixty to seventy feet for gravity disturbance. (Extract from letter to author of 16:11:1908 from Col. S. G. Burrard, F.R.S., Surveyor-General of India.)

17 I believed though many doubted, that in 1883 Graham got near 24,000 feet on Kabru in Sikhim. He recorded that he turned back just short of the summit; see reference Note 8.

18 *A.J.* 23 (August, 1906), 226.

19 Where more snow continually falls than will melt in the same year, there permanent ice is formed. If the process continues long enough we get glaciation and eventually an “ice-age”. Now consider the liquidation of an ice-age. Not only must all the snow which now falls in a year be melted, but all the excess accumulation of centuries of snowfall, which enabled that ice cover to be formed, must also be melted. This will engender very extensive summer floods. I venture to affirm that the effects of such flooding, which must have continued over very many years, have been generally underestimated by geologists.

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I believe that many of the deposits and formations which have been attributed to ice-action are really due to these catastrophic summer floods repeated year after year.

20 Compare Bruce's own account in G.J. 71 (May, 1928), 428.

21 The second ascent of Trisul was made in 1933 by Capt. P. R. Oliver with a single local Garhwali: see A.J. 46 (May, 1934), 142. Colonel Oliver met a very gallant death in Burma in 1945.

22 In 1934 Shipton and Tilman took nine days to work out the four miles of their route along the south bank of this gorge into the Inner Sanctuary. See Eric Shipton's Nanda Devi (Part II): Hodder & Stoughton, 1936. Also his Upon that Mountain (Chapter X): Hodder & Stoughton, 1943.

In 1936 Tilman and Odell ascended Nanda Devi itself; see H. W. Tilman, The Ascent of Nanda Devi, Cambridge University Press, 1937. He has a shorter account in A.J. 49 (May, 1937), 13. Owing to the illness of their Sherpas, the British and American amateurs had to establish the high camps themselves, so that it was a triumph of unselfish team-work. Besides being the highest peak ever climbed this ascent stands out as the finest in the history of mountaineering.

23 The Swiss brothers Hermann, Robert and Adolf Schlagintweit were employed on the Magnetic Survey of India. From 1854 to 1858 they made extensive journeys in the Central Himalaya, the Karakorum and the Kuenlun. Adolf was murdered by Wali Khan at Kashgar in 1857. The fullest account of their travels is that published in English under the title Results of a Scientific Mission to India and High Asia: Leipzig and London: 1861–66, 4 vols. 4to and atlas imp. fol. The name Ibi Gamin has now been attached to the separate, lower, north-east peak of Kamet.

24 C. F. Meade in Approach to the Hills, John Murray, 1940, p. 250.


For later ascents and explorations in this neighbourhood consult André Roch in H.J. 12 (1940), 30.

For details see T.G.L. in A.J. 24 (May, 1908), 131, and G.J., Vol. 31 (April, 1908), 386. Also a recent paper by C. W. F. Noyce in A.J. 54 (Nov., 1944), 403.

The late C. A. Sherring wrote an account of this journey in Western Tibet and the British Borderland; Edward Arnold, 1906. *I wrote of Gurla Mandhata in A.J. 23 (Aug., 1906), 217, with map and photographs. For the Himalayan rain-screen, its precise location and biological effects, consult article by F. Ludlow in Ibis 86 (Jan., 1944), 61.

A few gelatine capsules of castor oil should be always in the sack of every mountaineer. Snow-blindness is only severe conjunctivitis. A drop between the eyelids gives immediate relief: if repeated frequently it will cure a severe attack within twenty-four hours.

Swallowed by the tablespoonful castor oil is a specific for the very troublesome and persistent "hill diarrhoea" so common in the Himalayan regions. The efforts of nature to eliminate the poison should be assisted and not repressed: but half a grain of opium may be allowed with each dose of castor oil to reduce discomfort.

It is to Colonel Henry Strachey that we owe the classical description of the Mansarowar region. A full account (160 pp.) of his journey in 1846 was published in the Journal of the Asiatic Society of Bengal, No. 20, New Series, in 1848. He also read a paper at the R.G.S. in 1853 on the *Physical Geography of Western Tibet*, published in Journal of R.G.S. 23 and in extended form (70 pp.) as a separate pamphlet in 1854. His account of the country is still unsurpassed. When I saw him in 1910, at the age of ninety-five, his memory was still quite clear and his interest in exploration as keen as ever. He was very caustic over some of Sven Hedin's claims to discoveries which he had
just read in the latter's Transhimalaya. I borrowed the anno-
tated copy of his paper and corrected my own, which I prize
above all other publications on western Tibet.

81 See Tibet and Nepal, by A. H. Savage Landor; Black, 1905.
82 Moorcroft, William, "A Journey to Lake Manasarovara in
Undes," (in 1812), in Asiatic Researches, Vol. XII, Calcutta,
1816. His companion was Haider Hearsey. With Trebeck he
also published Travels in the Himalayan Provinces, etc., from 1819
to 1825, 2 vols., 1841: a fascinating book. There is a tradition
that he was murdered in Turkestan; and another that he resided
in Lhasa and died there; but the date, place and manner of his
death are unknown. In Travels in Kashmir and Ladak, 1842,
Vigne mentioned a tradition that he long resided in Leh. In
A Year on the Punjab Frontier, Herbert Edwardes wrote, "I am
glad to be able to contribute the smallest white pebble to poor
Moorcroft's cairn." Sir Alexander Cunningham, in Ladak,
1854, wrote: "A more truthful chronicler than Moorcroft never
lived."

83 See Rutledge, Hugh, I.C.S. and Col. Commdt. R. C. Wilson,
D.S.O. in G.J. 71 (May, 1928), pp. 431-40; map and ills.
The Orthopteran fauna (grasshoppers, crickets, etc.) of Central
Asia is entirely unexplored; collections are badly needed,
and very easy to make.

85 Height of Mount Everest—modern correction for the local
gravity anomaly would add about 140 feet; but the figure is
officially left at 29,002 feet or 8,840 metres.
86 Colonel Sir George Everest, C.B., F.R.S., of the Bengal Artillery
became Superintendent of the Great Trigonometrical Survey of
India in 1823. He was Surveyor-General of India from 1830 to
1843. His most notable achievement was the measurement of
a great arc of meridian from the Himalaya to Cape Comorin,
from which was deduced the lengths of the earth's axes.
87 See G.J. 57 (Jan., 1921), 3.
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88 See A.J. 24 (May, 1908), 193. During the discussion at the Alpine Club of my paper on Garhwal I am recorded as saying: "On Everest he would be surprised to find the snow level lower than 20,000 feet. The Tibetan side would, he thought, prove easy of access. It was just a question if there was a technically easy route up the north side. There was none up the south or west. A camp should be placed on stones, not on snow, at about 20,000 feet; the base camp should be an easy day below, where existence was tolerable. The working party should establish the 20,000 feet camp, and also another 4,000 feet higher. The party for the actual ascent, say four in number, could go up there fresh and make a dash for the summit, which perhaps two might reach." This forecast was quoted with approval by J. P. Farrar and E. F. Norton in A.J. 37, 18.

89 For natural history see Chapter XV, by T. G. L. in Bruce's "The Assault on Mount Everest, 1922"; Arnold, 1923.

9. KARAKORUM

I have published a more detailed article on this journey in G.J. 35 (Jan., 1910), 622–58; and a shorter one in A.J. 25 (May, 1911), 485 and 568. See also an account by Arthur Neve in Thirty Years in Kashmir; Arnold, 1913.

It is to be regretted that Karakoram is now the official spelling of this name. The mistake probably arose from following the rules for the transliteration of Urdu into English. But the word is of the Turki language of Central Asia, and not Urdu. The name of the ancient capital of the Mogul Turks in distant Mongolia always has been and still is written Karakorum. The camping place beside the Hispar glacier, half-way to that pass from Nagyr, is still written Makorurn. As well might we change the Burush names Masherbrum and Gasherbrum.

In this context I venture also to record my regret that the Survey of India, whose assistance I have so often received, have replaced the historic name Saltoro Pass by the purely local name Bilafond. Vigne put the Saltoro Pass on the map in 1835 and this name was universally accepted by geographers. Under this name Younghusband sought it. In 1909 I found that the Khans of Khapalu knew it by no other name. Geographically it is the only practicable pass at the head of the Saltoro valley. If only on historic grounds the
old name should be preserved. In G.J. 41 (Feb., 1913), 175, Col. H. H. Godwin-Austen, F.R.S., wrote a note strongly supporting the name Saltoro, for the same reasons as I do. When I visited him at his home I found him very clear brained, though old in years. His opinion should be good enough, for none could claim greater authority.

For example Mirza Muhammed Haidar in The Tarikh-i-Rashidi: translation by Ney Elias and Dennison Ross, Samson Low, Marston, 1895. In 1532 he conquered Nubra. The following year he crossed the Zoji La and defeated the armies of Kashmir.

Moorcroft and Trebeck, Travels in the Himalayan Provinces from 1819 to 1825, 2 vols., 1841. Moorcroft was easily the greatest of the early pioneers in High Asia and his book is of absorbing interest. See note (32).

Godwin-Austen, Col. H. H., F.R.S.; see his classical paper The Glaciers of the Muztagh Range in Proc. R.G.S. (old series) 1863–4, for the first account of these the greatest glaciers in Asia.

Conway, W. Martin, Climbing and Exploration in the Karakorum—Himalayas; Appleton, New York, 1894. His was the first party of skilled mountaineers to visit the Karakorum. He was accompanied by the Hon. C. G. Bruce, then a young subaltern. He was later created Lord Conway of Allington.


Abruzzi, H.R.H. the Duke of the, Luigi Amedeo di Savoia. Karakoram and Western Himalaya (1909), by F. de Filippi; Constable, 1912.


Workman, Fanny Bullock, Two Summers in the Ice Wilds of the Karakoram; Unwin, 1917.
Notes and Bibliography

See also in G.J. 43 (Feb., 1914), 139. For some reason this article is very hostile to me. I am mentioned over twenty times and always with disapprobation. But every traveller who preceded them, including Godwin-Austen, Arthur Neve, Sillems and Charles Bruce, is similarly treated. See also T.G.L. in G.J. (Feb., 1914), 144: remarks in the course of the discussion of Mrs. Workman's paper at the R.G.S. Grant Peterkin was surveyor to the Workman expedition. Compare his map in G.J. 43 (Feb., 1914), 148, with mine in G.J. 35 (Jan., 1910), at end of number. Most of the altitudes he determined on the spot are 100 or 200 feet higher than I have given. He gives the height of Teram Kangri as 24,510 feet and the total length of the Siachen glacier about forty-nine miles.

50 Burrard and Hayden, Sketch of the Geography and Geology of the Himalaya Mountains and Tibet; v. 1st. Edn., p. 100. This is easily the most authoritative publication of its kind. There was a second edition (1932) published by Manager of Publications to Govt. India, Delhi, 1933.


This fine surveyor was killed in action in France in 1915.

52 Photographs show that on the small glaciers of Kilimanjaro, now vanishing under an equatorial sun, the fluted ice-pillars and the spiked honey-combing of flat surfaces are even more developed than on the Siachen glacier. I think it will come to be admitted that the verticality of the sun is the prime cause of these phenomena.

53 The Geological Survey of India kindly identified all my rock specimens which are in the Geological Museum at Calcutta.

54 For an attempt on this pass from the side of the Siachen glacier see Peter Young's Himalayan Holiday (1939); Jenkins, 1945, p. 65. Also H.J. 12 (1940), 93.

55 I would like to draw the attention of glaciologists to a very striking paper Glacial Movement and Erosion—A Criticism (Greenland), by the late Max Demorest in the American Journal of Science 237 (Aug., 1939), especially to pp. 603-4. He writes "glaciation did little more than modify pre-existing land forms" and that "structure was influential in conditioning glacial erosion."
met him both in Denmark and Greenland and was much struck by his promise. It is lamentable that so promising a young field-worker should have been killed in the late war; he lost his life on a gallant attempt at air-rescue in Greenland.


57 I published a fuller account of the Kumdan glaciers and their history in G.J. 35 (June, 1910), 647–58, with map and illustrations.

58 Shaw, R., *Visit to High Tartary*, 1871: well worth reading.

59 Filippi, F. de, *The Italian Expedition to the Himalaya, Karakoram and Eastern Turkestan* (1913–14); Arnold, 1932. With Major H. Wood, of the Indian Survey, he explored the whole of the Rimu glacier system. On p. 398 he generously confirmed my deductions as to the sources of the Shyok and Yarkand rivers. Compare also Giotto Dainelli, *Karakoram*; Kegan, Paul, Trench, 1933. He crossed a pass from the head of the Rimu on to the Siachen glacier. I am convinced that this was the route taken by former users of the Sal toro pass to reach Chinese Turkestan.

60 Gulwan, Rasul. *Servant of Sahibs*; Heffer, Cambridge, 1923. A most interesting autobiography written with the help of Mr. and Mrs. Robert Barrett.

61 Visser, Dr., Ph.C., *The Karakoram and Turkestan Expedition of 1929–1930*, in G.J. 84 (Oct., 1934), 281. On my advice Dr. Visser went up this (empty) nullah and found a glacier nearly sixteen miles long at its head. His mapping in this difficult region covered much new and interesting topography.

62 See my diagram in G.J. 35 (June, 1910), 625.

10. HINDU KUSH

*The best article I have found on the Hindu Kush is Pioneer Exploration in Hunza and Chitral, by General Sir George Cockerill in H.J. 11 (1939), 15–41. Where Three Empires Meet, Longmans, 1897, by E. F. Knight, is a fascinating description of the Hunza campaign. Col. A. Durand’s The Making of a Frontier, Murray, 1900, is a classic. The Kafirs of the Hindu Kush, Lawrence & Bullen, 1896, by Sir George Scott Robertson, is another most interesting book on the least known parts of this region.*
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I wrote a short paper, By-Ways in the Hindu Kush, in A.J. 33 (Nov., 1920), 155, to which Col. Sir F. E. Younghusband contributed. The adventure with the Russians about which he spoke at the A.C. meeting is also described by him in G.J. 100 (Sept., 1942), 134.

The Dards, a mysterious race of European appearance, are the oldest people we know of here. They are the Darada of Sanskrit literature and the Derdae of Megasthenes, companion of Alexander. They were noted for the production of gold-dust, the “ant-gold”, pipilika, of the Indians, and this is still collected, though only in small quantities, from the sands of the upper Indus.

In the sixth century B.C. Scylax, the Greek navigator, had been sent by Darius to survey the course of the Indus and in the fourth century Nearchus accompanied Alexander on his invasion. The Greeks were astonished to discover in India “wool growing on trees”—cotton; and “a mineral sweeter than honey”—sugar.

The Ahmadiya sect are probably the best educated of all Moslem communities. Their headquarters were at Qadian in the Gurdaspur district of the Punjab. Though this had a slight Moslem majority it was handed over to India on the tragedy of the partition. It must be hoped that this fine community escaped the monstrous bloodshed which deluged the Punjab on our departure. See The Partition of the Punjab, by O. H. K. Spate in G.J. 110 (April, 1948), 201.

See Sir Aurel Stein in G.J. 45 (June, 1925), 493.

It is not the fashion to-day to speak of the splendid work done by the English in India. Being still remembered in the Agency I was glad to learn that when our Political Agent, on 1st of August, 1947, handed over the territories to Kashmir, including quite illegally the political ilaqas whose treaties were with the Crown, the British officer in command of the Scouts immediately seized the Treasury and put all the new Kashmir officials under protective arrest. Had he not done so their throats would have been slit. As a result there was no arson, nor looting, nor massacre of the numerous Hindus and Sikhs in the Gilgit bazaar. The people opted for Pakistan and the Mirs, though repeatedly
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pressed, refused to make new treaties with Kashmir. The whole country remained quiet. But the authorities considered it embarrassing for a British officer to remain where there might be fighting between India and Pakistan. The latter therefore transformed him into a policeman, he ceased to be a military officer and all was well. The Indian Air Force proceeded to bomb Gilgit.

11. THE ROCKIES


Howard Palmer's Climbers' Guide to the Rocky Mountains of Canada is indispensable to mountaineers.

87 See A.J. 25 (Nov., 1910), 364, Mount Assiniboine, by Sir James Outram. In writing an account of my own climb in the visitors' book at the Banff Club House I naturally omitted any mention of my guide's fall, which is narrated here for the first time.

88 This was the current tradition at the time. But according to Milton and Cheadle it was called after a well-known Iroquois trapper, of the soubriquet Tete Jeaune, who used to cache his furs over there. They say (p. 296) that the headless Indian was found far west of the pass.

89 For a fuller account of this expedition see T.G.L. in G.J. 37 (June, 1911), 589, Across the Purcell Range of British Columbia, with notes by Arthur O. Wheeler on Phototopographical Surveys. The best account of the whole range is in Dr. J. Monroe Thorington's The Purcell Range of British Columbia, New York, American Alpine Club, 1945, with illustrations and nine maps.

70 Conrad Kain was an outstanding Austrian guide and a charming character. His autobiography Where the Clouds Can Go, edited
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by Dr. Monroe Thorington, New York, the American Alpine Club, 1935, is good reading.

12. SPISZBERGEN

At the time of writing it was impossible for me to obtain the official place-names in modern Norse. For an authoritative article on these see Brian Roberts in The Polar Record 5 (Jan.-July, 1948: pub. Dec., 1948), 172. I have therefore used the names familiar at the time of our visits, mostly from the Admiralty chart.

For a fuller account of the 1921 Expedition see Frazer, R. A., The Topographical Work of the Oxford Expedition to Spitsbergen (1921), in G.J. 60 (Nov., 1922), 321.


Ornithologists should refer to Ibis 4 (Jan., 1922), 159, The Birds of Spitsbergen and Bear Island, by F. C. R. Jourdain, and Ibis (July, 1924), 480, Notes from Spitsbergen, by T. G. L.

All the technical papers by various specialists have been collected together in Spitsbergen Papers, Vol. I (1925), and Vol. II (1929, pub). by Oxford University Press.

The party of 1921 also included:

Douglas Brown, an oarsman and naturalist; R. A. Frazer, of the National Physical Laboratory, now F.R.S., as surveyor; Seton Gordon, the writer, as photographer; Noel Odell, the well-known mountaineer, as geologist; Roger Pocock, who had been a great adventurer in North America and Greenland, and author of the Frontiersman’s Pocket Book; H. L. Powell, taxidermist; R. W. Segnit, Australian Rhodes Scholar and geologist; George Slater, a student of glacier action from the School of Mines; Ralph Stobart, of the Alpine Club; V. S. Summerhayes of Kew, as chief botanist; John Walton of Cambridge, afterwards Regius Professor of Botany at Glasgow; Paget Wilkes, ornithologist.

Conway, W. M. *With Ski and Sledge over Arctic Glaciers* (Dent, 1898).

Mount Terrier was climbed by an Austrian Party in 1905. See *Zeit. des O. Alpen Verein* (1909), B.40, 109. We were ignorant of this and thought ours was a first ascent.

The flowers on Svartoppen consisted of *Papaver nudicaule*, var. *radicatum* (Rottb.); *Cochlearia officinalis*, var. *Draba* (probably *D. arctica*), no flowers or fruit; *Cerastium alpinum* (L.); *Alsine* (probably *A. rubella*); *Saxifraga caespitosa* (L.); *S. oppositifolia* (L.); *S. rivularis* (L.); *S. cernua* (L.); *Poa cenisia*, (All.) (B. M. identifications.)

The Merton College Expedition, 1923, consisted of:

George Binney, leader; J. Douglas Brown, ornithologist; Ian R. Bruce, hunter; Hugh Clutterbuck, second in command; C. S. Elton, ecologist; R. A. Frazer, sledger and surveyor; W. D. Gundry; A. C. Irvine and Geoffrey Milling, Oxford oars and sledgers; N. E. Odell, in charge of the sledging party; E. F. Relf, physicist; Geoffrey Summers, a mountaineer and very generous friend of the expedition; A. T. Wilder; and the author as doctor and naturalist.

Cape Leigh Smith was named for the yachtsman explorer who lost the *Ira* off Franz Joseph Land and had to winter there. He used to forgather with old Admiral Sir Leopold McClintock, ostensibly to discuss Antarctic problems with my father; but they drifted off into talk of the North, to which I used to listen avidly. Leigh Smith's surgeon, Dr. Koettlitz told me how furious his employer was when "rescued" by a ship as he neared the coast of Norway. He was bringing back his company from Franz Joseph's Land in the ship's boats and resented losing a seaman's credit for getting his people out unaided.

The 1924 Expedition to Northeast Land is described in George Binney's *With Seaplane and Sledge in the Arctic* (London, 1925): a brief account is in G.J. 66 (Aug., 1925), 111. See also *The Glacial Conditions and Quaternary History of Northeast Land*, by K. S. Sandford in G.J. 74 (Nov.-Dec., 1929), 451. From the geographical point of view this was the most successful of any of these long vacation Oxford expeditions.
Anyone interested in the polar regions should read two papers dealing with changes of polar climates and their effects by C. E. P. Brooks in Q. J. R. Met. Soc. 40 (Jan., 1914), 53, and in G.J. 66 (Dec., 1925), 572. There is a good article on the Polar Front by C. M. K. Douglas, in G. J. 94 (Aug., 1939), 135.

The new edition (Ernest Benn) of Brooks' Climate Through the Ages will deal fully with all these questions.

Norlund, Dr. P., Early Norse Settlements, Meddelser om Groenland 67(1924), 228. In the latter half of the fourteenth century ships from Iceland had to steer a course farther to the south than before, as if conditions had got worse. Yet later burials are below the present thaw level of the soil. In 1410 three Icelanders returned to Norway after four years in Greenland. The last settlers seem to have died out at Herjolfness about 1540.

Hjalmar R. Holand in America 1355-1364, New York, Duell Sloan & Pearce, 1946, makes out a case for the migration of some of the Greenland settlers to America. He describes the finding of Norse halbards and recalls that an expedition was actually sent to Vinland to find the Greenlanders by King Magnus Erikson of Norway.

See L. W. Bonacina on self-generating glaciers and L. Hawkes on self-preserving glaciers, with discussion, in Q. J. R. Met. Soc. 73 (Jan. and April, 1947), 85 and 95.

The O. U. X. party consisted of W. G. H. D. Crouch, quartermaster and photographer. Sir John Hanham, Bt., botanist and interpreter in Danish. H. P. Hanham, ornithologist and unfailing helper. Major R. W. G. Hasting, M.C., late I.M.S., an accomplished entomologist and author of Nature at the Desert’s Edge, and A Naturalist in the Himalaya; he was medical officer to the Third Everest Expedition. B. D. Nicholson, ornithologist and assistant surveyor. E. M. Nicholson, chief ornithologist; since author of How Birds Live; now in the Civil Service and a C.B. C. G. Trapnell, chief botanist, secretary and treasurer to the expedition. The two last named were the founders of the Oxford Exploration Club in 1927.

All the papers constituting our scientific results have been collected together and published in *Greenland and Spitsbergen Papers*, by the Oxford University Press, 1934.

For more details of the expedition see Wordie, J. M. *An Expedition to Melville Bay and North-east Baffin Land*. G.J. 86 (Oct., 1935), 297, with illus. and map.


So unexpected was the character of this coast that Wordie made another expedition to it in 1937, exploring the fjords and mountains farther to the north. See his paper in G.J. 92 (Nov., 1938), 385 with illus. and map.


**14. MOUNTAINS OF BRITAIN**

*Of modern books I suggest as an introduction Peter Bicknell’s British Hills and Mountains in Collins’ Britain in Pictures series, 1947. Let’s go Climbing, by C. F. Kirkeus (Nelson) is the most readable handbook for beginners. W. H. Murray’s Mountaineering in Scotland, Dent, 1947, is in a class by itself.*
Geoffrey Winthrop Young, p. 216, in *Mountain Craft*, Methuen, 1920. I cannot refrain from urging every young climber to study pp. 216-26 on the use of the rope; nothing better on this subject has been published in English.
GLOSSARY

Aiguille (Fr.), a spiky rock peak.
Arête (Fr.), a narrow skyline ridge.
Bergschrund (Germ.), the big crevasse at the foot of the final steep slope of a face or peak.
Bransa (Balti), camping place with stone shelter-wall.
Burkha (Cauc.), goat-skin coat with hair outside.
Calotte (Fr.), thick level snowcap at the top of a peak.
Corrie (Gael.), a high glen or ravine.
Couloir (Fr.), a steep gully on a mountain side.
Crampon (Fr.), climbing irons for hard snow or ice.
Crevasse (Fr.), deep crack in a glacier.
Divide (Can.), water-parting.
Durbar (Hind.), chief's reception or Court of Justice.
Dzongpün, Jongpen (Tib.), commander of a fort: title of a local governor.
Gendarme (Fr.), a steep rock pinnacle on a ridge.
Gîte (Fr.), bivouac place on a mountain.
Grub-stake (Can.), season's food for prospector or trapper.
Jehad (Arab.), a religious war.
Kosh (Cauc.), hunter's bivouac place.
Lead, an open channel through pack ice: land lead, that nearest the shore.
Moraine (Fr.), ridges or sheets of fallen rock carried down by a glacier.
Muskeg (Can.), bog amongst forest.
Névé (Fr.), upper snowfields of a glacier.
Glossary

Nullah (recte nala, Hind.), a rocky glen or side-valley.

Nunatak (Esk.), naked peak exposed above an ice-cap.

Pir, a Maulai priest.

Poissons (Fr.), fish-shaped clouds, lenticular alto-cumulus.

Serac (Fr.), pinnacle of ice on a glacier due to splitting during passage over uneven bed.

Verglas (Fr.) thin skin of ice on rocks.

Wazir (Hind.), a chief minister.
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