THE MAKING OF A MOUNTAINEER

Climbing the Matterhorn by the Zmutt ridge.

" We had to cut steps across a wide ice slope " (*page* 187).

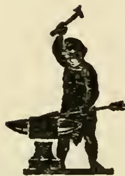
Frontispiece

THE MAKING OF A MOUNTAINEER

BY

GEORGE INGLE FINCH

WITH SEVENTY-EIGHT PHOTOGRAPHS, ONE DRAWING AND TWO DIAGRAMS



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To

MY WIFE

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PREFACE

MAN'S heritage is great. There are the mountains; he may climb them. Mountaineering is a game second only to the greatest and best of all man's games—life.

The War all but dried up the steady stream of youthful and enthusiastic devotees who kept alive and fresh the pursuit of mountain-craft. But fresh blood is as essential to the healthy life of mountaineering as it is to any other game, craft or pursuit, and, fortunately, there are cheerful signs that the after-effects of the War are fast becoming spent. Our youth is beginning to find the dancing floor, the tennis court and the playing fields of Great Britain too narrow, too lacking in scope, perhaps also a little bit too soft; and the craving grows for wider fields and a sterner, freer pastime.

It is primarily for the members of the younger generation that this book has been written, in the hopes that, by affording them a glimpse of the adventurous joys to be found in the mountains, they may be encouraged to take up and try for themselves the pursuit of mountaineering.

Portions of Chapters II and XVIII have appeared in the *Climber's Club Journal*, Chapter VIII in the *British Ski Year Book*, and Chapters XIV and XVI in the *Alpine Journal*. Where not otherwise stated, the illustrations are from photographs by the Author.

In conclusion, I would like to thank Captain T. G. B. Forster for the loan of four photographs; Mr. A. B. Bryn for one photograph; Mr. R. H. K. Peto for the pen-and-ink sketch of the east face of Monte Rosa and the drawing of an ice-axe; my brother for Chapter VIII; and last, but not least, my wife for her contribution, Chapter XII, and for the tireless pains she has taken in assisting me with the preparation and correction of the manuscript and proofs.

I also wish to place on record my appreciation of what I owe to the inspiration and example of the *Alpine Journal* and of Mr. Geoffrey Winthrop Young, and to the inspiring influence of Miss P. Broome.

10 Gainsborough Mansions,
London, W.14,
April, 1924.

THE MAKING OF A MOUNTAINEER

CHAPTER I

EARLY DAYS

SOME twenty-two years ago, on a dewy spring morning in October, I urged my panting pony towards a hill-top in the Australian bush, the better to spy out the whereabouts of a mob of wallaby. The last few feet of the ascent being too much for the pony, I dismounted and, leaving him behind, scrambled up a short, rocky chimney to the summit. The wallaby were nowhere to be seen ; but my wondering eyes were held spell-bound by such a vision as I had never even dreamed of. Miles and miles away the white-washed roofs of the township of Orange gleamed brightly in the clear morning sunshine ; the main roads converging upon the town showed sharp and distinct from out their setting in the rolling bush. The picture was beautiful : precise and accurate as the work of a draughtsman's pen, but fuller of meaning than any map. I was just thirteen years old, and for the first time in my life the true significance of geography began to dawn upon me ; and with the dawning was born a resolution that was to colour and widen my whole life. Before returning to my pony after this, my first mountain ascent, I had made up my mind to see the world ; to see it from above, from the tops of mountains, whence I could get that wide and comprehensive view which is denied to those who observe things from their own plane.

A year later my brother Maxwell and I, now proud possessors of Edward Whymper's *Scrambles in the Alps*,

emulated our hero's early exploits by scaling Beachy Head by a particularly dangerous route, much to the consternation of the lighthouse crew and subsequent disappointment of the coastguards who arrived up aloft with ropes and rescue tackle just in time to see us draw ourselves, muddy and begrimed, over the brink of the cliff into safety. That climb taught us many things; amongst them, that a cliff is often more difficult to climb than would appear from below; that flints embedded in chalk are not reliable handholds, but sometimes break away when one trusts one's weight to them; that there are people who delight in rolling stones down a cliff without troubling to see whether anyone is underneath; and that if it be good to look down upon the world, the vision is beautiful in proportion to the difficulties overcome in gaining the eminence. A few weeks later, an ascent of Notre-Dame by an unorthodox route might well have led to trouble, had it not been for the fact that the two gendarmes and the kindly priest who were the most interested spectators of these doings did not lack a sense of humour and human understanding. Then we passed through Basle into Switzerland, bitterly disappointed to find that the railway did not wind through dark, tortuous valleys bordered by glistening snow-capped mountains.

That winter we broke bounds. Shod in the lightest of shoes, with clothing ill-suited to protect against wind, with walking sticks, and a pocketful of sandwiches we took the train to Wesen. There we bought a map and set off to climb the Speer, a mountain barely 6,000 feet in height, but nevertheless a formidable enough proposition for such an ill-equipped party in winter. All that day we struggled on, often knee-deep in snow. At dusk, still far from our goal, we sought refuge from the cold breezes of eventide. Letting ourselves in through the chimney

Switzerland. We climbed a few lesser summits, all about 10,000 feet high; on none was there climbing where hands as well as feet were required, and not once did we see the axe used to cut a step. Efforts to wheedle our stalwart guardians into attacking the bold pyramid of the Segnes Tschingelhorn, always provocatively before our eyes, failed miserably; they had their instructions. But they could not always keep us in sight, and more than once, stealing forth alone, we found good climbing, adventure and untrammelled fun; and the desire to climb without guides was born in us.

That winter the lesser peaks and passes of Grindelwald were visited on skis. A stern effort to gain the Strahlegg Pass was frustrated by a snowstorm in the teeth of which for nineteen hours on end we fought our way back to Grindelwald, having learnt that, with map and compass and given your bearings, bad weather in the mountains can be faced and even enjoyed if you only keep on moving and do not get flurried. We also knew now that boots should be large enough to enable two pairs of woollen socks to be worn without pinching the foot, and that toe-caps should be high and roomy so as not to interfere with the circulation. A sweater worn underneath a wind-proof jacket of sailcloth was found to be both lighter and much warmer than heavy tweeds through which the wind could blow and to which the snow would stick.

From 1907 onwards until 1911, Max and I both studied in Zürich and were thus thrown into close and continual contact with the mountains, from which we were separated only by some three or four hours by rail. Barely a week-end went by without our taking train to the mountains and climbing. During the Easter holidays of 1907 we betook ourselves on skis up to the Clariden hut, one of the many little shelters built by the Swiss Alpine Club in the heart of

the mountains. These huts are furnished with straw-filled sleeping bunks, blankets, a small cooking stove, a supply of wood, and cooking and eating utensils. We had with us provisions for a week, during the whole of which period the weather was fine and snow conditions at their best. We climbed almost all the surrounding summits, the return to the hut each evening taking the form of an effortless run on skis over the Clariden Glacier.

During the summer vacation of the same year Max and I successfully obtained *carte blanche* to climb without guides, and for nearly three months we roamed in and about the range of the Tödi. We climbed most of the summits in the range, including the Tödi itself, which with its 11,800 feet of altitude was much the highest mountain so far grappled with. We always endeavoured to exercise every possible attention to the following out of the lessons hitherto learnt, losing no opportunity of acquiring fresh knowledge regarding matters of equipment, the handling of rope and axe, and the mountains themselves. In particular we aimed at cultivating a sense of route-finding and teaching ourselves how to use the map. The winter of that year saw us embarking upon expeditions of a more ambitious nature than those previously attempted. Up to the Easter of 1908 our most successful winter feat was an ascent of the Sustenhorn on skis; but during that vacation we accomplished the ascent of the Tödi, a winter expedition that even to-day is reckoned by no means a simple undertaking. As the summer holidays approached, a still more ambitious programme was drawn up. Our self-assurance, confidence—call it what you like—seems to have been boundless, for we now considered that our apprenticeship had been sufficiently long to justify us in letting ambitions soar into reality. The programme, although not carried out

Photo T. G. B. Forster.

Scrambling in the range of the Tödi.

Facing page 18.

in its entirety, nevertheless proved a great success. Beginning with the Bernese Oberland, we climbed the Wetterhorn, were driven back by storm just below the summit of the Eiger, but followed up the reverse by climbing the Mönch, Jungfrau and Finsteraarhorn. Thence making our way down the Aletsch Glacier to the Rhône Valley, we went up to Zermatt. From there we climbed the Matterhorn and the Dent Blanche, then crossed over the Col d'Hérens to Arolla, where for the first time we experienced to the full the pleasures of traversing a mountain, that is, ascending by one route and descending by another. Amongst others, were traversed the Aiguille de la Za, the Aiguilles Rouges d'Arolla and the Pigne d'Arolla. The ascent of the last-named was made by cutting steps up the steep north face, and it was this climb more than any other that won me over to the delights of ice-climbing. Returning to Zermatt by various high-level passes, we journeyed northwards and wound up the season in the Tödi district, where all the major summits were traversed.

Thus from its chance nucleus on the hill-top in the Australian bush, snowball-wise the zest for the mountains grew until it has actually become an integral part of life itself. The health and happiness that the passion has brought with it are as incalculable as the ways of the " divinity that shapes our ends," chooses our parents for us, and places us in a certain environment. The love that Max and I have for the mountains I cannot but attribute to the fact that we were possessed of a father who taught us from our earliest years to love the open spaces of the earth, encouraged us to seek adventure and provided the wherewithal for us to enjoy the quest and, above all, looked to us to fight our own battles and rely on our own resources.

CHAPTER II

CLIMBING IN CORSICA

COMFORTABLY seated in the depths of Bryn's favourite and most somniferous chair, I browsed idly and half unthinkingly through the pages of a guide book that had found its way, as such things will, to my host's address. Cynically amused as far as my sleepy condition would permit by the flights of verbal fancy to which compilers of guide books seem addicted, subconsciously certain plain, unbefrilled facts impressed themselves upon my mind and, eventually marshalling themselves, roused me out of my lethargy to a state bordering on excitement.

" I 've found it ! " I shouted.

Max and Bryn awoke, startled.

" What, you fool ? " they growled encouragingly.

" Listen ! It is easy of access, thinly populated, few tourists visit the interior, and it has mountains rising to 9,000 feet above sea-level ; the very thing we are looking for." Wide awake now, they were interested enough to ask where this Utopia was. Astonished at such crass ignorance, I answered, " Corsica, of course, fatheads ! "

It really was the very thing we had been looking for. The Christmas vacation of 1908 was just over. A few months ago Max and I had made the acquaintance of Alf Bonnvie Bryn, a Norwegian who, like ourselves, was studying in Zürich. Bound together by the common bond of enthusiasm

for the mountains, the acquaintance rapidly ripened into friendship, and many were the pleasant evenings spent in each other's rooms. The topic of conversation was always the same—mountaineering. Gradually our thoughts turned from other mountain groups more and more towards the Himalayas, and we decided some day to combine forces and carry out an expedition to this greatest of the world's mountain ranges. As far as actual climbing was concerned, we considered that the Alps, as a training ground for Himalayan exploration, could not be bettered. But in one thing which would do much to make or mar the success of an exploring venture in these distant ranges, we could look to the Alps for little assistance. That was organisation, particularly with respect to food and equipment. In the Alps, a mistake or omission of detail in either of these things can be remedied by a descent into the valley, involving a loss of not more than a day or so of climbing time. But for the Himalayas we judged that it would be essential to have everything that one would want with one. Mistakes or omissions would not be easily rectified after one had left one's base, usually the last outpost of civilization and, even as such, devoid of many of the necessities for mountaineering. From the base onwards one would have to rely entirely upon one's own resources. These considerations drove us to a decision to spend the Easter vacation in some remote part of Europe ; Switzerland would be our advanced base, and the chosen field of our activities a wilder territory to which we would not look for supplies of either food or equipment. Where was such a territory to be found ? The more remote mountains of Norway were ruled out on account of the earliness of the season. Considerations of distance, and therefore of time and expense, militated against our going to the Sierra Nevada or the Balkans. Our mental

state was one of puzzled despair until by chance the little guide book of Corsica insinuated itself into my attention.

Early in March, 1909, we set to work to put our equipment in order, making sleeping bags and a tent and buying tinned foods. The latter were selected with a view to nourishing value, variety, compactness and minimum of weight. By the middle of the month our preparations were almost complete. A few days afterwards, Bryn and I set off for Corsica, leaving Max, whose studies kept him in Zürich for the time being, to join us at a later date. We travelled by rail through the St. Gotthard *via* Milan and Genoa to Leghorn, embarking there for Bastia. The five-hour crossing on a crazy little cargo boat was rough and uncomfortable, and we both dwelt at some length and with much feeling upon the foolishness of setting out on our little expedition instead of spending the holidays in comparative luxury in Switzerland. But when, at sunset, loomed up the snow-capped summits of the bold mountain chain that forms the backbone of the long promontory of Cap Corse, our optimism returned. The first difficulties on landing were those created by Customs officials. On explaining quite frankly the object of our visit, however, they informed us ecstatically that Corsica was the most beautiful country in the world and that we would be sure to enjoy our stay there—and passed our stores free of duty! Such patriotism created a first good impression of the inhabitants, which we saw no reason later to alter. The Corsicans received us with nothing but the utmost kindness throughout our stay on the island.

The following day was spent in purchasing maps and drawing up plans. According to the maps, Calacuccia appeared to be the Zermatt of Corsica, so to Calacuccia we forwarded most of our stores. Leaving the greater part

of the remainder in the simple little auberge, the Hôtel des Voyageurs, which was our headquarters in Bastia, we set out to walk and climb over the whole length of the range of mountains in the promontory of Cap Corse. Though none of these peaks exceed 4,300 feet in height, nevertheless, owing to the close proximity of the sea, they appear high. But their chief appeal to us was that they afforded magnificent views into the mountains of the north-west interior of the island, where we expected to find the best climbing. The main groups centre round Monte Cinto which, rising to 8,900 feet above sea level, is the highest summit in Corsica. Standing well away to the north of the main mass was one bold rock needle that attracted our attention. With the aid of compass and map, we identified this point as being the Capo al Dente, a peak some 7,000 feet in altitude, and decided to lay siege to it before going to Calacuccia, especially as we had every reason to believe that it had not been climbed. Back again in Bastia, we packed up our remaining stores, sufficient for ten days, and took train to Palasca, a station on the line between Bastia and Calvi. In Palasca we were fortunate in securing the services of a mule and his driver. I say "fortunate," for our knapsacks, containing sleeping bags, spare clothing, ropes, cooking apparatus, cameras and food, weighed over 80 lbs. each. The mule proved more willing than his master. Our way to the Val Tartagine, at the head of which the Capo al Dente lies, led over a number of passes the crossing of which involved a good deal of uphill and downdale walking. The mule-driver's strength never seemed equal to any of the rises, as he would persist in sitting on the mule. The upshot was that ere half our thirty-mile journey was accomplished the poor little animal struck work and refused to go an inch farther.

There was nothing to do but dismiss both driver and mule and shoulder our burdens ourselves. We struggled on all day, steering for the most part by map. It was a painful business. The knapsacks were inordinately heavy, and their narrow straps bit cruelly into our shoulder muscles. At sunset, completely exhausted and feeling incapable of moving another step, we unpacked the sleeping bags by the banks of a spring and, after cooking a meal, slept such a sleep as falls to the lot of few.

On the following day we crossed the last pass and dropped down into the Tartagine Valley. At the entrance to the valley stood a forester's cottage. The forester and his wife refused to allow us to pass without first partaking of their hospitality. Like all Corsicans, they spoke a good French as well as the peculiar dialect of their country, a mixture of French and Italian. Here, as elsewhere in the island, we met with nothing but courtesy and kindness. In response to anxious inquiries, our host assured us that the Capo al Dente had never been climbed. From his house we could see it, a wonderful rock pinnacle bearing a certain resemblance to the Aiguille du Dru and standing up boldly at the very head of the valley. In the afternoon we took our leave and followed a diminutive track leading along the right bank of the Tartagine River.

At an altitude of about 4,000 feet above sea-level, above the snow-line which at this season of the year extends to below 3,000 feet, we found a suitable camping site, a huge rock platform on the face of a cliff. It was sheltered from the wind on three sides and, being partially overhung, might also be expected to be protected in the event of snow or rain falling. For nine nights we camped on this spot. The cold during the long hours of darkness was bitter and ruthlessly demonstrated

Photo A. B. Bryn.

Climbing the Capo al Dente.

". . . we espied a diminutive crack . . . the solution to the problem."

Facing page 24.

the flaws in the design of our sleeping bags. Day after day we made our way up to the head of the valley and searched in vain for a route up the black cliffs of the Capo al Dente. On the ninth day we at last espied a diminutive crack threading the first hundred feet of the precipitous lower ramparts of the mountain. We had discovered the solution to the problem. Within an hour of effecting a lodgment on the rock we had gained the summit and felt truly recompensed for those long, cold nights of shivering endured in camp. The climbing had been steep but by no means excessively difficult.

There is a peculiar charm about the view from the summits of these Corsican mountains. They have the lure of sea cliffs. From most of them you look down upon the ocean. From the Capo al Dente we could see the tiny little harbour of Calvi and, fascinated, follow the movements of a Lilliputian steamer that was leaving on its voyage over the smooth, broad, blue expanse of the Mediterranean. To the south the great range of the Cinto reared its snow-clad, precipitous peaks, and, looking, we felt satisfied that, in coming to Corsica in quest of mountaineering adventure, we had made no false step. Flanking the Val Tartagine were other mountains of interest, such as Monte Corona and Monte Padro; but our provisions were almost at an end. In any case, time was up, for we had arranged to meet Max in Calacuccia on April 5.

It took us two days to regain the railway at Ponte Leggia, and for those two days our sole provisions consisted of rather less than a pound of porridge and a little tea and sugar; a fault in organisation to which we frankly confessed at the little station restaurant at Ponte Leggia by purchasing several square meals rolled into one. On April 4 we arrived at

Calacuccia. Max joined us on the 5th, and the following days were spent in exploring the Cinto group to the north-west of Calacuccia and in selecting a suitable site for a camp. Eventually our choice fell upon the Viro Valley which, in an island rich in the beauty of rugged mountain scenery and wild vegetation, is one of the grandest and most charming.

On April 10 we left the little Hôtel des Voyageurs, where we had received much kindness at the hands of the proprietress, Madame Veuve Lupi. A mule and his driver were entrusted with kit and provisions—a heavy load. The mule was lazy and needed much and continual urging. The Corsicans seldom strike their animals. If a grumbling "Huh! Huh!" has not the desired effect, the driver spits on the mule's hind-quarters—and a trot is almost invariably the result. As a rule, a whip is worse than useless; it only produces a wild fit of panicky bucking. The day was hot and sultry. The mule-driver had soon emptied his wine-flask and, as he disdained to allay his thirst with the crystal-clear water of the many mountain streams we passed, his supply of saliva eventually failed. The pace of the mule fell off accordingly.

At Albertacce, a hamlet near the entrance of the Viro Valley, we halted to pay our respects to the priest, who was also head man of the place, and make arrangements about our mail. Before we had taken our leave, the rumour had spread that we were skilled physicians, and we had to resign ourselves to treating nearly half the inhabitants for all manner of ills, imaginary and real. Sodium bicarbonate, bismuth subnitrate, calomel or quinine were administered in homœopathic doses. A week later, homeward-bound, we returned through Albertacce and had thrust upon us the homage and thanks of the entire population. The prescribed treatment had, in every single

case, effected a complete cure—another example of how a reputation may be made.

Half an hour below the selected camping site, patches of snow were met with. The first extensive snow patch proved too much for both mule and driver. The Corsicans have a real terror of walking in snow ; they fear that at any moment they may sink in and be suffocated. So we had to dismiss our burden bearers and make shift to carry our loads into camp ourselves. In the heart of the forest, on a little snow-free plot of ground hard by the left bank of the river, we pitched the tent. To the south-west rose the great precipices of Paglia Orba, the grandest summit in the great chain of mountains which in the form of a gigantic horseshoe shuts in the valley of the River Viro.

On the following day at 8 a.m. we left camp, crossed the foaming waters of the torrent—not without getting more or less drenched in the process—and spent the next two hours in steadily plodding up the snow slopes to the Col de Foggiale,[1] a depression on the ridge south of Paglia Orba. The work at first was distinctly hard, for the surface crust of frozen snow was not always sufficiently strong to bear one's weight. As the lower mountain slopes in Corsica are usually covered with a dense undergrowth or *maquis*, breaking the snow crust meant plunging right through into a thick tangle of vegetation, extrication from which was possible often only after a struggle. Higher up, fortunately, the snow became firmer and we seldom broke through. The approach to the col was defended by a huge overhanging cornice of snow through which we had to tunnel a way with the axe. The charm of the view from the col lay in the contrast between

[1] Col is a French term denoting a depression on a ridge connecting two summits.

the whiteness of snow-covered mountain and the deep blue of sea. Capo Tafonato (7,700 feet), however, a mountain whose praises we had often read, presented a disappointing appearance. Judging from the map, we had expected to see it standing boldly up in front of us on the far side of a fairly wide valley. It stood, however, a low rock ridge possessing no daring outlines and partially hidden behind Paglia Orba. Nevertheless, two features commanded our respect ; no snow was lying on the peak, a sign that the wall opposite us was very steep ; and we could see right through a tremendous hole or natural tunnel which pierced the mountain from one side to the other, indicating that the unseen side was also steep and that the summit ridge must be proportionately narrow. After a short rest, we traversed over frozen snow slopes round the base of Paglia Orba to the gap between it and Capo Tafonato. Here we had a short discussion as to the route to be followed, finally deciding to take the right hand or north ridge straight up from the gap and to traverse the whole mountain from north to south. We roped and were soon at work climbing the very steep and firm rocks. Following a spiral staircase of easy chimneys and ledges round the northern, the higher of the two summits, we reached the top after an hour's brisk climbing. After a brief halt to gaze down over the tremendous precipices of the west face towards the sea, we re-arranged the rope and set off to make an attack on the gap of formidable appearance that separated us from the southern summit. This looked just like a much magnified blunt needle point. To our surprise we were able to descend into the gap without encountering any serious difficulty, and followed the extremely narrow, but on the whole easy, ridge to the southern summit which was crowned by a diminutive cairn. Now followed a descent into another gap

The southern summit of Capo Tafonato.

". . like a much magnified blunt needle point."

Facing page 28.

over very rotten rocks and an imposing, but easy, *gendarme*.[1] All the while we could not help admiring the steepness and depth of the walls on the western side of the mountain. Soon after passing the *gendarme*, we came to a great overhanging buttress in the ridge, at the top of which a hanging coil of rope indicated that the last climbers to descend here had made use of the doubled rope. The coil was thin and bleached with exposure, so we cut it off and stowed it in our rucksacks as a trophy, to be returned, if possible, to its late owners. We fixed a new coil, passed our rope through it and slid down some fifty feet on to an uncomfortably sloping ledge. Here we found driven into a crack in the rock a large, rusty iron nail to which some coils of strong, silken cord were attached. Threading the rope through these, we again slid down about sixty feet to a broad snow ledge on the east face. After hauling down the rope, we followed the continuation of this ledge in a northerly direction and gained the floor of the immense tunnel that pierces Cape Tafonato from east to west. A series of ledges and chimneys brought us safely back to the gap where the climb had begun, the whole traverse having taken nearly five hours.

After a hasty but enjoyable meal of chocolate, sardines, and tea, we set off on the return journey. The descent to the Col de Foggiale round the foot of Paglia Orba was most enjoyable in the evening sun, whose golden reflection shimmered in the distant gulfs of the coast. We passed the cornice on the col without jumping and managed, in spite of the soft snow, to glissade almost half-way down to the tent. We arrived back in camp about half an hour after sunset. The night was fine, though cold, but we slept well, for we had earned our sleep with a good hard day's work.

[1] A rock pinnacle on a ridge.

April 12 was spent in recuperating from the effects of the previous day's labours. In fact, during our whole stay in Corsica we were generally forced to sandwich our climbs with a generous number of off-days. Our food, consisting mainly of preserves brought out from Switzerland, certainly disagreed with one and all of us; by which it is not to be inferred that the quality of the food was at fault. It was the nature of the food that was wrong. Our dietary was totally lacking in fresh vegetables and, indeed, fresh food stuffs of any kind; an omission which probably explains our general state of unfitness.

During the night of April 12 to 13 a west wind set in and towards morning became so violent that the tent several times threatened to leave its moorings. The weather, however, was otherwise fine, so we decided to make an attempt at traversing the five peaks of the Cinque Fratri, the highest of which is about 6,500 feet. After numerous efforts to shake off a certain lethargy which gripped us all, we at length stumbled off in three detachments, at intervals of ten minutes. The aim of each detachment was to meet the other two in the gap to the south of the fifth and lowest Frater. This we eventually succeeded in doing, though each took a different route up. We roped in the col, Max being given the lead, an honour which he repaid by dropping a pot of honey and a loaf of bread on Bryn's head and mine in the course of the ascent. The tie-strings of his knapsack had been too weak. From the gap we traversed round on to the east face of the peak and climbed directly upwards through the great chimney which runs down it from the summit. The climax of the ascent was provided by a somewhat narrow pitch in this chimney, where you encounter a bush of prickles, roll in them on your back, kick with one leg against each wall of the cleft

and then swing out on to the exposed and very steep ridge on the right. This brings one to an easy slope of loose stones leading to the summit. Bryn and I, of course, went to sleep, leaving Maxwell to confide a slip of paper containing our names to the care of the newly-built cairn—a reprehensible form of vice to which in those days we were much addicted. Presently he stirred us up, driving fresh life and energy into us with the business end of his Anthanmatten ice-axe, and we obediently scrambled down to the gap between Fratri Nos. 5 and 4. Maxwell was again delegated to pull the two sleep-walkers up Frater No. 4. He chose the easier, direct way and energetically pulled us up a few steep cracks, slabs and chimneys, in the hope of rousing us. A vain hope, for, arrived on the summit, we immediately sought out a spot that was sheltered from the wind and were soon deep in slumber once more. All too quickly came another rude awakening at Max's hands, and we again moved off. A few feet below the summit we were baulked at the edge of an overhanging wall. With some difficulty we contrived to fasten a coil of thin rope round a large block. Maxwell descended first and succeeded in climbing nearly all the way, though most of his verbal messages and directions were borne off by the wind, with the result that the rope was always slack when he wanted it taut and nearly always pulling him up again while he was climbing an easy bit. Then came my turn. I found the descent distinctly easy and pleasant, for, still half asleep, I allowed myself to hang free all the way, leaving the work of lowering me down to Bryn who found me rather heavy. After sending down his axe and rucksack, Bryn soon joined us, and we romped up the easy Frater No. 3. Passing another gap, Frater No. 2 speedily succumbed to our united attack.

The next gully, that between Fratri Nos. 2 and 1, and

running down the south wall of the mountain, is most remarkable. Very narrow and steep, with deep, clean-cut walls, it should afford some first-rate climbing. The descent from Frater No. 1, the highest of these peaks, to the gap between it and Monte Albano provided another occasion for cutting off a loop from the spare rope and roping down. The wall here is very steep, and composed in the main of loose and treacherous rocks. I went down first and photographed the others struggling to descend, almost expecting to see them at any moment blown away with a piece of rock in each hand, so buffeted about were they by the gale.

Traversing round the southern base of Monte Albano, we struck some abominably slushy snow slopes through which we ploughed a way, finally stumbling through *maquis* and loose stones into the welcome haven of our camp. After a grand five-course dinner, we settled ourselves comfortably in the tent and talked over deeds and memories until, wearied out, we quietly dozed off.

Wednesday, April 14, was destined to be another lazy day. It was Maxwell's turn to prepare breakfast, and in due course Bryn and I kicked him out of the tent. Unfortunately we neglected to hang on to his sleeping-bag, with the result that when we two began sleepily foraging for something to allay the pangs of hunger, we found our cook snugly asleep. With eating and sleeping, with roasting in the sun and cooling in the shade of the forest and in the icy waters of the Viro, time passed away pleasantly enough, but all too quickly. After such a glorious rest, we were ready and anxious to grapple with the hardest problem the mountains of Corsica could offer us. Owing to the ease with which we had been able to scramble over Capo Tafonato and the Cinque Fratri, we were beginning to despair of finding

The Cinque Fratri from below the Col de Foggiale.

The Cinque Fratri, I. to V., are the rock peaks to the right of Monte Albano, the highest summit seen.

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a really difficult climb and had reached a stage where we were ready to tackle any projected route, no matter how difficult it appeared from afar. In short, we were in need of proof that one could meet with a really tough job amongst the cliffs of Corsica's mountains.

More than a week ago, on the occasion of an ascent of Monte Albano, Bryn and I had admired the boldly soaring outlines of Paglia Orba (8,300 feet). In particular the clean-cut, awe-inspiring precipices of the north-east face drew our attention. A prolonged inspection of this huge wall revealed two apparently weak points. The one was formed by a series of snow patches indicating ledges, probably connected by small cracks or chimneys and ledges invisible to us from a distance. The whole series formed a huge C in white on a background of black rock. A snow field on the summit of Paglia Orba formed the head of the C-ledge, while the lower end began about eight or nine hundred feet lower down and about half-way up the upper, more or less perpendicular, wall. Several larger snow patches indicated a possible connection between the foot of the C and the gentler slopes below the great final wall. The other weak point was indicated by a deep shadow, betraying the presence of a chimney, joining the summit snows with a small snow patch in the wall some thousand feet below the top. On the east face, which offers no absolutely blank and perpendicular walls comparable with those of the impressive north-east face, we could see plenty of easy ways of gaining the summit. They threatened to be rather dull and uninteresting ; so, in the hopes of finding a day's difficult work, we determined to finish up our climbs in the range of the Cinto with an attack on the north-east face of Paglia Orba.

After a sumptuous breakfast of porridge and coffee we

left camp at 8.15 a.m. on April 15. We followed the stream for some ten minutes then, crossing it near a dilapidated cow-shed, set to work to plod up the snow slopes leading to the north-east wall. We took turns of an hour each to break trail, for the snow was already soft. As far as possible keeping to the rocks that here and there cropped out of the snow, we rose fairly rapidly. By 10 a.m. we were on a level with the lowest of the Cinque Fratri. Half an hour later we began climbing hand and foot up broken rocks to the right of some steep snow slopes. In order to save time, and being sure of ourselves, we did not use the rope. To avoid an overhang just below the top of these rocks, we were forced to cross under a small waterfall which thoroughly drenched us. Thence mounting a very steep snow slope, we gained the narrow, heavily-corniced crest of a minor ridge which seemed to descend from the beginning of the great C-ledge. The work ahead looked serious. We roped, Bryn being invested with the responsibilities of leadership. The fun began at once. Difficult chimneys, choked with masses of snow and ice, alternated with small snow slopes lying at a dangerously steep angle. Good belays were generally conspicuous by their absence. At 1 p.m., having risen some six hundred feet above where the rope had been put on, we were pulled up short by a smooth wall which appeared to bar all possible access to the foot of the C-ledge. We were on the upper edge of a comparatively large snow slope of triangular shape which had been clearly visible from our camp. We knew that the foot of the C-ledge was some two hundred and fifty feet, the summit itself over a thousand feet above us. The way up those two hundred and fifty feet seemed all too well guarded. To right and left, the ledge supporting our snow patch ran out into smooth, perpendicular walls. We were

standing on the upper rim of the ledge in a position which, owing to the lack of any belay whatsoever, was by no means too secure. A chimney led up presumably to the foot of the C-ledge. The first few feet appeared to be extremely difficult, and the leader would undoubtedly have needed the assistance of the other two if he were to tackle it with any hope of success. Higher up, the chimney looked even worse and was finally blocked by a huge, ice-covered, overhanging chock-stone. Far above we could see the icicle-fringed summit of Paglia Orba, from which water trickled down. Occasionally icicles broke away and fell *past* us, proving the wall above to be overhanging. Some two hundred feet from our standpoint a part of the wall had broken away, leaving a huge overhanging platform which would have made an excellent site for a bivouac if only the mountain had been turned upside down.

Whilst munching some bread and chocolate we had ample time to review our surroundings thoroughly. We made the best use of our opportunities, the more so as we were beginning to think this was to be the highest point of the day's climb. We knew that the Austrian climber, Herr Albert Gerngross, and his guide, Konrad Kain, had attempted the climb during the previous year; also, Dr. von Cube, a well-known pioneer of climbing in Corsica, had referred to the wall in terms of the impossible. At present, after a lengthy inspection, we were scarcely in the mood to disagree with him. Finally, admitting defeat, we turned to descend. When almost a rope's length down the now dangerously soft snow slope, I remembered having omitted to photograph the ledge running out to the right. I halted a moment and asked Bryn to use his camera to save me the trouble of reascending. To obtain a better view, Bryn

carefully crawled out along the ledge in the opposite direction. This chance move saved the day, for, some ten feet above his standing-point, Bryn now caught sight of another ledge which would enable us to enter the chimney above the most difficult pitch. On hearing this welcome news I rejoined the others with all possible haste, and together Maxwell and I shouldered Bryn up on to the newly-discovered ledge. Once on this, Bryn made rapid progress. Maxwell followed, and, after a struggle, I arrived to find that they were already attacking the chimney immediately below the huge, ice-covered chock-stone. The climbing had now become extremely difficult. Bryn rounded the chock-stone by climbing out of the chimney over some precipitous slabs to the right, finally gaining the upper level of the chock-stone. A period of intense anxiety followed upon our rejoining Bryn. Should we have to return or could we push through? A series of short snow-filled chimneys and ledges led up and round several corners. Each time on clearing one corner we could overlook only the ground as far as the next. But whether we were getting nearer to the summit or to a forced bivouac still remained to be seen. At last we gained the beginning of the C-ledge. On following this, though not without difficulty because of its incline, we saw that it was broken off at the foot of the huge chimney previously considered as possibly affording an alternative route to the summit. We now perceived, however, that the chimney was formed by a clean-cut buttress jutting out at right angles from the wall, and that it overhung considerably. Bryn crossed the chimney and, by climbing a very difficult and exposed series of cracks in its left wall overhanging an appallingly steep precipice, regained the C-ledge. "How's the view?" we called out from below in one breath. Once

Paglia Orba from the Cinque Fratri.

The C-ledge is visible on the dark rock precipice immediately below the summit.

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again we only learn that the climb can be continued to the next corner. While Maxwell was rejoining Bryn he had the misfortune to drop his axe. It fell, providentially without once striking rock, into a tiny patch of snow some eighty feet lower down the big chimney. Maxwell and Bryn lowered me down until I could reach it, and then unmercifully hauled me up to their perch without giving me the least opportunity of climbing. Exercising the utmost care, we proceeded along a series of highly sensational ledges leading in an almost unbroken line from corner to corner. All the time belays were few and small. On rounding what proved to be the last corner, we saw before us a broad chimney which was choked by what resembled a frozen waterfall crowned by a huge cornice. The sun shining on the cornice told us we were at last approaching the north-east ridge where we could expect easier climbing. What appeared to be an excellent belay enabled us to pay out Bryn's rope with some measure of security as, crouching, he followed the ledge to its extreme end. The sloping floor of the ice-choked chimney was about two yards from the end of the ledge on which we stood. Far below could be seen our tracks in the snowfields, but of the wall beneath we were only able to imagine the appearance. Altogether, even a climber could hardly conceive of a more exposed spot.

Bryn took the fateful step from the ledge to the chimney and was soon mixed up in the intricacies of the frozen waterfall, whose icicles were clustered together like the pipes of an organ. Skilfully cutting his way diagonally from left to right across them, he succeeded in finding a comparatively firm position whence he was able to take in Maxwell's rope with his teeth and left hand, as the latter made the wide and difficult step from the end of the ledge to the foot of the

waterfall. To add to the insecurity of the situation, the belay on the ledge proved worthless; it broke off as I was testing it, and nothing would have saved us in the event of a slip. The following fifteen minutes were indeed anxious ones. I contrived to make myself fairly comfortable on the ledge, but poor Maxwell, standing in a very shaky step and hanging on to an icicle, had patiently to submit to freezing while fragments of ice and snow were showered on him by Bryn's hard-working axe. At last Bryn had come to the end of his rope, but there were still six feet separating him from the nearest belay at the top of the waterfall and almost directly under the cornice. During a moment of suspense both he and Maxwell had to climb together. Then, just as the latter began to tackle the worst bit of all, Bryn reached the belay and firm footing. We soon joined him, though not without thoroughly appreciating the great difficulties of the pitch. We avoided cutting through the cornice by climbing two short but stiff chimneys to the right of and above the frozen waterfall, and at 5.15 p.m. were beyond the bend of the great C-ledge, with only easy, though steep, rocks between us and the summit. Feeling that we were now safe from a forced bivouac, that constant nightmare of the last five hours, we indulged in a brief rest. While swallowing a mouthful of chocolate and dry bread we reviewed the many little episodes, exciting moments, disappointments and hopes of the last two hours. But so far the sun had eluded us. When we first viewed the frozen waterfall the sun was shining on the cornice above; now it had disappeared to the other side of the mountain in its haste to sink into the Mediterranean, for we had taken over two hours to master the last hundred feet. Anxious to get warmed in its last rays, we began work once more. The climb up the final rocks was pure joy; the

plentiful handholds were still quite warm, and their touch was as welcome to our frozen fingers as the iced handholds had before been painful. We rose very rapidly and at 6 p.m. stepped out on to the top of Paglia Orba. A strong westerly wind somewhat counterbalanced the warming effect of the setting sun, but no discomfort could detract from the pleasure we all felt at the success of the day's venture.

The summit of Paglia Orba is covered by a large snow field (at least, as long as the snow lasts) sloping down from the north to south and east. As near to the highest point as possible we built a little cairn, within which we hid a piece of paper giving our names and a description of the route and times of the ascent. To indicate the spot to future climbers we wound a piece of spare rope round the rock. Pausing once more to look down the wonderful precipice of the north-east face, we rearranged the rope and set off towards the Col de Foggiale. We soon came upon a steep gully filled with firm, frozen snow and descended the first few feet cutting steps. Then, glissading down to the col, we dropped over the cornice and slid or ran down to the river and, wading through, regained our camp at 7.30 p.m., just one hour and a quarter after leaving the summit.

Our success was suitably celebrated by a *grand bal masqué*, followed up with the most glorious dinner of our lives. Two days later we struck camp and, casting many a look back towards the noble form of Paglia Orba, that Matterhorn of Corsica, slowly filed out of the Viro Valley towards Calaccucia, Corte, Ajaccio, and home, bidding Corsica *au revoir* but not adieu !

CHAPTER III

THE WETTERHORN

GRINDELWALD, the most popular of the climbing centres of the Bernese Oberland, is dominated by the Eiger and the Wetterhorn. The former is so close to the village that, owing to foreshortening, much of the majesty of its huge precipices is lost to the casual observer below. But the Wetterhorn, standing well back at the head of the valley, its great limestone cliffs surmounted by terraced glaciers upon which the snow-capped summit cone is so gracefully poised, has long appealed to the artist—so much so, indeed, that the view of the Wetterhorn from Grindelwald vies for pride of place with those of the Jungfrau from the Wengernalp and of the Matterhorn from the Riffel Alp.

My first climbing acquaintance with the Wetterhorn was destined to be a rude one. My brother Max and I had, for five seasons, served a faithful apprenticeship to mountaineering in the lesser Alps of Northern Switzerland and, long before the arrival of the summer vacation of 1908, had drawn up the plan of an ambitious climbing campaign which, beginning with the Wetterhorn, should lead us over the principal peaks of the Bernese Oberland into the Zermatt district, that Mecca of the mountaineering world. Starting from Meiringen, we had, by a circuitous route over the Gauli Glacier and the Wetterlimmi, gained the Dossen club hut, north-east of the Wetterhorn, whence the easiest way to the summit starts.

A party of five Germans, likewise bound for the Wetterhorn, shared the hut with us.

We left the hut at 2 a.m. on July 24, closely followed by the Germans who were roped in two parties. Walking up the snow slopes at a furious rate, they soon left us behind, for, knowing that our strength would be needed later on, we preferred to take things leisurely. Max and I arrived at the depression south of the summit and known as the Wettersattel, to find the Germans already breakfasting and bringing by no means small appetites to bear upon the generous contents of their knapsacks. A chilly north wind was blowing, and the sun had not yet reached us, so we cut short our rest and were soon forging up the final snow slope to the summit. The new snow which had fallen two days before, though it had obliterated the steps and tracks of previous climbers, was now good and firmly frozen ; the slopes were nowhere very steep, and with the help of our climbing irons we made rapid progress. Save for the last few feet there was no need to cut steps. The ascent had been easy—far easier than most of the climbs of our apprenticeship ; indeed, it seemed little more than a short mountain walk, for in less than five hours after leaving the Dossen hut we stood on the summit. The facility with which we had conquered this, our first really great peak, however, did nothing to mar our feelings of happy pride in the achievement. The wind had dropped and the sun was warm. With our axes we scraped out comfortable seats for ourselves in the snow and sat down to rest. Westwards from our feet the summit snow slope curved gently outwards to fall away in ever increasing steepness till it was lost to sight, and the eye rested on the green meadows above Grindelwald. To the south we saw the Schreckhorn, Eiger, Mönch, Jungfrau

and hosts of other giants of the Oberland, and in them beheld with happy vision a new world awaiting conquest.

Twenty minutes of supreme happiness stole away ere our solitude was interrupted by the arrival of two of the Germans. The other three had given up the ascent. The spell thus broken, we prepared to return and a few minutes later were making our way back to the Wettersattel, closely followed by the two Germans who there rejoined their friends.

It was our intention to descend on the Grindelwald side of the mountain. Part of the route leads down an immense gully to the Krinne Glacier. Arrived at the top of the gully, Max and I made our inspection and were satisfied. It seemed perfectly safe ; it was broad and not very steep, and the new snow that had fallen had already consolidated and was reliable and so firm that it might even be necessary to use the axe to cut occasional steps. There were traces of a previous party who had attempted the descent but had given it up. By the time we had completed investigations, the two Germans had already set off down the tracks. They had decided to be the leading party on the descent, an arrangement which we disliked exceedingly, but there was nothing for it but to follow meekly. In the light of future developments, it was lucky that their three companions, more modest regarding their capabilities, elected to come behind us.

Now, unless it is extraordinarily steep, there is only one correct way of descending a snow slope ; you go down with your back to the slope, facing outwards. Standing boldly erect with shoulders well back like a guardsman on parade, you walk unconcernedly downwards with toes well up, letting the impetus of your body drive the heel into the snow to make a good, reliable step. Do not take little mincing steps, one barely below the other, but plunge bravely. You will then

be sure of your foothold and make good headway. The Germans were evidently not accustomed to snow. They advanced with hesitation. Indeed, one of those behind us nervously faced into the slope and descended on all fours. About four hundred feet below the saddle, the tracks ceased. For some few feet farther, the leader of the party preceding us made sufficiently firm steps by kicking with his heels, but soon we found ourselves on much steeper and harder snow where step-cutting was imperative. The Germans betrayed an inclination to take to the snow and ice-plastered rocks to the left, but we warned them that safety lay only in laboriously cutting a way down in the hard snow bed of the gully. The leading German, however, soon abandoned step-cutting and moved out on to the rocks where he and his companion sat down, one close behind the other. Throughout the climb they had appeared to find difficulty in managing the sixty feet of rope to which they were attached ; seldom had it been taut from man to man, and now, as they rested, it lay in loose coils between them. Max and I carried on, cutting steps down the gully, and had passed below the level of the two Germans when I saw one of them stand up. He slipped. His legs shot out beneath him and he began to slide down over the slabs on to the hard snow slope below. He dropped his axe. I shouted out a warning to his companion who was, however, too startled to take up the slack of the rope which was fast running out as the man at the other end slid on with increasing impetus. He had by now turned over on to his face, and was scraping frantically into the hard snow with his fingers in a desperate endeavour to save himself. At length the sixty feet of rope had run out ; with a terrific jerk the second man was dragged from the rock and hurled through the air. Striking against a projecting crag, his left

arm was wrenched from the shoulder and his chest crushed in. The body went on until the rope's length was spent. Again a jerk, and the first man, whose pace had slackened as his comrade was dragged from his seat, was in his turn hurled through the air—to smash his head in on the rocks below. It was a sickening spectacle. The bodies bounded over and over each other in wide curves until the edge of the first great precipice leading down to the Krinne Glacier hid them from our sight. Their three companions, who had looked on aghast, were naturally in a terrible state of nerves. There was nothing to do but to go steadily on, and, not yet realising the condition of the party behind, Max and I turned our attention once more to step-cutting. We had not proceeded far before they implored us to lead them back into the Wettersattel. Cutting steps up past them, therefore, we joined their rope to ours, charging them to keep it always taut from man to man, and so made our way back to the saddle. Thence we descended with all possible speed past the Dossen hut to Rosenlaui, from where we telephoned news of the accident to Grindelwald.

Rude as this our first experience had been, it was not to be the end of our acquaintance with the Wetterhorn. The Wetterhorn has three summits, all just over 12,100 feet. The Hasle Jungfrau, probably because of its more imposing appearance when seen from Grindelwald, is usually called the Wetterhorn, although the Mittelhorn is higher by a few feet; the Rosenhorn is by only a few feet the lowest of the three peaks. They are connected by a lofty ridge running roughly from east to west. Having been informed that a traverse of all three summits in one day was regarded as something of a *tour de force,* this was the climb which headed our programme for the summer of 1909.

On July 24, Max and I once again made ourselves at home

Morning mists.

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in the Dossen hut. A school friend of Max, Will Sturgess, aged seventeen, accompanied us, keen as mustard and looking forward to his first mountain climb. That evening the weather broke and remained bad until the following afternoon, when a fierce westerly wind set in which swept away the clouds and lashed up from the ridges the newly-fallen snow. Towards sunset the gale dropped, and numerous parties arrived from Rosenlaui and Meiringen. We prepared our simple evening meal—pea soup, tea and plenty of bread and jam—and before nightfall were already seeking sleep on the straw of the bunks. But the ceaseless chatter, the noise of other people's cooking operations, and last but not least the insistence of the preponderating Teuton element on closed windows, despite the fact that the little hut harboured some thirty individuals, made rest impossible. Soon after midnight, no longer able to bear the stifling atmosphere, we jumped down from our beds and gathered round in front of the door to drink in the sweet, cool night air. A full moon shone from a cloudless sky, streaking the quiet snows with bands of silver.

We began to prepare breakfast, an example which was too soon followed by the other inmates, and so once more the little hut was filled with noise and bustle. Shortly after half-past one on the morning of July 26, we escaped into the peace of the night. In our rucksacks we carried only the essential needs for the day, it being our intention to return to the hut. Over the splendid, hard-frozen snow we mounted up to the Dossensattel—the little snow depression on the rock ridge at the lower end of which stands the hut—and within an hour had crossed it and were making our way horizontally over a fairly steep snow slope towards the Wetterkessel. Sturgess, who was in the middle of the rope, slipped twice, but as we always kept the rope taut from man to man he was easily

held, while on both occasions he retained his grip upon his ice-axe—a promising sign on the part of a beginner. We walked quickly across the Wetterkessel, for the wind was bitingly cold, and about an hour below the Wettersattel halted for a second breakfast, finding shelter in a shallow crevasse. The first red flush of dawn was creeping down the Hasle Jungfrau as we set off once more. In the snow at the foot of a great rock pinnacle in the Wettersattel we deposited our knapsacks. Sturgess, wishing to reserve his strength for later in the day, elected to remain here and await our return from the Hasle Jungfrau. In a wind-sheltered hollow he got the little aluminium cooking apparatus into action, and promised that we should have hot drinks when we came back.

We found the remains of good steps leading up the final snow slope and, at 6 a.m., within twenty minutes after leaving the Wettersattel, stepped out on to the summit. Not a single step had we had to cut. The wind had died down, and the sky was cloudless. Again we gazed into the snow and ice-clad recesses of the Oberland, no longer land of mystery, for in the summer of 1908 we had successfully invaded its fastnesses. Far below in the Wettersattel, numerous climbers were coming up from the Grindelwald side—little black spots upon the white purity of the snows. Sturgess was evidently feeling the cold, for we could see him occasionally forsake the cooking-pot and indulge in short runs; altogether he seemed to be exerting himself much more than we two. After spending half an hour on the summit, we cut steps along the snow ridge in the direction of the Great Scheidegg, until we could look down on to the little Hühnergutz Glacier on the cliffs of the Wetterhorn overlooking the Scheidegg. On our return we found several parties in possession of the summit, so, carrying straight on and plunging down the good snow, we

soon rejoined our companion who was waiting to welcome us with a cup of hot tea—veritable nectar to the climber on the heights. Max and his friend being inclined to dally over this, their third breakfast, I unroped and, leaving them to follow at their leisure, proceeded alone up the snow slopes leading to the Mittelhorn. There were no difficulties to be overcome, and presently I had gained the summit where I stretched myself out in the warm sun on some nearby rocks and went to sleep.

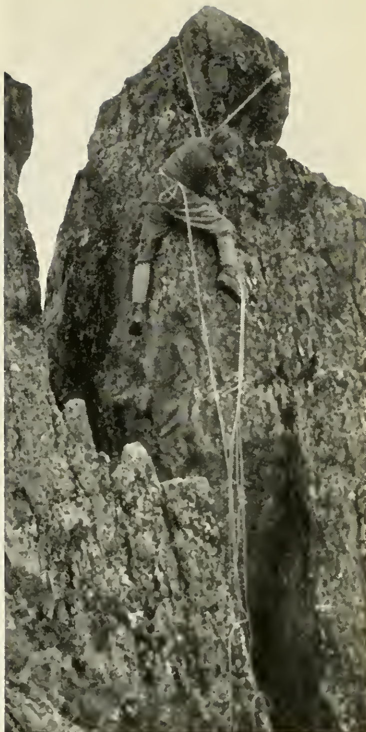
At 9 a.m. Max, with Sturgess in tow, rudely awakened me, and we made ready for the serious part of the day's work. Hitherto, though we had omitted none of the precautions so necessary for the safe carrying out of even the simplest of mountaineering excursions, the climb had seemed little more than a pleasant morning's walk. Now, however, we were confronted by the long, be-pinnacled ridge connecting the Mittelhorn and the Rosenhorn, and unless appearance and rumour belied it, we were not likely to have too little to do. We roped together. For the first half hour along the snow crest everything was straightforward, until we arrived on a rocky platform from which the ridge suddenly fell away in an almost vertical cliff. About thirty feet lower down was a ledge, narrow and sloping, but roomy enough to provide standing ground for all three. Max lowered himself over, while I, well braced, held his rope and paid him out foot by foot until he reached the ledge. Then came Sturgess' turn. He advanced boldly, but lacking my brother's rock-climbing prowess, he completed the descent by a free use of the rope. Now it was my turn. Max warned me that the pitch was too difficult to descend without help from above ; so I cut a short length off the end of our rope, tied the ends securely together to form a loop and hung it over a jutting-out spike

of firm rock. Meanwhile the others had untied themselves, thus giving me sufficient rope for subsequent manœuvres. Drawing up Max's end of the rope, I passed it through the loop and back to him, so that as I descended he could hold me from below like a weight on a rope passing through a pulley—the loop in this case performing the functions of the pulley—and check any disposition on my part to fall. Safe on the ledge, I recovered the rope by simply pulling on my end until the other passed through the noose. This and similar methods of descending difficult pitches of rock or ice are known to the mountaineer as "roping down."

A brief scramble over easy rocks led to the upper edge of another vertical step in the ridge, where we again roped down. This pitch, however, was much longer than the last and, in addition, it partially overhung. Here and there, also, it was plastered up with ice that was softening in the warm rays of the sun. It was practically impossible to climb, and for most of the way down I hung with my full weight on the rope while Max paid it out. The ledge on which we now stood was on the south side of the ridge, the backbone of which we soon regained by an easy traverse over good broken-up rock to the left. Here we made the aggravating discovery that, by previously adhering to the crest, we had missed a perfectly simple line of descent on the other side.

The way to the Mitteljoch, the depression on the ridge between the Mittelhorn and the Rosenhorn, was now clear. A few easy rocks followed by soft snow slopes brought us to the foot of a great rock pinnacle or *gendarme*. This was easily avoided by skirting round its base on the north side, keeping as high as possible in the steep snow slopes below its rocky flank. Before midday, we arrived at the foot of the north-west ridge of the Rosenhorn and began climbing over the array of bold,

Climbing down a steep ridge.



The short cut—roping down.

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red-brown rock teeth that form its crown. For nearly two hours, keeping well to the crest of the ridge, we scrambled merrily over *gendarme* after *gendarme*, finding the rock good and reliable on the whole, with little danger of foot- or hand-holds breaking away. Sturgess was feeling rather tired and occasionally required help. One extra long and steep crack taxed his powers to the utmost. A pull on the rope from above, however, and a push from below enabled him to drag himself on to the almost level platform at the top of the pinnacle, where for several minutes he lay and gasped like a fish out of water. Shortly after one o'clock the difficulties were over, and, seeing in front of us nothing more than an easy scramble to the summit, we settled down to a rest and a meal.

The cold wind to which we had hitherto been exposed had dropped, and the sun beat warmly down upon us from an almost cloudless sky. Presently I became assailed with doubts as to whether the highest point visible were really the summit or merely masking a loftier eminence farther along the ridge. To settle the question, I unroped and set off alone. An hour's easy clamber brought me to the point in question, to discover to my intense satisfaction that it actually was the summit of the Rosenhorn. I shouted the good news down to the others who were already making their way up towards me. At the same moment I found that my knapsack had been left behind at our resting-place. As Max and Sturgess had both overlooked it, I hurried down past them, retrieved my property and, climbing back in all haste, overtook them just below the top. At 3 p.m. all three stood on the summit. Sturgess immediately set about finding a comfortable couch for himself on a smooth, horizontal slab where he dozed while Max and I got busy with the cooker. An hour sped by quickly enough

to the pleasant accompaniment of the munching of stout sandwiches washed down by copious draughts of hot tea.

Meanwhile the weather was changing for the worse. A south wind had sprung up; great, woolly cumulus clouds had gathered on the horizon and were rolling over towards us. It was evident that a thunderstorm was imminent. So at four o'clock we packed up, re-roped and moved off along the south-west ridge over which the mountain is usually climbed. Relieving Sturgess of his knapsack, we climbed over a rocky point which is almost as high as the summit itself, and were soon making our way down over the easy rocks to the snow slopes leading to the Rosenegg. Curving round to the left, we then ploughed our way across the Wetterkessel in the direction of the Dossenhorn. The noonday sun had softened the snow, and at every step one sank almost to the knees in slush. Coming as it did at the end of a long day, the making of the track was toilsome in the extreme, and Max and I took the lead in turns. Sturgess, however, showed such hopeful signs of recovering his energies that we finally decided to regain the hut by climbing over the Dossenhorn instead of only crossing the Sattel. By so doing, one more summit would be added to the three already bagged—an important consideration in our early mountaineering days. The decision involved a slight change in route. Making for the Renfenjoch, the depression at the foot of the Dossenhorn, we struggled up through the soft, wet snow and at last gained the rocks of the south ridge of the mountain. Thence to the summit was an uneventful climb over good firm rock. We lost no time on the top. There was no view to be seen, for thick mists swirled round us and it began to sleet. Soon Max was swallowed up in fog as I paid out his rope while he descended the steep rocks in the direction of the hut. When

he had called out that he had found good, firm standing ground, Sturgess followed, while by a steady hold on his rope I checked any tendency on his part to gain too much momentum. Soon after leaving the summit the electricity of the highly-charged atmosphere surrounding us began to discharge itself slowly through our axes and the sodden rope, making a noise like the tearing of linen. Fearing the possibility of a more violent lightning-like discharge, we moved out on to the western flank of the ridge and hurried along with the greatest speed compatible with safety. We encountered no further difficulties and at length, at 7 p.m., after an absence of over seventeen hours, regained the Dossen hut, but not before we had been drenched to the skin by a torrential downpour of rain that had superseded the sleet.

Our gallant beginner showed naturally great fatigue, but we rubbed him until he was warm again and rolled him up in blankets. Max and I then prepared a hot meal and changed our sodden clothing as far as the presence of a party of ladies, who with their guides were bent on climbing the Dossenhorn on the morrow, would permit. Good food followed by a night's rest worked wonders for Sturgess who soon recovered from the effects of his hardships. He was a stout fellow, keen, uncomplaining and always ready to do his best, and had indeed acquitted himself splendidly on this, his first great mountain climb.

CHAPTER IV

THE JUNGFRAU

A GLANCE at the map of the Bernese Oberland will show that a straight line drawn in a north-easterly direction from the Breithorn to the Eiger will pass through, or close to, the Grosshorn, Mittaghorn, Ebnefluh, Jungfrau and Mönch. The ridge connecting these great peaks forms a lofty watershed flanked on the south by gently-rising glacier slopes and on the north by precipitous ice-clad cliffs and icefalls. Almost every route, therefore, leading from the north across this great connecting ridge constitutes an arduous ice-climb followed by a comparatively easy descent on the south side. Small wonder, then, that the guides of the Oberland, who live in close proximity to such a wonderful training ground, excel all others in the art of snow and ice mountaineering.

The ascent of the north face of the Jungfrau is reputed to be one of the finest ice expeditions in the Alps and, as such, attracted the boyish attention of my brother and me, incited as we were even in the earliest days of our climbing career by the picture of Himalayan adventure that hovered in the background of our minds. In the event of the picture coming to life, ice work, we felt sure, would stand us in better stead than mere agility on rock, and it was, therefore, our endeavour to perfect ourselves as far as possible in the more serious side of mountaineering, that is, in the intricacies of snow and ice-craft. The north face of the Jungfrau presents itself to

The north face of the Jungfrau.

". . . an imposing edifice of glistening terraces of ice and snow. . . ."

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the eye as an imposing edifice built up of glistening, greenish-white terraces of ice and snow of such purity that it were almost desecration to set human foot upon them. To the mountaineer, who is perhaps actuated less by poetic imagination than by the virile desire to pit his puny strength against a much stronger force, these great terraces become but the stepping-stones on the road to the summit. In number they are five—the upper reaches of the Guggi Glacier, the Kühlauenen Glacier, the Giessenmulde, the Silbermulde and the Hochfirn—forming a wonderful spiral staircase, as it were, betwixt earth and heaven. No better field could be found in which to test our skill and improve our knowledge; and it was this ambitious climb that figured next to the Wetterhorn in our programme for the summer of 1909.

Max, Sturgess and I, after traversing the three summits of the Wetterhorn, left the Dossen hut on July 27 for Rosenlaui, and thence walked over the Great Scheidegg to Grindelwald where we arrived with barely an hour to spare before the last train of the day was due to leave for the Little Scheidegg. That hour was a crowded one. Boots required re-nailing and patching up, a stock of provisions sufficient for eight days had to be laid in, and all superfluous baggage bundled up and posted off to Zermatt, our next port of call in the valleys. We spread out into the village bazaar where, thanks to a good distribution of labour and unstinting use of what we were pleased to imagine was Swiss-German, we stirred up the kindly but stolid Grindelwald shopkeepers to unwonted activity and succeeded in arriving at the station just on time. The spectacle we presented—dissolving in perspiration, weighed down by bulging knapsacks, with climbing irons, cooking apparatus and ropes slung on anyhow, loaves of bread tucked under our arms—caused some merriment amongst

the trippers who thronged the waiting train. However, we succeeded in finding room for ourselves and belongings and utilised the leisure afforded by the journey up to the Little Scheidegg in repacking stores in more convenient and comfortable fashion. We also made the acquaintance of the famous Swiss climber, the late Dr. Andreas Fischer who, with the two guides Hans Almer (son of Christian Almer, in his time the greatest of Swiss guides) and Ulrich Almer (son of Ulrich, Christian's almost equally renowned brother), was, like us, bound for the Guggi hut. All three were extremely kind to us. We told Dr. Fischer that Max and I intended to climb the Jungfrau from the Guggi hut. Somewhat amazed and not a little concerned at this bold project on the part of two mere boys, he urged us to be careful. When we assured him, however, that we were fully aware of the toughness of the impending task and intended to spend at least one whole day in reconnoitring the way and cutting the necessary steps up as far as the Schneehorn, he saw that we meant business and returned our confidences by telling us of his own ambitious plans, from which it appeared that our roads would lie together as far as the Schneehorn. There, however, our ways would part, for it was his intention to cut up long and tremendously steep ice slopes to the then unascended north-east ridge of the Jungfrau and climb over that ridge to the summit.

In spite of the novelty of our surroundings and the wonderful aspect of the Eiger, Mönch and Jungfrau as seen from this side, the walk from the Scheidegg over the Eiger Glacier to the hut was, for us with our heavy loads, far from being a pleasure. More lightly laden, Fischer and his guides soon outstripped us, and it was with a sigh of relief that, just before nightfall, we arrived at our destination.

The old Guggi hut, now almost disused, is one of the smallest in the Alps, measuring as it does in floor space only ten feet by twelve. In 1909 more than half that space was taken up by two tiers of straw-filled sleeping bunks, and what remained was largely exhausted by a tiny stove and rickety table. Within comfortable walking distance of the Eiger Glacier station of the Jungfrau railway, the hut is frequently visited by trippers, a section of the community noted in the Alps for the trail of disorder they leave behind them; and we arrived to find the Almers endeavouring to clear up the pigsty condition in which they had found our resting-place for the night. We lent a hand and, a semblance of tidiness once more restored, prepared a simple dinner and turned in to sleep. There was a rug for each man and one huge horse blanket which sufficed to cover us all, so we slept warmly.

Shortly after midnight the disturbing ring of my alarum watch drove us forth to inspect the weather. The night air was warm, and long streaks of fish-shaped clouds in the west threatened trouble. Fischer's party required settled weather for their expedition, and as on the first day we only intended prospecting as far as the Schneehorn and could, therefore, afford to wait for an hour or two, all turned in again to sleep while waiting for the weather to show its hand. At 1 a.m. Max and I became impatient. Prospects were still doubtful, though for our purposes fair enough. The Almers could not make up their minds to start; but we, not so dependent upon the weather, decided to clear for action. Dr. Fischer now came forward with a plan which, even then, I realised was prompted by his anxiety for our safety and the liking which he had already formed for us. He suggested that we should join forces and go together as far as the rocks of the Schneehorn and bivouac there for the night. Next morning, weather

permitting, we could then complete our climb, and he and his guides would carry on with their great task. We at once fell in with this generous proposal. Hans and Ulrich, hitherto obviously downhearted at the idea of a day's idleness, now brightened up. One by one we crawled out of our bunks—the cramped space would not allow all to get up together—and while the cooks monopolised the interior, the rest of us busied ourselves outside the hut, groping for clothes in the darkness, seeking the more elusive garments with matches and generally completing our toilet under difficulties. Breakfast, coming so soon after a late supper, was but a shadow of a meal; and it was barely half-past one when, shod with climbing irons, we put on the rope and, bidding good-bye to Sturgess who intended returning to Grindelwald in the course of the day, stepped forth with lighted lanterns into the night.

With a few steps we had left the ridge upon which the hut stands and were proceeding through the icefall of the Guggi Glacier. Max and I had an easy time of it here. We could not risk wounding the feelings of such splendid guides as the Almers by offering to take our share in finding the way, and therefore had to content ourselves by following in our best style, always paying attention to the correct handling of the rope. Once, while making our way round the corner of an ice pinnacle below which yawned the black depths of an appalling crevasse, Dr. Fischer expressed anxiety for our safety. But Hans, watching us coming along, reassured him: "They are sure-footed like cats; they know how to use the rope; they are quite safe": ample reward for the self-restraint we had imposed upon ourselves in not attempting to take the lead. Young Ulrich, who went ahead, had plenty to do. The icefall is very broken up. Clambering over or round, or even under enormous séracs, towering all about us like the suddenly

The icefall of the Guggi Glacier.

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frozen waves of a storm-tossed sea, we gradually made our way upwards, amidst a brooding, gloomy silence that was rendered more vast and impressive by the occasional chipping of Ulrich's axe, the tinkling of fragments of falling ice and the crunching sound of the climbing irons as their sharp points bit at each step into the ice.

Almost at the head of this first icefall we encountered the most serious of its defensive barriers. A huge crevasse, a great open gash, stretched across our path and was lost in the darkness, its bottom far beyond the reach of the dim light of the lanterns. Hans having paid us the compliment of asking us to explore out to the left while his party reconnoitred to the right, we were fortunate in soon discovering a solution to the problem in the shape of a slender flake of ice forming a fragile bridge. After some judicious step-cutting, the flake being too frail to endure much belabouring, we were across and shouting the news of our success to the others, already returning from a fruitless search.

All now lay clear before us up to the foot of the second icefall, where the Kühlauenen Glacier tumbles down on to the Guggi in a mighty mass of séracs. Uncrevassed slopes, gentle at first but rising up more steeply as we mounted higher, brought us rapidly to the foot of the icefall where we foregathered and studied the outlook while waiting for the pale light of dawn to enable us to stow away the lanterns. Beyond the frozen torrent of séracs merging into the Guggi Glacier stretched a great vertical wall of ice, a gaunt, lofty rampart forty to sixty feet high, which gleamed clear and unbroken in the cold, grey light from under the cliffs of the Mönch right round to the rocks of the Schneehorn. It was plain that the obstacle could not be turned ; the flanks were too well guarded by steep ice-glazed and avalanche-swept rocks. Yet nowhere

was there apparent a flaw which would aid the besieger. In Hans Almer, however, there was no lack of decision. He seemed to act on the principle of poking his nose right into a difficulty in searching for its key. Presently, with a cheery "Come along!" he cut ahead and, with amazing speed, worked his way through a steep tangle of crevasses and séracs, never at fault for a means of negotiating the many obstructions met with, until we arrived on a débris-strewn ledge at the base of the great ice cliff. Haste had been imperative, for almost throughout this passage we had been endangered by lurching monsters of séracs. It is true we were still in the shade, and according to the best authorities séracs do not fall until the warmth of the sun's rays or the hot breath of the föhn wind strikes upon them. Later in the day Hans emphatically characterised such beliefs as "Unsinn," and told me that, in his experience, séracs fell just when they thought fit and often displayed the greatest activity on cold and frosty nights when it behoved them to be asleep. My later observations tend to show that the falling of séracs is most likely to occur just before sunrise, during the coldest hours of the night. On the east face of Monte Rosa I once counted sixteen falls of ice and séracs between 3 and 4.30 a.m., eleven between 6 and 8 a.m. and two between 3 and 4 p.m.

The swift scramble up the séracs had somewhat robbed us of our breath, and we welcomed the brief halt which a search for a possible breach in the great ice wall before us demanded. Immediately above, the wall showed sure signs of disintegration; several great sheets of ice were in process of detaching themselves. One monster, fully fifty feet in height, leaned forward in an ominous manner. As its fall would have strewn with blocks the ledge where we stood, Hans moved over to the right where a great square-cut

bastion of undoubted firmness afforded security from the perils of falling ice. From here we sighted the one and only weak spot we were ever able to detect in the great barrier. A huge crevasse in the glacier above cleft the wall in twain, and were it but possible to gain the floor of this crevasse, the problem of surmounting the wall itself would no more exist. But the approach to the chasm was defended by an immense archway of rickety séracs which looked ready to collapse at any moment. The presence of masses of very broken ice under the archway promised slow and, therefore, unsafe progress, and Hans decided that we must look round for another way out of our trouble. Max and I were told to climb to the top of the bastion now shielding us and to report on the prospects as seen from up there. The others, bent on a similar mission, moved along the ledge towards the Schneehorn rocks. But neither party had any luck ; there remained nothing but to risk the archway passage or retire, beaten. We were on the point of leaving the issue to chance by tossing a coin, when nature stepped in and providentially staged a thrill. Suddenly a loud crashing as of thunder was heard, and the ground upon which we stood trembled and shook under the impact of tons of ice blocks ; dense clouds of ice dust filled the air and, enveloping us, hid everything from view. As the mists slowly thinned we saw that the giant archway had fallen in. The ruins, choking up the floor of the crevasse, furnished us with a causeway giving egress to the glacier above. The god had indeed descended from his chariot. Without the necessity of cutting a single step, we arrived a few minutes later on the almost level plateau of the Kühlauenen Glacier, the second of the five glacier plateaux characteristic of the north face of the Jungfrau.

Meanwhile, the weather had not improved. By now we

ought to have been able to bask in the warm rays of the rising sun, but fish-shaped clouds filled the morning sky, and great masses of clammy mist floated up the Guggi Glacier and rolled down upon us from the Jungfraujoch. A snow-storm was brewing. We sat down in the snow for a rest and, while eating a few biscuits, noted the best point for crossing the bergschrund which defends the approach to the rocks of the Schneehorn. The mists had closed in ere we began the final stage of the day's work. Largely filled up with masses of snow and fallen stones, the schrund was easily crossed, and, walking up a short slope of good snow, we soon gained the rocks which were dry and firm and nowhere actually difficult. Knowing our dislike for merely following in the footsteps of others, Dr. Fischer tactfully encouraged us to choose our own line of ascent. So henceforward we climbed on a level with, and some distance out to the left of, his party.

At 9 a.m. we arrived at a point about halfway between the bergschrund and the summit of the Schneehorn and, observing that the rocks higher up were sprinkled with new snow, decided to look round for a suitable site to bivouac. Failing to find a platform large enough to seat all five together, we rummaged about in detachments for convenient ledges and eventually settled down within speaking distance of each other.

The ledge chosen by Max and myself was small and narrow. With our backs to the wall above and feet dangling over the cliff falling away to the glacier below, we planted the cooking apparatus between us. The next two hours were spent partly in attending to cooking operations and partly in chipping Hans Almer who, every few minutes thinking he espied a more suitable abode than the one he was occupying at the time, was continually on the move changing

house. At 11 a.m. it began to snow in a desultory, intermittent manner. Then came a sleet and hail storm with chilly gusts of wind from which there was no sheltering. Before midday it snowed in real earnest, and it was obvious that, unless an immediate change set in, there could be no hope of our continuing the climb next day. New snow lay two inches deep over the rocks when, at one o'clock, Dr. Fischer gave the word for retreat.

The descent over the now snow-covered rocks demanded great care ; but, once down on the glacier, we plunged in long strides over to the crevasse in the great ice wall. The steps of the morning were all obliterated, but, unhesitatingly and in spite of the mist and snow, Hans unravelled his way through the séracs and presently brought us out on to the Guggi Glacier. Dr. Fischer elected to rest here ; but Hans told us to go straight on, advising us not to retrace the line of previous ascent, but to try and get through over on the right bank close under the rocks of the Mönch. Acting on his advice we found there a good way and at 3 p.m. were safely back in the hut.

Presently Dr. Fischer's party arrived and, after a brief halt, returned to Grindelwald to await more auspicious weather. Max and I, having a stock of provisions sufficient for more than a week, could afford to wait on the spot, ready to drive home a renewed attack as soon as the weather cleared. In the early hours of the morning of July 29, the sky was still overcast ; so we slept on well into the day, awaking, too late for breakfast yet too early for lunch, to find the sun blazing down from a cloudless sky and dissolving the rolling billows of cloud in the valleys below. After an orgy of a meal that we elected to call " brunch," we basked on the roof of the hut until, early in the afternoon, the sun sank

behind the Jungfrau. Towards evening we carried our surplus provisions over to the Eiger Glacier to be forwarded by rail to the Eismeer station. On returning to the Guggi hut, we found Dr. Fischer and his guides once more installed therein, full of confidence in the prospects.

At 2 a.m. on July 30, we again set forth on our quest. Not a breath of wind stirred ; the sky was cloudless. Hans Almer sent us on ahead to lead the way. Knowing the ground well now, we forged up through the first icefall and came to a halt on the gentle snow slopes at the foot of the Kühlauenen Glacier icefall, there to await the arrival of the others. They had no sooner reached us than Dr. Fischer found that he had lost his tea flask, so he and Hans went back to look for it. In the meanwhile Ulrich and we two shivered and stamped about in a vain endeavour to keep warm. Just as it was becoming light enough to dispense with the lanterns, Dr. Fischer rejoined us, having found his precious flask in the snow at the very edge of an immense crevasse just above the Guggi icefall.

By 5 a.m. we were walking over the almost level basin of the Kühlauenen Glacier and soon afterwards were grappling with the rocks of the Schneehorn—no longer without difficulty, for much fresh snow hampered us in the finding of foot- and handholds. Beyond the site of our bivouac of two days ago, we found the rocks so buried in snow that Hans had to clear a way with his axe. Progress was accordingly slow, and it was not until 7 o'clock that, cutting through the little cornice at the head of the final, short, steep, snow slope over which the summit of the Schneehorn (11,200 ft.) is approached, we set foot on the Giessenmulde, the third of the five plateaux. Henceforward our ways lay apart. While Max and I were bound for the direction of the Little Silberhorn,

" We basked on the roof of the Guggi hut."

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Dr. Fischer and his guides were to turn off to the south towards the immense slopes of gleaming ice leading up to the north-east ridge of the Jungfrau. But so quickly are friendships formed in the mountains that already, after such a brief acquaintance, we were by no means loth to retard the hour of parting by settling down to breakfast.

At a quarter past seven Dr. Fischer said, " Now then, you boys, it 's time you were off ! " and, after bidding an " Au revoir " all round and expressing the hope that we would meet on the summit, Max and I got under way. While crossing the level, hard-frozen snow surface of the Giessenmulde, we had ample time to study the icefall guarding the approach to the Silbermulde, the fourth glacier plateau. This icefall was obviously formidable, and it looked as if a huge, unbridged crevasse which cut across it might prove, if not insuperable, at all events a source of much delay. The icy north-east ridge of the little Silberhorn, however, offered a sure, even if arduous, means of flanking the obstacle ; and we quickly decided to choose the harder work of cutting up this ridge in safety, in preference to the less laborious but much more uncertain and, on account of possible falls of ice, perhaps dangerous passage through the icefall. The ridge was covered with a thick layer of crystals of rotten ice, in which two, or at the most three, well-directed blows of the axe sufficed to make a good step. Working hard and as fast as possible, we rose so rapidly that, half an hour after leaving the others who were now just beginning to tackle their big ice slope, we arrived on the beautifully curved ice ridge which forms the summit of the little Silberhorn. After a brief descent, we crossed the Silbermulde and faced the next difficulties, a great bergschrund and a short, but very steep, ice slope below the Silbersattel. Over to the left, away from the Silbersattel, the two edges

of the bergschrund approached more closely together, so that by discarding my rucksack and standing on Max's shoulder I was able to effect a lodgment on the slope above. I then saw that, to get over to the Silbersattel, handholds and footholds would have to be cut round to the right, past an almost vertical ice bulge. Only the right hand could be used to ply the axe; the left would be fully occupied in holding on. Max unroped and tied himself on again, but this time at the extreme end of the hundred-and-fifty-foot rope; then, after carefully working round the bulge, I was able to cut straight up into the Silbersattel where, finding good standing ground, I held the rope firmly and afforded Max, with his double burden of rucksacks, the necessary assistance over the bergschrund and round the bulge. It is quite probable that in some seasons this obstacle may prove impassable. The Silberlücke, however, could always be gained by crossing the Silberhorn, a roundabout route which would entail some loss of time. The ridge known as the Silbergrat, stretching up before us to the Hochfirn, commences in a great rock pinnacle which looked difficult, but was, with the ensuing ridge of good firm rock, quite easy, though enthrallingly interesting in view of the dizzy precipices that fall away to the Lauterbrunnen Valley. Higher up, cornices, wind-whirled into fantastic shapes, crowned the ridge. We hacked them down and strode triumphant over their battered remains until at length the rocks merged into a slender snow crest, along which, swinging the axe in rhythm with our pace and leaving a step after each blow, we passed quickly over to the Hochfirn, up which, almost knee-deep in soft snow, we laboriously plodded our way.

The day was now won; no further difficulty lay between us and the summit. It was still early, and time was our own to squander as we willed; so, veering towards the left, we

stamped through deep snow up on to the Wengern Jungfrau (13,320 ft.), the lower summit of the Jungfrau, in order to see how Dr. Fischer's party were progressing. They were still far below the north-east ridge—three tiny black dots sticking like flies to the smooth, glassy wall. Our shouts of triumph were faintly echoed by them; then, realising that there would be no chance of our meeting up here, we turned towards the true summit of the Jungfrau (13,668 ft.) and, walking up the easy rocks of the south ridge, soon gained the top. It was 11 a.m.; we had been in all only nine hours *en route*, and of those nearly one hour had been spent down below the Kühlauenen icefall, awaiting dawn.

As on our last visit to the Jungfrau, the view was clear. To the north we looked down into the valleys of the Bernese Oberland, invitingly clad in the soft, restful colourings of forest, pastureland and lake. Southwards, the gaze passed over glaciers and snow-clad mountains, through the bluish haze rising from the dark rift of the Rhône Valley to beyond the Pennine Alps, and lingered at last on the glistening snow cap of Mont Blanc. The hardest part of the day's work was over. The air was warm, still and languorous, so, after setting the cooking apparatus on to melt snow for a brew of tea and having, by way of precaution against the consequences of any tendency to sleep walk, belayed the rope to our axes driven deep into the snow, we lay down and were soon wrapt in slumber.

Two hours later we awoke at the chill touch of a gust of wind. Clouds hovered all around, warning us of the approach of yet another spell of bad weather. We finished lunch and made ready for the descent by the ordinary route to the Bergli hut. As was to be expected, we found a beautiful staircase of immense steps already cut in the moderately

steep snow slope leading down to the Rotthal Sattel. The bergschrund below the saddle was smaller than we had ever known it before, and soon we were plodding a monotonous way over the Jungfrau Glacier through the now thoroughly softened snow towards the Mönchjoch. There was not a breath of wind ; and so fiercely did the sun blaze that we almost marvelled that the whole glacier did not turn to water. At 4 p.m. we arrived at the Bergli hut. The sky had become completely overcast ; but, though the sun was obscured, the air was hot and stifling. A break in the weather seemed certain ; a matter of small concern to us, however, for our labours had been so strenuous that a day of enforced idleness was a welcome prospect. At 6 o'clock we turned in and slept peacefully and uninterruptedly until 8 a.m. next morning.

Dr. Fischer and the Almers had arrived at the hut about midnight. They had gained the north-east ridge, only to be driven down to the Jungfrau Glacier by bad weather. Snow-glasses are apt to disturb one's aim when cutting steps, and as the Almers, for this reason, had not worn theirs during the ascent of the great ice slope, they were now snowblind and in considerable pain. But they were a merry pair of companions notwithstanding. After a joint breakfast, we all went over to the Eismeer station, Fischer and the Almers leaving for Grindelwald while Max and I returned to the Bergli hut with a fresh supply of stores. Early in the afternoon the weather showed unmistakable signs of mending, so we settled down to try and shape our somewhat uncertain plans for the future. Our first big ice climb had left us with a voracious appetite for more. The wicked, green shimmer of the appallingly steep ice slope leading from the Kühlauenen Glacier up to the Jungfraujoch held out a persistent challenge. But how to get there from the Bergli hut ? The solution was

simple, if perhaps a little ambitious: climb the Jungfrau, descend the north face to the Kühlauenen Glacier, and then cross over the Jungfraujoch to the Concordia hut. The north face had already so far exceeded our expectations for ice-work and wonderful scenery that there was no fear of our finding a renewed visit dull. The ascent to the Jungfraujoch would provide some hours of continuous step-cutting, and we were still in need of practice with the ice-axe. Furthermore, by descending to the Concordia hut we should find ourselves well on the way to Zermatt. Fair dreamstuff for the mountain-mad! Content and expectant, we turned in to sleep.

CHAPTER V

THE JUNGFRAU AND THE JUNGFRAUJOCH

ON reading the early annals of the Alpine Club, one cannot but be struck by the outstanding popularity of snow and ice-climbs and by the standard of efficiency reached in such climbs by the pioneers. The climber of to-day has added but few to the long list of wonderful ice-climbs that stand to the credit of his forerunner in the sixties. Ice-climbing has fallen into disfavour, but immense progress has been made in rock-climbing—a deplorable but readily explicable state of affairs. Since the early days, the army of climbers has become greatly inflated and embraces many who can spend only some short two summer weeks in the mountains. It is but natural that they should take the shortest way of getting to the summit. The novice who is sound in wind and limb can do well on rocks even at his first attempt. The traces of the man who was there before him still show clearly. Little scratches tell where to look for hand- and footholds and are reassuring testimony that another has accomplished and, therefore, encouragement to emulate. The rocky way does not change from day to day and but little from year to year, and with every fresh scratch the route becomes more easy for the next climber, so powerful a stimulant to the human will is the knowledge that another has attained. Thus even the greatest rock-climb becomes in time a gymnastic feat, a trial of purely physical strength. But there is no royal road to becoming a great ice-climber. Much spade work, both

practical and theoretical, and demanding time, hard work, conscientiousness and unbounded enthusiasm, has to be done. Snow, sun, wind and the eternal flow of ice obliterate all comforting tracks, and the ice-mountaineer has to choose and make his own route. Thus the true ice-climber is always a pioneer.

It is obvious that the would-be ice-climber must learn the art of cutting steps in ice or hard-frozen snow. A step can be fashioned with almost any sufficiently hard and pointed instrument. I once cut four steps with the big blade of a pocket-knife; on another occasion I made several with a sharp-pointed bit of granite. The steps were almost as good as if they had been hewn out by the orthodox weapon, the ice-axe; but in each instance the process involved a far greater expenditure of time and labour than would have been the case had I been properly equipped. The ice-axe is the best step-cutting implement known; but there are axes *and* axes. As differ the makeshift and the inferior axe, so differ the inferior axe and the good axe. Both the makeshift and the inferior axe are spendthrifts of time and energy. When only a few occasional steps have to be cut, the consideration of a moment's waste here and there may be negligible; but on an expedition where step-cutting is the order of the day, prodigality of humble seconds makes a mighty total that cannot be ignored. A first-class axe is a *sine quâ non*. What, then, is the criterion of a really useful axe?

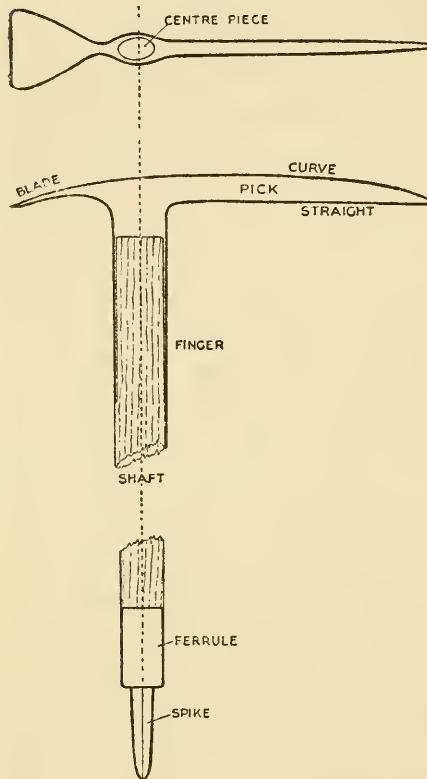
It may be stated without much fear of contradiction that only the craftsman who knows how to use the implement of his craft can express a sound opinion as to the merits of any particular example of that type of implement. Strange, then, it is that nearly all climbers will take hold of an

ice-axe and, wisely shaking their heads and furrowing their brows, proceed to pronounce judgment upon it, despite the fact that it is common knowledge amongst trained and experienced mountaineers, both amateur and professional, that more than ninety-nine per cent. of the climbing fraternity are ignorant, not only of the art of step-cutting, but also of many of the other important uses to which an axe may be put. It should be noted that there is all the difference in the world between cutting a few incidental steps and undertaking the lead on an expedition where step-cutting is the rule. For the vast majority the ice-axe is, in reality, an unmitigated nuisance; a thing that is always getting in the way; too cumbersome to use as a walking-stick; a collection of sharp, steely points and edges ever making painful contact with the more vulnerable portions of both his and other people's anatomy; an immobiliser of a hand sorely needed to clutch at handholds; twenty-five francs' worth of uselessness, and often to be renewed because of its remarkable propensity for falling down cliffs and its owner's no less remarkable propensity for throwing it away whenever he slips; an inferior opener of tins and a mangler of the contents thereof; a poor instrument for driving in nails and no respecter of fingers. All save a small minority of climbers would be far better served by a stout, crook-handled walking-stick which can almost always be induced to perform at least the one function implied in its name.

The two most important uses to which the mountaineer expects to put his axe being to cut steps in ice or snow and to employ it as a belay when driven into either, the design of an axe should be governed largely by these two requirements. The different parts of an ice-axe are as follows:—

The head consists of the pick (with the straight, curve and point), the centre-piece, the blade (which is connected to the rest of the head by the neck), and the two fingers by means of which the head is attached to the thicker end of the shaft. The other end of the shaft carries the ferrule and spike. The head of the axe should be hand-forged, and the metal must be neither so soft that it bends easily nor so hard that it is readily fractured. Measured from the middle of the centre-piece, the lengths of pick and blade should be 8 in. to 8½ in. and 4¼ in. respectively. The straight of the pick should form a right angle with the axis of the shaft. If the angle is more or less than a right angle, excessive vibration of most unpleasant character is readily set up while cutting steps. The width of the cutting edge of the blade should be from 2¼ in. to 2½ in. The fingers should not be less than 6½ in. in length, and the rivets by means of which they are attached to the shaft must not exceed three in number. As they pass right through the wood, they tend to weaken the shaft and must not, therefore, be unduly multiplied. The shaft of the axe should be made from well-seasoned, straight and fairly close-grained ash and occasionally dressed with linseed oil. For a man about six feet in height, an overall length of 33 in. to 35 in. is the most suitable. A shorter man would do well to use a shorter axe. A longer axe gets in the way more easily, is more difficult to handle, disturbs the aim and, on account of the greater vibration set up at each blow, unduly tires the hands and is liable to cause blisters. For similar reasons, the shaft should not be round in section but elliptical. A round shaft does not fit so closely into the hand and, weight for weight, is also less strong than the oval one. At the head, where the fingers are attached to the shaft, the larger diameter should be 1½ in., the smaller ⅞ in., tapering at the ferrule to

$1\frac{1}{4}$ in. and $\frac{15}{16}$ in. respectively. Some climbers tack a leather ring or similar protuberance round the shaft, a few inches above the ferrule, with the object of affording a better grip and so preventing the axe from slipping through the hand when cutting steps. Apart from the fact that there is no reason why an axe should not be grasped in such a manner that it does not slip in the hand, such a contrivance is liable to cause blisters and seriously interferes with an important function of the axe, namely, the testing of snow bridges over crevasses and otherwise sounding the condition of snow. Some makers construct the ferrule and spike in one piece. Such an arrangement lacks the strength of the simple ferrule and spike made separately. The ferrule should not be too short, or it may fail to hold the spike or give sufficient protection to the shaft. The protruding portion of the spike should be $2\frac{1}{2}$ in. to $2\frac{3}{4}$ in. long, of square section $\frac{5}{16}$ in. where it emerges from the shaft and tapering off to a rounded point. Many amateur climbers adorn the heads of their axes with slings made of leather or of some woven material, the object being



to enable the owner to carry his axe by passing the sling over the wrist and thus leave the hand free for climbing. This is a dangerous practice. An axe carried in this manner is liable to get caught up in the rock and may thus lead to a serious disturbance of the climber's balance. Furthermore, such slings must be removed when step-cutting is necessary. The proper way to carry an axe, when climbing rock where one does not wish to have a hand encumbered, is either to tuck it into the rope at one's waist or hang it through a small loop at the back of one's rucksack. So placed, it can be readily and without loss of time taken out when wanted and as easily put back. On very long rock-climbs, where the axe is perhaps not needed for hours on end, probably the best way to carry it is to pack it head downwards into one's rucksack with the spike end protruding at the top.

Climbing irons, also known as crampons, or ice-claws, are of the greatest assistance to those mountaineers who know how to use them. A climbing iron consists of a steel framework which can be attached to the climber's boot by means of straps or thongs, and is provided on the under side with a number of sharp points, teeth or prongs. These should number either eight or ten, preferably the latter ; four to the heel and the remainder to the sole. A badly-fitting climbing iron is worse than useless, inasmuch as it may prove a source of danger. The position of the teeth should be such that they approximately follow the contour of the sole and heel of the boot. Above all, it is essential that the front prongs should be placed well to either side of the toe and at least level with the tip of the boot, if not actually projecting. The two prongs at the back of the heel should be similarly placed. The prongs should be sharp and from 2 in. to 2½ in. in length, and, to obviate the necessity for frequent

re-sharpening and consequent excessive shortening of the teeth, the use of the climbing irons on rock should be avoided as much as possible. When the prongs are worn down to a length of 1½ inches it is advisable to discard the irons altogether.

Nowadays, almost all climbers take crampons with them even on the simplest of ice excursions. Few, however, use them to the best advantage. When traversing across or climbing up a hard snow or ice slope without irons, the sole of the boot is always more or less at right angles to the slope. The edge nails on that side of the boot which is nearest the slope must do all the necessary gripping, and before the incline becomes so great that these slip, the axe must be resorted to and steps cut. Most people use climbing irons in a similar fashion, though, as a rule, the sole of the boot is kept nearer to the horizontal. In traversing an ice slope in this manner, it is true that the spikes of the crampons on the side nearest the slope will grip better than the boot nails alone would do and thus enable one to postpone the use of the axe. But in climbing vertically upwards only the two front prongs will bite into the ice, with the possible result that they may chip it away without securing reliable hold. To get the best use out of climbing irons, it is necessary to tread with the sole of the boot as far as is possible parallel to the slope. In this way all the points will be utilised. So used, sharp, long-toothed climbing irons will enable one to overcome extremely steep snow and ice slopes without the need of cutting steps. It is essential, however, that all members of the party be equally well equipped from the point of view of climbing irons and skill in using them. The inclusion of one who is deficient in either respect will make imperative the cutting of steps where it might well have been avoided. The climbing irons

which Max and I had in 1909 were most defective in design. The teeth were short, barely one inch in length, and blunt, and the toe and heel prongs, instead of being level with, or projecting from, the toe and heel of the boot, came underneath. We were forced, in consequence, to cut almost as many steps as if we had had no crampons at all. They did assist, however, in that they enabled us to stand more securely in our ice steps and obviated the necessity of carefully cleaning out and making smooth the floor of each step.

At 12.30 a.m., on August 1, 1909, Max and I crept down from our sleeping bunks and stealthily, lest we should disturb the still slumbering occupants of the hut, proceeded to light the fire for breakfast and prepare for our departure. At 1.15 a.m. we were outside the hut putting on the rope and otherwise ready to move off. The night was calm. Up the snow slopes above the hut to the Mönchjoch we made our way, lighted by the fitful glare of the lantern through a black shadowland girdled by a belt of silver whence, under the brilliancy of the full moon, the grotesque séracs, like sheeted spirits, kept watch over the eternal solitudes. Our pace was good, and soon we topped the Mönchjoch and, stepping from out the shadow, crossed the head of the Ewigschneefeld. Rounding the corner of the south ridge of the Mönch, we strode through a glittering fairyland to the music of hobnailed boots crunching into the hard-frozen snow. On the Jungfrau Glacier, immediately below the Jungfraujoch, all superfluous baggage was dumped, to be picked up on the way down to the Concordia hut after the climb. We fastened on crampons, and were soon climbing up the snow slopes leading to the Rotthal Sattel, below the final bergschrund of which a brief halt was called for a scanty meal—a couple of biscuits, which

should, as all climbers know, have been washed down by warm tea. We had, however, to dispense with the tea; the flask containing it eluded my grasp and, sliding down the slopes below, plunged into the black depths of a great crevasse. No loss, they say, is without its compensating gain; I had now, at any rate, less weight to carry, and snow would serve almost as well to assuage thirst. The Rotthal Sattel was swept by an icy west wind, so we raced full tilt up to the summit and arrived there on the stroke of five, just as the upper edge of the sun peeped over the horizon. For some moments we stood in wonder at the daily miracle of dawn as it skimmed from glacier to glacier, from mountain-top to mountain-top, and stirred the earth to blushing wakefulness. But all too soon we became aware of a cold wind seeking its way through our rather light clothing and noticed that our toes were beginning to lose sensation, our boots being badly fashioned with low toe-caps. Turning towards the north, we ran down over the Hochfirn at a breakneck pace, in the hope that hard exercise would chase away the chill. Along the Silbergrat and down past the Silberlücke the mad rush continued until, gasping for breath, we gained the shelter of the Silbermulde. Down the little Silberhorn fresh steps had to be cut, our old ones having vanished; and, as during this operation Max had felt the cold again, we ran across the Giessenmulde to the Schneehorn. Descending the rocks, now almost free from snow, we gained the Kühlauenen Glacier and crossed it in the direction of the huge bergschrund guarding the approach to the ice slope leading up to the Jungfraujoch. We sat down on the lower lip of the bergschrund to rest before tackling what promised to be the most arduous part of the day's task, and also to satisfy hunger with a sparing meal of bread, chocolate and snow. Max

Cutting steps over the upper lip of a bergschrund.

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having relieved me of my knapsack which he packed into his own, we readjusted the climbing irons, taking up all the slack in the thongs by which they were attached to our feet, and set off to discover a way across the schrund. Not until we had explored well over to the left, underneath the great séracs that flanked the left of the slope up which we intended to cut our way, did the great, overhanging upper lip of the bergschrund show a hopeful weakness in the shape of a disfiguring cleft. Notwithstanding this breach, however, a stiff struggle ensued ere the difficulty was overcome. Driving both axes to the head into the good snow of the wall of the upper lip, I clung to them with both hands and, little by little, helped by a shoulder and a push from Max, pulled myself up with all the strength of my arms to the top, where I hewed out a large, secure step in which I was able to stand safely and steadily as my brother made his way up to me. We were now, however, in the direct line of fire from the séracs above; so, cutting steps over towards the right until out of harm's reach, we turned upwards to face the formidable slope which was to prove the hardest part of the day's work.

At first we had only hard snow to deal with, and four or five well-directed blows with the blade of the axe were sufficient to produce a good, firm step. We mounted straight upwards, keeping to a safe middle line between the slopes on the left, which were liable to be swept by falling ice, and those on the right, furrowed and scratched by stone falls from the north-east ridge of the Jungfrau. Many mountaineers, when cutting up ice or snow slopes, favour a zig-zag course, traversing diagonally upwards, first to one side and then to the other. Such tactics have their disadvantages. The making of such a stairway, for instance, involves the cutting of a greater number of steps, and, in addition, these

steps must, in the interests of safety, be large enough to accommodate the whole foot; while those required if a vertical route is followed need afford room for only half the foot, that is, from the toe to the instep. Again, on a zig-zag course, should any member of the party slip, there is much less chance of arresting his fall, as the climbers are seldom, if ever, directly below each other. In the present case, however, we had no choice; any route save that leading straight upwards would have brought us into danger from ice on the left or from stones on the right. Already, though only about fifty feet above the bergschrund, the slope was so steep that it was necessary always to cut three to four steps ahead of that upon which one stood. But the hard, firm snow was ideal carving material. Always using the blade, two good hard blows marked out the base, and a further two, or at the most three, sufficed to break away the roof and leave a good solid step.

About one hundred and fifty feet above the schrund, conditions began to change. The snow gradually thinned out, and the pick of the axe had to be employed in finishing off the hard ice floor of each step. Eventually the snow disappeared, exposing smooth, bare ice, translucent and colourless when seen from close at hand, but faint blue-green as the glance travelled up the grim slope above. It was the real thing—an ice slope—a trial of strength to gladden heart and eye. The pick of the axe now came again into play. To economise labour and time, I cut large steps for the right foot only. These were deep enough to accommodate the four front spikes of the climbing iron, and thus afforded good support for the part of the foot below the ball of the big toe. By standing on the right foot alone, with the left knee in the small notches that served as steps for the left foot, I could work without tiring and

in a well-balanced position. The ice was of the hardest. As many as thirty to forty blows went to the making of each large step, but a dozen served for the small, rough indentations into which the two front spikes of the left iron could bite as we climbed from one right foot step to the next above. Max kept close behind me; of shorter stature than I, he was kept busy hewing out here and there additional steps between my rather far apart ones. An hour went by. Away down at the bottom of the "blue precipitate stair" lay the bergschrund, but the upper end of the ice slope seemed to be as far off as ever. Then the ice steepened until it was so sheer that it was only just possible to retain one's balance without having to make handholds. The work was really severe, and great care was needed in cutting; a single ill-aimed blow of the axe might easily have destroyed one's equilibrium. Stones, freed from the grip of the frost by the warm rays of the sun, hurtled down past us in little avalanches from the north-east ridge of the Jungfrau, or skimmed giddily by, one by one, within half a rope's length of us, down the glassy surface of the wall. Max, who had kept count of the steps since leaving the bergschrund, helped to mark our progress by announcing their number as each tenth one was finished. The three-hundred-and-twentieth step brought us almost level with the snow slopes of the upper surface of the hanging glacier and its séracs, and, turning towards our left, we began to traverse over towards it. A small bergschrund was the only barrier in the way. It proved a difficult little customer, and as a slip on the part of either was not to be risked, every precaution known to us was employed to cross it in safety. After making a huge step as near the upper lip as was practicable, I carved out a knob in the ice. This done, Max passed the rope behind the knob and thus belayed me

securely while I clambered over the bergschrund on to the hard snows of the hanging glacier. There I cut two more large steps and, driving my axe in to the head, belayed Max's rope over it while he made his way towards me. Then Max, in his turn, drove his axe in as far as the head and belayed me as, still cutting steps, I moved over to the less steep slopes on the left. As soon as the rope was paid out Max followed while belayed by me in the same manner. After cutting a further hundred steps or so, the angle of the slope became so much gentler that the climbing irons alone could be relied upon to bite firmly into the snow.

Difficulties were over. Thenceforward a mere walk up easy snow slopes led to the gap that lies to the right of the well-known little snow peak in the Jungfraujoch (11,398 ft.), and at 10 a.m. we gained the ridge at a point about one hundred and fifty feet higher than the true pass. Below lay a black speck in the gleaming snow of the Jungfrau Glacier. It was the little pile of belongings which we had dumped there in the early morning, and in that dump were cooking apparatus, tea, sugar, biscuits—everything to gladden the heart of the mountaineer. For the doubtlessly magnificent view from the Jungfraujoch we had no eyes. Thirst and hunger hunted us forth. A short glissade down a snow slope, a little manœuvring that brought us safely across a diminutive bergschrund, and we were floundering knee-deep through soft, sodden snow to our provision depôt. There we made our first halt worthy of the name since leaving the Bergli hut nine hours previously and, at peace with ourselves and the world in general, enjoyed a well-earned rest while the cooking apparatus produced the means of ministering to our more material requirements.

Soon after 11 a.m. we were heading across the glacier to

Evening storm.

Morning calm.

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join the broad trail leading down from the Jungfrau towards the Concordia hut. The last lap in the journey proved to be the usual leaden finish to a golden day. The rucksacks containing our dumped belongings were unpleasantly heavy; the sun, so longed for in the chill, early hours of the morning, was now a source of discomfort, and the soft, moist snow under foot reflected a fierce glare. On nearing the Concordia Platz, that vast plain of ice, the meeting-place of four great glaciers of the Oberland, we took off the rope, having left the last of the concealed crevasses well behind. At 1.15 p.m., after boggling through innumerable puddles of icy water, we arrived on the rocky promontory on which stand the hôtel and the two Concordia huts. In all, we had been twelve hours *en route*.

CHAPTER VI

ON SKIS IN THE BERNESE OBERLAND

WITH the coming of the Christmas vacation of 1908, Max and I, in accordance with our well-established custom, returned to Grindelwald. Having in the preceding summer become more intimately acquainted with the towering, snow-bound heights at whose feet nestles the winter sport resort *par excellence* of the Oberland, short ski-ing expeditions to the Faulhorn, Männlichen and the other lesser satellites of the great Oberland giants no longer satisfied us. We were now eager to penetrate into the winter fastnesses of the glacier regions.

Prior to the advent of skis in Switzerland, winter ascents of first-class peaks were, as a rule, formidable undertakings. Winter conditions in the mountains are quite different from those met with in the summer. Deep snow, often soft and powdery and requiring extremely careful treatment to avoid the danger of starting avalanches, lies right down into the valleys. Thus the ascent to the mountain club hut, usually a simple matter in summer, is often in the cold season a long and arduous expedition. Frequently it is impossible to follow the usual route, and deviations involving hours of fatiguing stamping in snow, into which one sinks to the knee, or even deeper, at each step, may be necessary to steer clear of dangerous slopes and gullies. Simple rocks, when laden with their wintry cloak of snow, become difficult and demand great care in climbing. The lower reaches of glaciers, snow-free

or "dry" in summer, are in winter clad in a deep, white pall that obscures crevasses with a covering deceptive and insecure for the human tread. Higher up, above the hut, differences are not so obvious, though they are far from non-existent. Cold may be severe. Changes in the weather seem to occur more suddenly and with less warning. A summer storm in the high Alps can be serious enough; but it is nothing to the ruthless, inhuman and deadly force of the elements let loose in winter. The snow, to all appearances perhaps the same, is yet different. One must constantly be on one's guard against avalanches and snow-shields; the snow bridges across crevasses are deceiving in their massiveness. In summer, the experienced mountaineer can readily detect the presence of a chasm in a snow-covered glacier; but in winter he may find his judgment sadly at fault. These changed conditions have naturally undergone no alteration with the coming of skis; but skis enable one to mount long snow slopes and cross wide expanses without sinking deeply in, and thus, by relieving one of the labours of snow stamping, they reduce the fatigue consequent upon walking in snow. Also, owing to the fact that one's weight is distributed over a much larger area, they diminish the danger of falling into crevasses. And again, they enable one to descend snow slopes at a far greater speed and with much less expenditure of energy than is possible without them.

Christmas festivities and their usual after-effects failed to take the edge off our mountaineering keenness, and after breakfast on the 26th, Max and I strapped on our skis in front of the Eiger Hotel and shouldered our knapsacks containing provisions, a rope and an axe each. Dr. Odo Tauern, an experienced mountaineer and first-rate ski-er, joined us. He

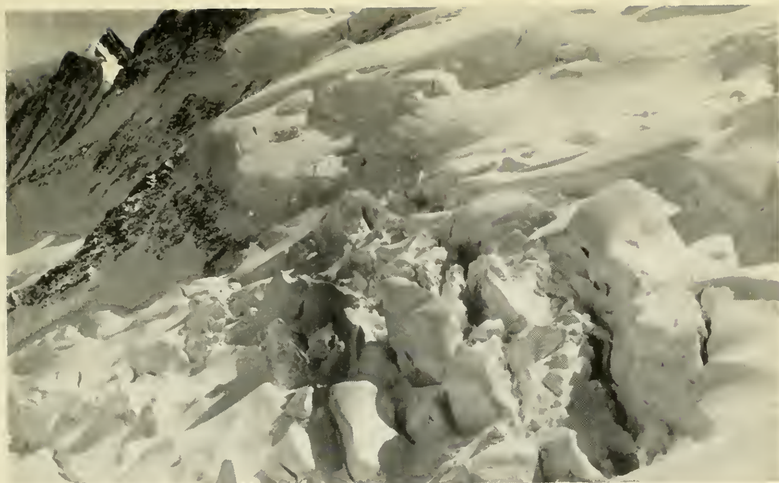
was to accompany us to the Bergli hut where two friends were due to meet him on the 28th. From Grindelwald we ski-ed down into the valley, and crossed the Lütschinen stream by the bridge of the railway connecting Grindelwald with the Little Scheidegg. In winter, of course, this railway is not open. As a preliminary to facing the long pull-up before us, we fastened on seal-skins under our skis. These are long strips of seal-skin which one fixes to the skis in such a manner that the lie of the hairs is such as to prevent one's skis from slipping backwards when going uphill. We followed the railway track, diverging only in one place where it crosses the middle of a long, steep slope. Here the snow had drifted so that a smooth slope was left, and no sign of the railway was visible. The snow on the slope was bad, and thinking it highly probable that the making of ski-tracks over it would result in the formation of an avalanche, we preferred to work down underneath the slope and so avoid danger. Before arriving at the Little Scheidegg, we turned up to the left towards the Eiger and, mounting steeply, gained the Eiger Glacier station where the tunnel of the Jungfrau railway begins. Active tunnelling operations on the railway were then in full progress, and it was our intention to travel by one of the workmen's trains to the Eismeer Glacier station, in those days the most advanced station on the track. As luck would have it, we just missed the last train and had to spend the night at the office of the engineer-in-chief, Herr Liechti, who received us with every possible kindness.

At five o'clock next morning, with skis and other paraphernalia, we stepped out into the keen, cold air and trundled down to the entrance of the tunnel. Packed like the proverbial sardines into the railway carriage with a crowd of marvellously cheerful, Italian tunnelling workmen, who

even at this miserable hour were able to sing their songs with zest, time passed rapidly enough until the Eismeer station was reached. Here we were led down a tunnel which broke through the rock at a point some thirty feet above the snow of the glacier, on to which we and our belongings were lowered on ropes. Strapping on our skis, we began to seek a way through the intricate icefall, over towards the Bergli hut. The ordinary summer route, which Max and I knew well enough, could not be used; it was far too much endangered by avalanches. The only alternative was to approach the lower Mönchjoch and descend to the hut. This involved finding a passage right up through the icefall, but by keeping close to the wonderful precipices of the Eiger, so steep that they were almost free from snow, a feasible way was found. In spite of our skis, it was hard work, so deep and soft was the snow. As the presence of crevasses in winter is often so extremely difficult of detection, and a fall into one cannot be arrested so quickly when on skis as without them, we were roped at a distance of seventy feet from man to man. In addition, Maxwell, who brought up the rear, carried a spare hundred-foot rope for use in case of emergency. Zig-zagging in and out between great pinnacles of ice, probing with the axe at each step for concealed crevasses, we had almost passed through the icefall and were not far below the lower Mönchjoch, when an opportunity of working over to the left, towards the snow slopes above the rocks whereon the Bergli hut stands, revealed itself. It was obvious that caution would be necessary in effecting the crossing, not on account of avalanches or the danger of treading loose a snow-shield, for the ground was hardly steep enough for that, but because the new route, instead of leading us at right angles across crevasses, led in the general direction in which the crevasses

lay; that is, *along* instead of *across* them. Using the axe to discover the whereabouts of crevasses was by no means always effective; in places the snow was so soft and deep that the axe could be plunged in right to the head without meeting with the resistance that betokened the presence of firm, safe snow, or that lack of resistance indicating the void that meant danger. On this part of the journey, therefore, we had to rely to a great extent upon mere external appearances. We had all but gained the slopes just below the Mönchjoch and above the Bergli hut, when Tauern suddenly broke clean through a snow bridge. The violent shock of his weight coming on the rope dragged me backwards on my skis for a yard or two and my brother forward; thus Tauern had completely disappeared before we could arrest his fall. Try as we would, we were unable to pull him up. So Max crossed the crevasse at another point, and together, heaving with all our might and main, we managed to pull our companion over to one side of the chasm, and even raise him until his head was almost level with the edge of the hole through which he had broken. Still hanging in the crevasse, he unfastened and threw his skis up to us, and also gave us the much-needed information as to the direction in which the walls of his prison ran. It was then an easy matter for me to approach the brink of the crevasse and push the shaft of an axe in underneath the rope by which Max held Tauern suspended, and thus prevent its cutting more deeply into the snow. After I had cleared away some of the snow, leaving a channel, Tauern, aided by the united pull of my brother and I, was able at last to set foot above ground again.

This is the first and last time that I have seen a man fall into a crevasse in winter. It is not an experience to be repeated lightly; it had been by no means an easy task for two of us



The Eismeer icefall.

The Bergli hut stands on the rock ridge to the left centre.

Sounding a snowbridge.

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to get our comrade out, and had he been unequal to assisting us and not the capable and ready-witted mountaineer that he is, the task might well have been an insuperable one. Mountaineers to-day seem somewhat inclined to under-rate the dangers of falling into a crevasse. In summer, except perhaps immediately after heavy falls of fresh snow, it should be possible for a party to avoid this danger altogether. But in winter, the greatest care and experience, combined with keenness of vision, are necessary to steer clear of making the acquaintance of the interior of a crevasse—an acquaintance which may, if one is fortunate, be merely unpleasant, but is likely to result in very grave danger indeed.[1]

After Tauern had shaken his clothes as free from snow as possible and put on his skis, we set off once more. Meeting with no further adventure, we reached the slopes above the hut. Here we left our skis, planting them upright in the snow, and then plunged down thigh-deep to the hut. It was just on nightfall. Being mid-winter, it was not surprising that the thermometer inside the hut registered 42° F. of frost. But there was a compensating abundance of wood and blankets. Like most of the Swiss Alpine Club huts, the Bergli is soundly built with a view, *inter alia*, to conservation of heat in its interior; and it was not long after lighting the fire, upon which we placed pans full of snow to procure water for cooking purposes, that a pleasant, comforting warmth was suffused throughout the little building. In those days Max and I rather fancied ourselves as cooks. But Tauern, whose mountain experience was greater than ours, had stocked his

[1] In connection with the wearing of the rope on glaciers, attention should be drawn to the fact that the so-called " middleman noose," a knot which is warmly advocated in many quarters, must never be used. It is a slip-knot.

knapsack with such a supply of well-chosen dainties, forming a marked contrast to our own stodgy and unromantic though filling and nourishing food, that there was nothing for it but to come off our pedestals and act as mere assistants. That evening we enjoyed a wonderful dinner of many courses. As it was the first really square meal we had indulged in since leaving Grindelwald, our appetites came well up to scratch. At peace with ourselves and the world, we presently turned in to sleep. Being alone in the hut, the supply of blankets was in excess of our needs; each man slept on three spread on the straw of the bunks and covered himself with half a dozen more. With the exception of boots and coats, we slept in our out-door clothes. The warmth inside the hut lasted until well past midnight; but long before daybreak, in spite of our many coverings, the cold disturbed our slumbers, and at five o'clock we were glad to throw back the blankets, all frosted where the moisture from our breath had condensed and frozen upon them, and get up and light the fire. After breakfast we thawed our boots against the stove, and put them and puttees on. Still inside the hut, we roped and shortly after sunrise set off towards the lower Mönchjoch.

It was laborious work forcing our way up towards the skis, for the snow was as soft as ever. The day was gloriously fine; the sky was cloudless; strange, cold, yellowish-green near the horizon, but deepening to a pale, hard blue overhead. Most of the peaks about us were already bathed in the warm light of the sun, but we ourselves were still in the shade. Presently we reached the spot where we had left our skis. Snow ploughing was at an end; with these useful things on our feet we no longer sank deeply into the snow and, forging a zig-zag track, soon arrived at the lower Mönchjoch and into

the sunshine—a pleasant relief after the cold shadow. The bergschrund below the lower Mönchjoch was choked with masses of snow, and we ski-ed down over it and across a short slope on to the plateau of the Ewigschneefeld, stirring up merry clouds of snow dust in our wake. We had planned to cross the upper Mönchjoch and climb the Jungfrau. But from the lower Mönchjoch, the presence of fish-shaped clouds behind the Jungfrau and a fresh and gusty west wind gave warning of a possible change in the weather. However, we shuffled over the Ewigschneefeld, deciding to wait until arriving at the upper Mönchjoch before coming to a definite decision as to further movements. But no improvement in the weather outlook took place ; on the contrary, things had taken a distinct turn for the worse, and the wind was occasionally strong enough to prove troublesome by whirling up streamers of snow dust in our faces. To try the Jungfrau under these conditions would have been unwise ; so we decided to content ourselves with climbing the Mönch. From the upper Mönchjoch, the most convenient line of ascent to the summit lies over the south-east ridge. Using skis as far as possible, we mounted until we reached a point on the ridge where the wind had swept the rocks free from snow. These were perfectly easy ; so gentle was the slope that it was not even necessary to use one's hands. Beyond was a snow ridge, the steeper portion of which was quite simple, though the final part needed some care in negotiating. It was covered by an immense snow cornice, overhanging on the right, and, in order to avoid walking on it and incurring the risk of its breaking away, we had to keep well down to the left where the presence of ice occasionally necessitated the cutting of steps. Shortly after half-past ten we gained the spacious, snow-capped summit of the Mönch. A little way

down on the north side, we found complete shelter from the wind which had now veered round and was blowing from the south. We sat for a whole hour, feeling none too warm perhaps, but revelling in the wonderful view spread out at our feet. A dense, moving sea of cloud, which rose to an altitude of seven or eight thousand feet, blotted out the plains; and here and there midst the softly-foaming billows, snow-capped summits, like little islands, thrust their gleaming heads.

On turning to make our way down again, we found that the wind had risen and was whipping up into our faces great streamers of snow from summit and from ridge. The stinging sensation of the wind-driven snow spicules as they struck the unprotected skin was painful if also exhilarating, and, retracing our steps as fast as we could, we eagerly sought the comparative shelter of the upper Mönchjoch. The descent was without incident, and, after regaining our skis, we sped back with all haste over the lower Mönchjoch towards the Bergli hut. Above the hut we espied two strange pairs of skis planted upright in the snow. No tracks, however, were visible; the wind-blown snow had levelled them out. We arrived at the hut at 1.30 p.m., an hour and a half after leaving the summit of the Mönch; and stepping into the pleasant shelter, were greeted by Tauern's friends who had come to keep their tryst with him.

In view of the almost certain approach of bad weather, Max and I now made the mistake of not continuing our descent to the Eismeer. The others had ample provisions to tide them over an enforced stay in the hut, but our own stores were sufficient for only one, or at the most two, more meals. Loth to leave the pleasant companionship of the others and the warm, hospitable shelter of the hut, we decided to remain

for the night and go down to the Eismeer on the following morning.

During the night snow fell heavily. Next day, after a belated breakfast, Max and I, in spite of the fresh snow and the fact that the weather, though quiet, was still uncertain, decided to set out. Everything was obscured in mist. Tauern, more aware of the danger of our plans than we, did his utmost to dissuade us. The thought, however, that our remaining in the hut would spoil his and his companions' climbing programme, through unexpected depletion of their supplies, settled the matter. Max and I put on the rope and, with the others' wishes for good luck, set off. The struggle up through the soft, deep snow to our skis, left sticking some two hundred feet above the hut, was most laborious. Less troublesome was the long traverse towards the head of the icefall, close under the cliffs of the Eiger. I doubt, however, if either of us realised the great danger we were incurring here. Owing to the recent snow fall, it was doubly difficult to detect the presence of crevasses, and, though we made use of every precaution then known to us, I have no doubt that it was sheer good luck that saw us across more than one snow bridge in safety. Had either broken well through into a crevasse, it is most unlikely that the other, unaided, could have pulled him out. But fortune was with us. Notwithstanding dense mists, wind, and lashing snow dust, we kept in the right direction, and when hard under the cliffs of the Eiger, of the proximity of which the reflected sound of a shout gave adequate indication, we turned down through the icefall. Struggling along through the deep snow had resulted in our underclothing getting wet, and we began to feel the cold. To add to our discomfort, the descent of particularly steep pitches necessitated the

removal of our skis, and the continual taking off and refastening of these became a trying task for the fingers. However, things went passably well despite minor troubles, and we had almost reached the safe ground below the icefall when I felt a tremendous wind sweep down upon me from *above.* Next moment, almost before I had become aware of what was happening, I was choking for breath in the dense snow dust of an avalanche falling down upon us from the cliffs of the Eiger. Max was about a hundred feet behind me at the full length of the rope and, as luck would have it, clear of the falling stream of dust. He could see me disappear as the thick snow cloud enveloped me. The snow fell until I was buried to above my head, and, just as I thought I would be stifled, the avalanche mercifully ceased. By keeping my hands above me and moving them as if I were swimming, I had left a sort of funnel through which I could get some air. Fortunately the snow dust had not packed firmly, and after herculean efforts I succeeded in twisting my feet loose from my buried skis and, helped by Max's pull on the rope, was able to free myself from the unpleasant situation. As my skis were absolutely indispensable for the completion of the descent, we had to set about recovering them; but it was not until we had grovelled for nearly an hour in the floury snow that they were found.

Five minutes later we stood below the entrance of the railway tunnel. This, it will be remembered, was separated from the snow upon which we now stood by a rocky wall some thirty feet high and unclimbable in its lower part. We shouted ourselves hoarse in an endeavour to attract the attention of workmen who might be in the tunnel, but all to no purpose. In the end we had to fall back upon self-help. Taking off the rope, we made a noose and then set

to work to try and lasso a large iron pin which had been driven into the rock a few feet below the entrance of the tunnel. Cast after cast failed, each flung wide by the gusts of an erratic wind. A quarter of an hour at this game showed us that we had over-estimated our prowess with the lasso; but at last a throw succeeded. A twitch or two of the rope settled the noose firmly on the pin, and I then proceeded to try and haul myself up hand over hand; but the struggle in the avalanche had sapped my strength to such an extent that I failed miserably. Then Max tried, and after a desperate battle grasped the pin. As soon as he was up he hauled in the knapsacks, axes and skis. He next fastened one end of the rope to the pin while I tied the other about my waist. Then, with Max hauling with all his might, I struggled up. After a rest, we gathered together our belongings and walked up the tunnel towards the station. Even now, troubles were not at an end. The entrance to the station was barred by an iron grating. Outside was a bell with a polite invitation to ring. We accepted with all our hearts. But for nearly half an hour we stood there, shivering in the fierce, cold draught that swept up from the glacier world without. At last, just when we were beginning to despair of attracting anyone's attention, a tunnelling foreman came and opened the gate. Noticing our plight at once, he led us to the engine house and tucked us in between two great compressed air cylinders belonging to the Ingersoll rock-drilling outfit. There we slept, warm and comfortable, until it was time to descend by one of the workmen's trains. As night had fallen ere we arrived at the Eiger Glacier station, it was too late to continue our way to Grindelwald, but the engineer-in-chief once again proffered hospitality.

Next morning Max, who had suffered frost-bite in one heel, had difficulty in getting on his boots; but once this painful task was accomplished and our skis were strapped on, all went well. Three-quarters of an hour later we were mounting the slopes beyond the Lütschinen stream towards Grindelwald, the Eiger Hôtel and comfort.

CHAPTER VII

ON SKIS IN THE BERNESE OBERLAND (*continued*)

IN later years we visited many other parts of the Alps on skis; but it was not until the Easter of 1914 that we returned to the great glaciers of the Oberland. On April 9, I boarded the continental train at Charing Cross and, on the following day, joined my brother in Zürich, where he was completing his studies. My arrival being totally unexpected, I was indeed fortunate in finding him free from climbing plans and obligations. Next evening at eight o'clock we were in Wengen. After dinner, and having written a few letters informing relatives and friends that we were off for a week's ski-ing mid the peaks of the Bernese Oberland, we put on skis and, at 10 p.m., left the Schönegg Hôtel. The moon shone brightly, and we strode up the buried railway track through a land of silver dominated by the great ghostly shapes of that wonderful Alpine trinity, the Eiger, Mönch and Jungfrau. All shuttered up and deserted were the railway station and collection of hôtels at the Little Scheidegg—a forlorn colony of the dead. In the eerie magic of an hour past midnight, we should not have been astonished had a ghostly throng of perspiring trippers appeared from nowhere and begun that fight for seats of vantage on the train, which we had more than once witnessed during the bright sunny days of a summer season. Braving the possible presence of the supernatural, however, we paused here to indulge in the

infinitely prosaic—a meal of dry bread and raw bacon fat, our favourite winter tit-bit!

Soon we were off again up the railway track. The snow throughout was safe and in perfect condition, and at 3 a.m. we reached the Eiger Glacier station. We saw the engineer on duty, who most kindly undertook to make the necessary arrangements for a special train to be at our disposal after breakfast. Unwilling to disturb others, we contented ourselves with a table each for bed and slept soundly until after sunrise. The train left just after eight. During the six years that had elapsed since our last visit, considerable progress had been made, and the tunnel completed up to the Jungfraujoch. The railway track, however, was not yet finished, and the walk from the train to the Joch was no easy matter, as the final section of the tunnel was still in the rough stage. Thanks to the kind offers of one of the tunnelling foremen who remembered us from the winter of 1908, we were provided with a warm meal at a trifling cost.

With the good wishes of all the staff, we stepped out of the tunnel at noon on the 12th and, descending carefully over a steep snow slope, crossed a small snow-choked bergschrund on to the Jungfrau Glacier. Here we put on skis and, leaving the heavy knapsacks to be picked up on the return journey, headed for the Mönchjoch. We wore the rope, though, at this time of the year and with the snow in its present condition, there was no difficulty in detecting the presence of crevasses or in sounding with the axe and accurately estimating the strength of snow bridges. The weather was sunny and windless, and, though the temperature in the shade was far below freezing, we gradually divested ourselves of coats and shirts and arrived in the lower Mönchjoch stripped to the waist, but fresh and aglow from the exertion. There

we were accosted by the gentlest of breezes; sufficient, nevertheless, to persuade us to resume some of our discarded coverings. The skis, not needed for the time being, were left behind as we turned up the south-east ridge of the Mönch. The climb up the ridge was as easy as I have ever known it, so good were the conditions. Along the final, almost level section, we found the remains of old steps which we at first followed. Presently, however, we forsook them. According to our views, they went dangerously close to, and were sometimes even on, the overhanging portion of the immense cornice which adorns the crest of this part of the ridge. We preferred to keep well down on the steep slope to the left, though such a procedure did involve a little step-cutting. At 3 p.m. we paid our third visit to the summit of the Mönch. Filmy mists of the kind that the mountaineer usually associates with fair, settled weather floated up from the north and enveloped us almost immediately. Despite a fresh breeze from the south-west, they clung tenaciously about us, completely obscuring the view. For nearly an hour we waited for things to clear; but in vain. Too chilled to prolong our stay, we sought warmth in action and turned back towards the Mönchjoch. As we passed along the highest section of the ridge, I re-cut one or two of the steps. Suddenly I was startled by a crashing noise, followed by a thunderous roar, as almost the whole of the great cornice broke away for a distance of about a hundred yards in front and fifty yards behind us and fell down in a mighty avalanche towards the Eismeer. Where a moment previously the view to the left had been shut off by a steep snow wall, I now had an uninterrupted survey down the precipice, from the brink of which I was separated by a distance of only an inch or two. At first we were a little startled by the suddenness

of the happening, but later regarded it as merely another demonstration of the fact that, if mountaineering is to be a safe pursuit, knowledge and the exercise of care are indispensable. Although much of the ridge along which we now had to pass was still heavily corniced, we had faith in the safety of the tracks we had left on ascending and, following these, made our way down to our skis. Strapping them on and coiling up the rope, we skimmed in a sheer riot of exhilaration down towards the Jungfraujoch, keeping as much as possible to our previous tracks. It being our intention to make the Concordia hut our home for the next few days, we recovered our knapsacks and, at 5 p.m., set off down the Jungfrau Glacier on the last lap of the day's journey.

The run down the glacier was somewhat spoilt by the fact that the weight of our knapsacks rendered crevasse-dodging rather difficult unless the pace of travel was kept down by frequent braking. Far from easy to negotiate, too, were the occasional patches of snow, hard-crusted by the action of the fierce winds that from time to time sweep up this glacier in winter. It was, however, a wonderful evening. There was no cause for haste, so we halted frequently to ease our shoulders of the weight of the knapsacks and to point out to each other old friends amongst the surrounding peaks. We had last crossed the Concordia Platz in the summer of 1909. Then we had found it a vast, almost level expanse of glacier covered with an abominable slush of snow and water. But now it was in the grip of winter. We ambled and slid over a dry, powdery snow surface, the soft, fresh breezes of dusk playing about us and cooling the flush that exercise had called to our faces. A little, fairly steep slope lay between the edge of the glacier and the rocks on which the Concordia hut stands. I ski-ed down this slope and brought

Cornices on the Punta Margherita.

A cornice on the Rôchefort ridge.

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up with a Christiania swing; but not in time to prevent twisting my left ankle against a stone—a painful experience, though no bones were broken, and, beyond the throbbing pain, I seemed to suffer no inconvenience. We climbed up the almost snow-free rocks and, at 7.30 p.m., arrived in the hut. By this time there remained to us but faded memories of our last meal, and it was not until ten o'clock that our ravenous appetites were satisfied.

Next morning, after a night of wonderful sleep, we awoke at 9.30. The weather was doubtful, with cloudy skies and a gusty wind varying in quarter from west to south. Shortly before mid-day, after alternating between hopes and fears as to the prospects of being able to do something by way of an excursion, we left the hut, carrying only the rope and a little chocolate, it being our humble intention to potter about on the Concordia Platz. However, after putting on the skis, which had been left down on the glacier, we decided that, though the clouds and the wind gusts were still as evident as ever, the weather might hold out sufficiently long to enable us to climb the Ebnefluh. We crossed the Concordia Platz and, mounting up the main Aletsch Glacier, eventually turned up the Ebnefluh Glacier and headed almost straight for the summit of our peak. We were able to keep the skis on until within a few hundred feet of the top. Had the snow been powdery and suitable for ski-ing instead of hard and frozen, we might have ski-ed right on to the summit. At 6 p.m. we had gained the highest point. The most striking feature of the view from the summit of the Ebnefluh (13,005 ft.) is the wonderful outlook it affords over the tremendous precipices falling away to the Rotthal Valley, one of the wildest and most secluded and, from the climber's point of view, most interesting valleys in the Alps.

We had put on the rope on leaving the skis, but even on foot, by exercising ordinary, reasonable caution, there was no danger of falling into a crevasse. With the passage from early to late winter, glacier conditions suffer enormous change. I have previously pointed out how the winter snows form most unreliable bridges over crevasses and often mask them so effectively that the vision of even the most experienced mountaineer is sometimes unable to detect them. But later on, towards the close of the winter season, usually in March and almost always in April, the keen mountaineer will never be at fault in this respect. I am frequently at a loss to explain to a less experienced companion how this can be. Perhaps long experience in the mountains tends to develop in one an extra and particular sense which warns one of the proximity of hidden crevasses; but to those who wish a more scientific explanation, I would draw attention to the following facts. Towards the end of winter the snow is more consolidated, that is, packed more closely by reason of its own weight and the effect of wind. Where snow is unsupported from below, that is, where it lies over a crevasse, a slight, sometimes almost imperceptible hollow will be formed on its surface. These hollows, slight though they be, betray themselves to the experienced eye by the difference in the shade of the light that they reflect and thus give warning of the existence of a crevasse. In the earlier part of the winter, the snow, as a rule, has not had time to "pack" sufficiently to form such hollows, and the detection of chasms is therefore immeasurably more difficult. A heated controversy is now raging amongst ski-ing experts as to whether the rope should be worn when ski-ing on glaciers in winter. It is by no means easy for a party roped together to keep the rope taut while ski-ing down a

glacier, without inflicting bad jerks and causing each other to fall. For this reason the rope is considered by many ski-ers to be an unmitigated nuisance. Hence the rise of the two contesting parties. To me, the question does not seem to admit of an answering unqualified "Yes" or "No." Owing to the difficulty of sighting crevasses during the beginning and middle of winter, the wearing of the rope at these times should certainly be urged, even on the simplest of glaciers. But the rope must be worn properly, kept taut from man to man; and as one's rate of travel is far greater on skis than without, and the difficulty of holding a man who has fallen into a crevasse is proportionally greater, there should be not less than a hundred feet of rope between each member of the party. Later on in the season, an experienced party may unhesitatingly dispense with the rope on glacier expeditions, provided that they are not only adept ski-ers with full command of their skis, but really skilled mountaineers, with eyes open, ever on their guard against the hidden dangers of the mountains.

Owing to the lateness of the hour, our halt on the top of the Ebnefluh was a brief one. Within five minutes of leaving the summit we were back at our skis, rubbing them fondly with grease in anticipation of a swift run home. With veils of snow dust flying out behind us, we whizzed down on to the Aletsch Glacier and, half sliding, half shuffling, worked across the Concordia Platz, arriving in the hut just after nightfall.

On the 14th we were up at the fairly reasonable hour of six, but though the weather was calm and fine we did not launch out on any ambitious programme. My ankle, though no longer very painful, was so swollen that I had great difficulty in getting on my boot. Thinking, however, that

a little exercise would do no harm, we skied up to the Grünhornlücke and climbed a neighbouring peak called the Weissnollen (11,841 ft.). What with my ankle and the deep powdery snow, it took us three hours to plough our way up to the former. The return from the Grünhornlücke to the hut, however, was accomplished in barely fifteen minutes.

Early next morning, dense mists surrounded the hut, and snow was falling fast. At 9 a.m. we looked out, to find the snow had ceased and the mists were being blown away by a fierce north-easter. But we dallied until the weather became more certain, and at a quarter to eleven set off for the Fiescherhorn. To climb the Fiescherhorn, it was necessary to gain the upper level of the Ewigschneefeld above its great icefall. By keeping to the left bank of the latter, we succeeded in finding a passage without having to remove our skis ; but by the time the glacier above had been gained, the weather had taken a turn for the worse, and in the end we had to content ourselves with climbing the Walcherhorn (12,155 ft.). Skis were kept on right up to the summit. No view rewarded our labours. Mists clung about us, and a cold wind hastened our retreat. Through the clouds, keeping to our former tracks, we ran down to the head of the icefall. Then came five wonderfully exciting minutes as, in and out of crevasses and séracs, we twisted and turned and sped, without a halt, out on to the unbroken slopes below the icefall and down to the Concordia Platz, to reach home in time for four o'clock tea.

We voted the next day to be one of rest. The strain of manœuvring through the icefall of the Ewigschneefeld had caused my ankle to swell up again, and Max was suffering from a cough which made him declare he felt ready for a coffin. It was beautifully clear weather when we rose from our sleeping bunks at one o'clock, and the rest of the

day was spent sitting in the sun in front of the hut, Max wrapped up in layers of blankets in an attempt to sweat out his cold, while I, between meal times, endeavoured to allay the inflammation of my ankle with frequent applications of bandages soaked in ice-cold water.

On April 17, we were up before daybreak and left the hut at seven o'clock, bound for the Jungfrau. Once again a bright sun shone from a cloudless sky and a dead calm reigned. So warm was it that our progress was a most moderate one and punctuated by many rests. At one o'clock we gained the large bergschrund immediately under the Rotthal Sattel and there left the skis. Fifty minutes later, having mounted for the most part in perfect snow and having found it necessary to cut only a few steps, we were on the summit of the Jungfrau (13,668 ft.). It was our fifth visit to the Queen of the Oberland; she had always received us well, but never so kindly as on this late-winter afternoon of cloudless sky and total absence of wind. Much though we would have preferred to dally, our stay had to be cut short; for a deficiency in certain articles of provisions rendered necessary a visit to the Jungfraujoch on the way back. Threading a way down on to the glacier and then mounting a steep little snow slope, we arrived, in due course, at the tunnel of the Jungfraujoch station where we loaded up fresh supplies, not forgetting wax for the skis which were no longer slipping as freely as they should. After re-waxing them, we sped down to the edge of the Concordia Platz in ten short minutes. The temptation to loaf there in the sun proved irresistible, and it was not until six o'clock that we arrived back in our little winter home.

It was our plan to tackle the Grüneckhorn and the Gross Grünhorn on the following day; a more ambitious under-

taking than any we had attempted this season. The weather was doubtful when we looked out just before sunrise. A south wind was driving rolling banks of mist up the Aletsch Glacier, and cloud caps, omens of evil weather, had settled on the summits of all the greater mountains. By eight o'clock no improvement had taken place, so we decided to shift our abode and cross the Grünhornlücke to the Finsteraarhorn hut. An hour later, just as we were preparing to leave, the north wind at last seemed on the point of gaining the ascendancy over the south, and the weather took a distinct turn for the better. We straightway made up our minds to adhere to our original plan. With a rope slung over Max's shoulder, and a camera and a few provisions in my pockets, we ski-ed up towards the prominent gap in the south-west ridge of the Grüneckhorn. Before reaching it, the badly crevassed nature of the glacier and the icy condition of the snow forced us to leave the skis. We put on the rope and kicked a way up in snow that was so hard and good that we never sank in to more than ankle-depth. From the gap onwards, we followed a delightful ice ridge which forced us to a free use of the ice-axe in cutting steps. Knowing that there was not much time to spare, we worked with a will and, shortly after one o'clock, gained the summit of the Grüneckhorn (12,500 ft.). The climb from here along the snow-free rock ridge to the summit of the Gross Grünhorn was child's play. The weather was perfect; and no cold wind whipped our faces. We might almost have been climbing on a fine summer's day, so warm were the rocks, and so good the climbing conditions. We sat on the top of the Gross Grünhorn (13,278 ft.) till well after three. The view from this summit is almost unique. One is so closed in on all sides by great peaks that, no matter where the eye roves,

it rests on nothing save rock and ice and perpetual snow. No green valleys suggesting the homes of human folk are there to offer a contrast to the sterner majesty of nature.

Within three quarters of an hour of leaving the summit, we were back on the Grüneckhorn, and there conceived the idea of descending by the hitherto unclimbed south face, a tremendously steep snow slope through which rocks jutted out here and there. The wonderful condition of the snow tempted us to this decision. Under less favourable circumstances, indeed, such a venture might well have led to trouble. Facing inwards towards the steep snow, we kicked our way downwards step by step, surely but quickly, and crossed the bergschrund at the foot of the slope without the slightest difficulty. Twenty minutes after leaving the summit, we were back at our skis and a quarter of an hour later had entered the hut.

According to programme, we were due at the Finsteraarhorn hut on Sunday the 19th. The barometer had fallen so low, however, and the weather had become so threatening, that we entertained scant hopes of being able to carry our projects into effect. We waited till midday, but no improvement took place; so we packed up to return home *via* the Lötschenlücke and the Lötschberg railway. Steering by map and compass, we crossed the Concordia Platz and mounted the main Aletsch Glacier through thick mists and gently-falling snow. At four o'clock we left the Lötschenlücke, having paused at the Egon von Steiger hut, close to the pass, for lunch. In a few minutes we had run down below the cloud level. From the ski-ing point of view, the snow was bad, possessing almost throughout a hard, thick, frozen crust which made it difficult for one to exert proper control over the skis. The strap of one of Max's bindings, cut by the

crusted snow, gave way, and replacing it by a spare was no easy matter, for the narrow little slit in the ski, through which the spare had to be threaded, was partly blocked with ice. Lower down the snow was deep and wet and of such a consistency that we seemed to be running through treacle.

Just before reaching the little village of Blatten in the Lötschen Valley, we took off the skis and trudged down the long path to Goppenstein where we caught the train for Zürich, little thinking that we were turning our backs on the mountains and all that they meant to us for the next five years.

There is much to be said for winter mountaineering. In summer, if one wishes to climb the Jungfrau or any other similar mountain, the ascent of which involves a lengthy walk on snow-covered glaciers, one must start very early, well before daybreak; otherwise, the sun will have softened the snow so much that the ascent, and still more the descent, will be most laborious. On skis and in winter, this nightmare of a long and wearisome trudge in soft snow hardly exists. The return from a climb, especially, is a simple and almost effortless affair. Again, fewer people by far climb in the winter season, and, if one so wishes, one's solitude need not be disturbed. Throughout this glorious week in the Oberland we had had the huts and the mountains all to ourselves.

CHAPTER VIII

A WINTER'S NIGHT ON THE TÖDI

By Maxwell B. I. Finch

BAD weather and unfavourable conditions had too often caused the postponement of several winter climbs, among them a long-planned ascent of the Tödi on skis. At length, towards the end of the winter term of 1911, a week-end arrived, sunny and bright, heralding the approach of spring. On the fourth eager inquiry the Meteorological Office gave a not too dismal reply, with the result that the laboratories and drawing-boards of Zürich's Polytechnic suddenly seemed very unattractive. The reply came at 11 a.m. on Saturday, March 11. After rapid preparations and a hurried lunch, a party of five, consisting of Obexer, Morgenthaler, Weber, Forster, and myself, boarded the 1.30 p.m. train for Linthal. George was unable to join us, being in the throes of his final examinations. At Zürich-Enge, the first stop of the train, we were reduced to four, since Forster left us to chase after a porter to whose care he had entrusted his skis and rucksack, and who, of course, failed to put in an appearance at the right moment. Just beyond the village of Linthal, the terminus of our journey by rail, we put on the skis, the heavy snow-falls of the previous week having lowered the snow-line far down into the valleys. At Tierfehd, an hour beyond the village, the road ends. At the foot of the steep path which leads thence over the Panten bridge we adjusted seal-skins. At 11 p.m. we arrived at the alp-huts

of Hintersand (4,285 ft.), where a halt of half an hour was made for supper. The following steep rise up to the Tentiwang showed various traces of avalanches, but was certainly safe at that hour of the night. Two members of our party were comparatively inexperienced mountaineers; Obexer and I were, therefore, disturbed when Weber, one of the two novices, led up this part rather too energetically, for a killing pace on the first day often means a winded man on the morrow. At one spot before reaching the Tentiwang pastures, a short but steep slope of ice-covered rocks cost us much hard labour and time. We had to replace the skis by crampons, cut steps and finally pull up rucksacks and skis on the rope.

From the Tentiwang (5,250 ft.) the usual summer route towards the Bifertenalpeli was chosen, the snow being firmly frozen and quite safe. Had the snow been unsafe, we should have mounted straight up to, and over, the end of the glacier which is generally the better and safer way to the hut in winter. At 3 a.m. we stepped into the St. Fridolin's club-hut (6,910 ft.). Nowhere during the whole ascent had a lantern been required, as the full moon lit up the snows with almost dazzling brilliancy.

Much snow had to be cleared out of the hut, especially off straw on the bunks, before it became habitable. The woodshed was choked with snow, and we had great difficulty in lighting a fire. Unfortunately, none of us had brought a spirit lamp or cooking-apparatus, so it was 5 a.m., nearly dawn, when we turned in.

Somewhat after 9 a.m. we awoke. Preparations for our departure proceeded unusually slowly, owing to the trouble again experienced in lighting the stove. Although it was noon when we at length started off, we were fully determined

The Tödi.

"King of the Little Mountains."

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to accomplish the climb that day. The weather was perfect, clear and calm, the temperature being well below freezing-point. In summer the ascent would take some six hours. We reckoned rather more now, because in winter one must as a rule follow a different route, discovered by Mr. D. W. Freshfield, which passes through the two great icefalls of the Biferten Glacier. Therefore, allowing eight, or at the outside ten hours, in which to gain the summit, we counted on re-entering the hut not later than 3 a.m. Even should this not be the case, the moon would give us ample light till 5 a.m., and at 6 a.m. dawn would follow after a solitary hour's darkness. All things considered, we looked forward to the climb in the light of a pleasant adventure and thanked the fate which had led us into making a midnight ascent.

Gaily rejoicing in the excellent weather and conditions, we broke trail in the deep snow from the hut across and up the glacier towards the Grünhorn icefall. The weakest spot in this obstacle is an almost crevasseless ledge which commences near the right bank of the glacier and, sloping towards the walls of the Tödi, leads to the next plateau of the glacier. Following this line of least resistance, we made slow but steady headway till close under the greater, steeper, and far more seriously broken icefall hard by the Gelbe Wand. The year before, in the spring, without skis, George had led a party up this icefall without encountering any real difficulty. Some distance below the base, and in clear view of the icefall, we called rather a lengthy halt in order to spy out the best line of ascent. After some deliberation, we decided to deliver an attack more or less at the same place as last spring. However, from the distance, we had our doubts about one step, where a wall of upright and partly overhanging ice stretched right across the glacier. This wall

was probably the upper edge of a bridged-over crevasse and appeared to be some twelve feet high at the lowest point where we intended to launch our attack. Above it lay a very steep slope of ice terminating on the lower edge of another great crevasse. It must have been about 4 p.m. when we tackled the Gelbe Wand icefall. Using skis, we mounted with little difficulty as far as the foot of the ice wall; there, however, we had to replace the skis by climbing irons. A human ladder was out of the question, as the foot of the obstacle was a none too stable bridge over a crevasse. Deep holds for both hands and feet had to be cut, as the lower part of the ice overhung. It was a lengthy proceeding, for the ice was extremely hard and brittle. Some delicate balancing, aided by a crampon grasped in one hand, eventually landed me above the wall. On the lower lip of the next crevasse, behind a fallen block of ice, I found a firm position, whence the next man could be assisted up on the rope. Rucksacks and skis were then hauled up, and, finally, already after sunset, the whole party was gathered above the ice wall which had given so much trouble. On replacing the skis on our feet, a series of circumventing manœuvres was necessary to pass over bridges or round huge, open chasms.

Once more a steep slope necessitated the use of the crampons and even then a few steps had to be cut. The moonlight was ample; the smallest detail was as well lit up as if in broad daylight. All of us now looked forward to the march up the gentle slopes of the upper parts of the glacier, the so-called lower, middle and upper "Boden," and we were confident of success. None of us inquired after the time, and no one even glanced at a watch; our surroundings and the novelty of the situation were too absorbing. Probably it was well on for 8 p.m. when the gaunt yellow crags of the Gelbe Wand

became visible on our right above the icefall. Gradually the crevasses became less troublesome, and soon the lower Boden, a great expanse of gently-rising glacier, stretched before us, forming a natural line of ascent towards the foot of the Gliemspforte (10,800 ft.). On approaching the pass we took a sharp turn to the right, in the direction of Piz Rusein, the highest of the three summits of the Tödi, and were soon embarked on the ascent of the steep slopes separating the lower from the upper Boden. Here, where in summer a regular icefall is sometimes met with, we encountered some huge crevasses. The skis, however, carried us to the small bergschrund close under the south ridge of the Piz Rusein. Obexer glanced at his watch. The moonlight lit the hands at something after 11 p.m. Once more wearing climbing irons, and leaving sacks and skis by the bergschrund, we commenced the final ascent over the ridge to the summit. Some step-cutting was required. A stiff, cold breeze was blowing; the thermometer hanging from a rucksack marked 30° F. frost. It was after midnight, during the first half-hour of the Ides of March, when the great cornice, which forms the culminating point of the Tödi (11,887 ft.), was reached.

Bitterly cold it was; yet the fairy scene below and the feeling of complete content due to the unconventionality of our success held us spell-bound for a full half-hour. The valleys were filled with rolling silvery clouds, above which the peaks of over 10,000 feet in height appeared as islands in a sea of molten metal. Only the valley of the Biferten Glacier up which we had ascended was clear and free of mist. The sky above was cloudless and, owing to the brilliant rays of the moon, almost pale blue in colour, and not blue-black and starry as an Alpine firmament should be at night. One

fact alone worried us and finally impelled us to retreat much sooner than we would otherwise have done; the weather began to take a decided turn for the worse. Through the Gliemspforte, the lowest gap at the head of the Biferten Glacier, the mist began to stream in from the Gliems Valley. Evidently it was rising rapidly, and this was the overflow. On looking closely, the sea of clouds no longer appeared solid and uniform like a great glacier or snow field; everywhere it moved, tossed up waves and rollers, breakers and billows, differing in its dead silence alone from a storm-tossed ocean.

Before stepping out on to the final ridge we had hardly felt so much as a breath of wind. On the ridge, however, a sharp south-wester had chilled us to the marrow, though, apart from its direction, we had seen little cause for alarm. But now, on the summit, we realised that below those rolling billows of mist a tempest of unusual degree was raging, and that we must race for the hut. Even then it might be too late, and we would have to battle with the unfettered fury of a winter storm.

Back at the skis, Obexer spent a busy and chilly ten minutes hunting for his watch which he believed he had deposited thereabouts. No luck, it had probably found a quiet resting-place in the blue depths of a near-by crevasse, and will doubtless some day appear far below at the snout of the glacier. By the time we had our skis on, the wind had increased to a staggering gale. The lower Boden was submerged under fiercely wind-driven clouds of snow, and still more overflows were leaking from the Ponteglias Valley over the Piz Urlaun, and from the Rusein Valley through the Porta da Spescha. Evidently we would soon be well in the thick of the mists where fast running would hardly be to our liking, so we fixed the climbing irons under our skis.

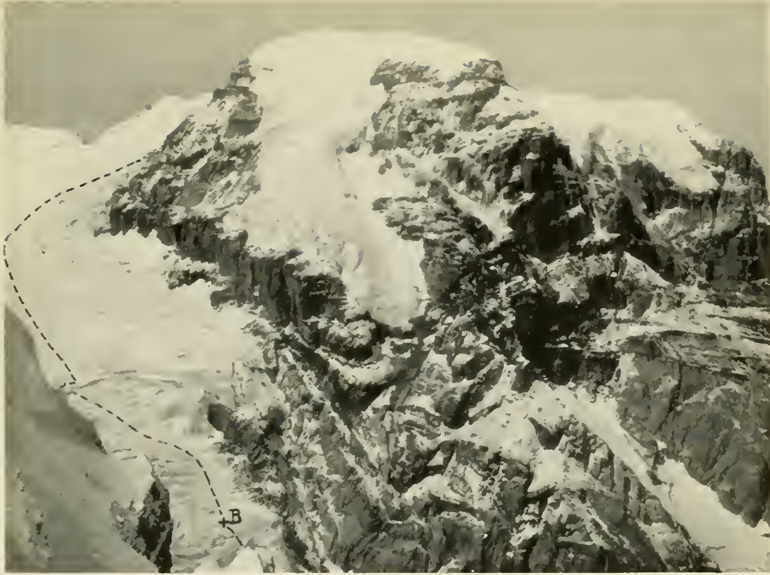
Owing to the powerful braking-action of the long spikes of these irons, we were able to cut short the many zig-zags of the way up, and our descending tracks were consequently somewhat steeper than the ascending. Long before the middle Boden was regained, we were path-finding in thick, driving mists where the light of the moon was all but useless. The storm rose to a shrieking gale, against the thundering gusts of which we often found it difficult to keep our feet. We kept as close as possible to the faint tracks of the ascent, which speedily became more and more dim as the storm ploughed up slope after slope of loose, powdery snow. Once or twice we hesitated, but always some faintly visible sign revealed to us our old tracks. On arriving at the middle of the Boden, the correct turn to the left was duly carried out, and right glad we were to have the gale now pushing us from behind instead of throwing us sideways. During the whole ascent and descent between the great icefall and the summit of the Tödi, we were climbing on two separate ropes, each about one hundred feet long; in summer forty to fifty feet between each man would suffice, but in winter, and on skis, a distance of one hundred feet is indispensable for safety. Before sighting the upper crevasses of the great icefall, Weber, who was on my rope, began to show signs of exhaustion. He tripped over the rope several times and finally succeeded in tangling it so thoroughly round his skis and feet, that we had to call a halt of some ten minutes to unravel him. During this process, Weber removed his frozen gloves and worked at the stiff cord with bare hands. On the greater part of the descent the two ropes marched side by side, Morgenthaler and I ahead, as four eyes were better than two in looking out for our previous tracks. The storm increased in violence. We crossed the first large crevasses above the icefall in a

howling hurricane, where communication even by dint of shouting from mouth to ear was barely possible. In the thick mist and driving snow, one end of the rope was seldom visible from the other. The fiercest blasts had to be taken stooping low and propped on the ski-sticks, else they might have thrown us into the cold depths of the yawning, deep-blue chasms which surrounded us on all sides. Under these conditions, questions began to force themselves upon us. Could we tackle the icefall against such odds? Could we fasten the stiff, frozen straps of the climbing irons with our painfully numb fingers? Some of us had already begun to feel the first pangs of frost-bite; Weber in particular remarked upon what formerly had been but a pain, but now was an absolute, unfeeling numbness in both hands. The cold was too intense (over 50° F. of frost) to risk removing gloves if we hoped to escape being seriously frost-bitten. Could we, from above, recut the steps which had led us up steep slopes over gaping crevasses? Could we carry our skis and cling to those steps, all the while buffeted, pushed, blinded and almost smothered by the storm? And if, in the great icefall, unable to see the tracks, we should fail to strike the right descent over the great overhanging ice wall, in many parts over a hundred feet high, what then? Could we reascend in the teeth of the storm and, trusting to luck to find the way, force a descent down that precipitous ice-swept gully, the Schneerunse, probably only to be buried in an avalanche? For above the roar of the tempest we frequently heard dull rumbles as ice and snow, crashing down from the cliffs high above, swept through that gloomy funnel, avalanche upon avalanche. Should we aim to the left and descend, by the ordinary summer route, the rocks of the Gelbe Wand hand-over-hand on the rope, throwing the skis

down before us? Neither hands nor ropes were in fit condition for such tricky manipulations. Such were the thoughts which, flashing through our minds as we stood together on the brink of the icefall, gave rise to a hurried consultation. The result thereof was the unanimous decision to camp there and then; for, as long as the storm continued to rage with all its present fury, it would be nothing short of madness to attempt the descent of the icefall before daybreak. It was about 2 or 3 a.m., and the moon was not only behind the cold, opaque and driving mists, but evidently also hidden behind the crags of the Tödi itself. The grey shadows of night made the very surface we stood upon uncertain.

Once the decision to bivouac had been definitely arrived at, the next question was how best and quickest to protect ourselves from the biting wind. Obexer proposed to dig a hole, but a prod with the axe revealed ice under a layer of barely two feet of soft, powdery snow which would not bind together and was continually whirled about by the wind. Another suggestion was to seek the shelter provided by some shallow or otherwise suitable crevasse. This was my idea, so I promptly proceeded to look around for something after the nature of a harmless crevasse. Hardly had I moved a few feet downwards, when with a dull thump there I hung, with nothing but empty space under my skis. I clung to two ski-sticks up to my shoulders in a bottomless crevasse. As I began hauling myself out by the sticks, Weber noticed my disappearance and pulled wildly on the rope; an unfortunate move on his part, for it jerked me away from the sticks and threw me into the crevasse, where I hung, with my full weight on the rope, some four feet below the surface. In falling, the sudden jerk of the rope on my ribs winded me

thoroughly. Communication with the others was quite impossible, unless I could contrive to raise my head to the level of the ground above. Even the united forces of all three of them could not pull me up on that rope, for it had cut deeply into the frozen, overhanging snow edge of the crevasse. To regain my wind and, indeed, to be able to breathe, I had to force the loop of the rope high up under my armpits. Then I threw the ski-sticks, which I had firmly retained in my grasp, up over the lower edge of the crevasse, and one after the other I unfastened my skis and threw them after the sticks. Propped with my feet against one wall and my shoulders against the other, I could now relieve the pressure on my ribs, and was able to sling the rucksack, on which I carried my ice-axe, off my back. I unfastened the axe and pushed it into the loop of the rope. Just as I was swinging the rucksack up to join my skis and sticks, the rope suddenly slackened, and down I rattled another couple of feet. The poor old rucksack, a dear friend, failed to gain the safety of the upper world, and fell, thud—thud—thud, far beyond reach down into the invisible depths of my grim prison. Gone with it, and most regretted, was one glove which had frozen to the strap that I had been holding. With my axe I managed to cut steps up one wall of this troublesome crevasse, knock a breach in the corniced edge, and work with my head above ground. Then I shouted to the others, who stood some distance off, to throw me an end of the other rope. Between us yawned the wide-open mouth of another crevasse which prevented them from approaching any nearer to me, and it was only with the greatest difficulty that I succeeded in making my instructions understood above the roar of the storm. The wind flung wide three casts of the second rope, but the fourth succeeded. Putting my weight on this rope, I



The Tödi from the Bifertenlücke.

The dotted line indicates the route followed, and B the site of the bivouac on the Biferten Glacier.

The summit of the Tödi.

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could pull up the other one, which was buried to a depth of some three feet into the snow at the edge. A few minutes more of hard struggling and we were once again united. We no longer felt inclined to hunt after safe crevasses, especially as the one I had so thoroughly inspected was full of draughts; indeed, the storm seemed rather increased when caught between those merciless, blue walls. Under Obexer's able direction, the following half-hour was spent busily digging a ten-foot long and four-foot deep hole in the snow, into which we laid the skis and then ourselves. Three lay stretched out at full length, two on the skis, and the top man on those two. Morgenthaler preferred to sit with his hands round his feet and his head tucked well in between his knees.

During the whole trip I had not worn any head-gear, and now all my own property in that line lay under the glacier. The first few minutes of inaction revealed two facts. Firstly, for all the protection from the wind our Palace Hotel, as Obexer named the happy home, afforded us we might almost as well have camped out on the normal, unprepared surface; secondly, that my head was covered with an inch of ice and snow, icicles were pendent from eyebrows and eyelashes, and one half of my face was dolefully sore as if from commencing frost-bite. So I borrowed the nearest rucksack and tucked my head into it. The dark interior was full of snow; but by now I was accustomed to snow, and the storm at least was outside. Feeling round inside my novel head-gear for apples, which the owner reported to be there, provided some excitement. One or two, and much sugarless ice-cream, I found and promptly gobbled. The gloveless hand found comparative warmth in the pocket of my sodden jacket.

Long before morning we were all wet through. Every

little while the three who lay full length struggled, wriggled and rolled until top and bottom positions were exchanged. Everyone continually buffeted, slapped and shook his neighbours or himself, no one being allowed to remain silent or motionless for more than half an hour. To beguile the sleepless hours by songs, jests and yarns was out of the question, as the storm howled louder than any or all of us together. Morgenthaler and Weber, unluckily, had only woollen gloves, which were long since sodden and frozen. Spare socks helped somewhat, but anything woollen was soon soaked and rendered useless. Consequently, they chiefly complained of frost-bitten hands. Weber, whose vitality did not appear to equal that of his companions, required much attention, in spite of which he at times complained of the attacks of Jack Frost at his toes and other parts of his anatomy. Yet, all things considered, the time passed rapidly enough in the bivouac, and not half as unpleasantly as one might have expected under such conditions. Once the storm tore the mists apart for a second, and a glimpse of the sharp rock summit of the Grünhorn to the left served to reassure us as to our exact position. Later on, towards dawn, I fell sound asleep, only to awake when someone announced it to be 8 a.m. At first I could not account for the darkness which surrounded me, then suddenly I remembered my head was in the rucksack. Outside this "abode à la ostrich" it was broad daylight, but grey white, and there were no signs of any abatement in the fury of the storm. I must have slept quite an hour.

We all stood up and stamped about. The storm seemed fiercer than ever, and in our soaked condition the cold was doubly penetrating. We decided to attempt further descent on foot, leaving our skis to be recovered on some later

occasion. Ski-sticks were planted to mark the scene of our camp, then the ropes re-arranged and joined together. The crevasse I had fallen into had no bridge on the left, so we headed horizontally to the right. Almost at once the steepness of the ground increased rapidly, and it was soon necessary to cut steps. When we had advanced but a few rope's lengths, it became all too evident that we could not descend the icefall as long as the storm raged. Every few minutes terrific gusts would force us to our knees, all but sweeping us off our steps. So when we came to a fallen ice-block and found a four-foot-deep hollow in the snow beside it, we decided to camp anew, in the hope that the gusts were but a final effort on the part of the tempest and sign of its approaching exhaustion.

Later in the morning, deceived by lengthy pauses between the shrieking blasts of the gale, we made two more vain attempts to continue the descent. Soon after noon it commenced to snow very heavily, and we were glad, for surely now the wind would cease. Shortly after 2 p.m. the storm was all but a thing of the past. At 3 p.m., satisfied that no more fierce gusts were likely to surprise us, we resumed the descent which had been interrupted by a total of nearly twelve hours in bivouac.

Many steps had to be cut, as now all traces of our ascent had disappeared. It was hard work and cost much time, as all were very stiff, and none had escaped more or less severe frost-bite. We found the right way off the ice wall, letting ourselves down by the rope; but unravelling tangles and loosening knots was painfully hard on our fingers. Being on foot, we at first thought of returning past the Grünhorn hut and took a few steps in that direction; but when once again I made the acquaintance of the interior of a hidden

longitudinal crevasse, the majority voted for the descent by the lower icefall. The walls of the Bifertenstock were alive with avalanches, invisible on account of the falling snow and dense mists, but ever crashing over the precipices and rumbling down close on our right. On the plateau below the icefall, the mist became so dense that we had to steer for the hut by compass. After some hours' vain stumbling round about where we thought the hut should lie, we found it shortly before 9 p.m. On the table was a note from Forster, informing us that he had descended to collect a rescue party. Had we been in anything like undamaged condition, we should at once have continued our descent down to the Linthal Valley. As it was, we ate a frugal supper ; then slept like logs till far into the next morning.

On Tuesday, owing to a temporary sleeping fit of our only remaining watch, we prepared to leave the hut two hours later than we had intended. Obexer and Morgenthaler started off immediately after breakfast, in the hope of preventing a rescue party from setting out. We did our level best to tidy the hut, and then had to spend over an hour softening Weber's boots on the stove before he could force his sorely frozen feet into them. Arriving too late in Linthal to catch a train home, we passed the night in the comfortable quarters of the Raben Hôtel. During the evening, the welcome message arrived telling of Obexer's success in telegraphically sending a rescue party composed of members of the Academic Alpine Club back to Zürich, before they had proceeded beyond Thalwil on their outbound journey.

On Wednesday, at noon, we two arrived at Zürich. Weber went off to bed at once and was more or less an invalid for the next six weeks. His hands and feet were badly frost-bitten, the result of wearing woollen gloves and tight, ill-fitting boots.

Thanks to careful treatment, his hands recovered completely, but most toes of both feet had to be amputated.

More serious was Morgenthaler's fate. Nearly all his fingers had to be amputated at the first or second joint, and the remaining ones will probably always be stiff. He, also, wore woollen gloves, but large, loose-fitting ski-ing boots had kept his feet in perfect condition.

Obexer and I suffered no serious consequences. A frost-bitten thumb worried the former for the next month. I lost a few teeth, and with a swollen, half-frozen face, hobbled about for a day or two in gouties. A fortnight later I was able to accompany Forster on a ski-ing trip over the Furka and Nägelisgrätli up the Oberaarhorn. A month later Obexer and I climbed Piz Urlaun, revisiting *en route* the scene of our bivouac. We succeeded in rescuing in all six skis (unfortunately not three pairs), two of which were recovered out of a great flat-bottomed crevasse which had split open just below our camp.

The story of this adventure has a moral; an old moral it is true, but one that will well bear repeating. In the first place, we should never have attempted a mountain like the Tödi with companions of whose equipment and experience we had no knowledge; and, secondly, methylated spirits and cooking apparatus, warm clothes, loose-fitting boots, sail-cloth gloves lined with wool, and last, but not least, a reliable pocket barometer which would have warned us of an approaching change in the weather, are indispensable items of equipment for serious winter ascents.

CHAPTER IX

THE BIFERTENSTOCK

FAR to the north of the main chain of the Alps there lies a range of mountains crowned by the two outstanding summits of the Tödi and the Bifertenstock. The former, rising from the lowlands of the Linth Valley to an altitude of 11,887 feet, is the loftier of the two and justly gives its name to the group; but the latter far excels it in beauty and impressiveness, and gives its name to the greatest glacier of the group, which flows down the deep-cleft valley between the "King of the Little Mountains," as the Tödi has appropriately been named, and the stupendous precipices of the north-west wall of the Bifertenstock. The range is within easy reach of Zürich by rail, and affords climbing of almost any degree of difficulty, from the simplest of snow trudges to the most desperately hard ice or rock ascents. Small wonder, then, that climbers flock hither in their numbers during the week-ends, and that daily throughout July and August the more accessible club-huts are crowded to overflowing. The vast majority of these mountaineers, however, have designs upon the Tödi alone. For hours on end they trudge up the wearisome upper slopes of the Biferten Glacier to the summit, whence, after enjoying one of the most wonderful panoramic views in the Alps, they return contented to the valleys. A few, imbued with the pioneering spirit, or to whom the spice of danger and the sense of achievement after hard-fought battles are of stronger allure than the

wonders of the summit view, desert the well-trodden glacier track and sally forth to grapple with unsolved problems, or problems so seldom attacked that they are still clothed in the nimbus of the mysterious and superlatively difficult.

A glance at the three main stages in the history of the exploration of these "Little Mountains" is astonishingly interesting, not only for its own sake, but for the light it throws on the trend of modern mountaineering. The story of the conquest of the range begins with Pater Placidus à Spescha, a jovial monk and surely one of the stoutest-hearted men that ever lived. Climbing alone or with the most inefficient of companions, and inadequately equipped, he accomplished some astonishing feats, which even to-day would stand well to the credit of an expert mountaineer. To give the details of his many conquests and valuable contributions towards the topographical knowledge of the Bündner Alps, would be beyond the scope of this book; but as an example of his outstanding perseverance it may be mentioned that this Swiss priest made no less than six attempts to reach the summit of Piz Rusein, the highest of the three summits of the Tödi, and that his last attempt, also unsuccessful, was made at the age of seventy-two. When we consider that his explorations were carried out towards the close of the eighteenth and beginning of the nineteenth century, at a time when the belief had not yet died out that the mountains were the abode of fearsome and savage dragons, and when the inhabitants of a secluded valley, such as the one whence this valiant pioneer hailed, were still ready to condemn as sacrilegious any unwonted activities on the part of a member of their community, we are filled with amazed admiration at the intrepidity, resolution and prowess of this valiant monk. Contemptuous of discomfort and danger, defiant of

criticism and defeat, ever aspiring towards the highest his little mountain world held forth to him, actuated only by love of the mountains and a lively, intelligent curiosity as to what secrets lay hidden therein, without hope of gain, Pater Placidus à Spescha well deserves recognition as one of the fathers of mountaineering. With the cessation of his climbing career in 1824 ends the first stage in the history of the exploration of the Tödi range.[1]

The second stage sees the rise of a protagonist of other mettle, the chamois hunter, strong, sure-footed, quick to grasp the use of rope and axe, and possessing valuable local knowledge, but for the most part lacking in initiative and slow to understand the joy in climbing for climbing's sake. He was soon induced by offers of generous payment to turn guide and place his skill and physical strength at the disposal of the stranger, whose self-imposed task it was to supply the initiative in which his employee was deficient and to arouse in him the energy and will-power without which nothing would have been accomplished. From 1830 onwards, the summits of the range of the Tödi shared the fate of mountains throughout the length and breadth of the Alps, and fell before the onslaughts of parties composed of amateurs aided by professional mountaineers, or, in short, guided parties. But the conquest of the last virgin peak still left much work to be done; only the fringe of the pioneering had been touched, for, as a rule, the first ascent opened up but one way to the summit, and that usually the easiest and least interesting. And so it came about that, as the numbers of unclimbed

[1] Those interested in the exploits of Placidus à Spescha would do well to consult the articles contributed to the Alpine Journal by Dr. H. Dübi and Mr. D. W. Freshfield. Mr. Freshfield, the greatest living British mountaineering explorer, was one of the pioneers of climbing in the range of the Tödi.

mountains decreased, the attention of the more ambitious climber turned towards the discovery of new routes. In the greater mountain groups of the Alps, success in this new line again fell almost exclusively to guided parties, the amateur members of which, generally speaking, continued to supply the mental stimulus, while the guides, by virtue of their greater climbing ability, superior physical strength and improving knowledge in all practical matters pertaining to their new craft, were able not only to help them to overcome the mountaineering difficulties encountered, but also to ensure their immunity from the subjective—that is avoidable, given the exercise of due skill and precaution—dangers inherent in the pursuit. In the range of the Tödi, however, it was otherwise. After the conquest of the individual peaks, little was done by way of opening up new routes, and a period of comparative stagnation set in.

Towards the latter end of the last century, the old style amateur climber, a true lover of mountain adventure, was rarely seen in this corner of the Alps. Not that there was any deficiency of climbers, for even then had appeared the sure signs of the impending deluge. The little Grünhorn club-hut, the first of many huts built by the Swiss Alpine Club for the benefit of mountaineers, and which still stands on a rocky spur of the Tödi hard by the Biferten Glacier, no longer harboured an occasional party at distant intervals, but was regularly so overcrowded that a larger hut, the St. Fridolin's, was built to relieve the congestion. Whence came these throngs of climbers, and who were they?

So far the Alps had been almost exclusively the playground of a small, select circle composed of men of leisure and means who could afford to pay for the by no means inexpensive services of guides and the charges for their

upkeep while engaged. Within the circle there soon moved two classes; the first consisted of the real pioneers, true lovers of mountain adventure, and the second of imitators, who climbed because climbing was deemed fashionable. In course of time, here and there from out the ranks of these early amateur climbers would come one or two, vaguely moved perhaps by the supreme joys that unaided achievement might bring, to dispense for a space with professional help and climb "on their own." From them sprang the modern guideless climber. Rendered inarticulate at first by the appearance of the new species, it was not long ere certain members of the climbing fraternity of the day had collected themselves enough to pour unstinted abuse upon those who dared to indulge in the new form of mountaineering. They condemned climbing without guides as suicidal, and therefore wicked and immoral, and started out to strangle the new tendency in its cradle. They all but succeeded. Yet one of their strongest contentions, to the effect that the practice was fraught with undue danger and likely to lead to unnecessary loss of life, will not bear the cold light of fact; statistics of mountaineering accidents show, if anything, that the percentage of casualties amongst the guided exceeds that amongst the unguided. In condemning climbing without guides, they were attempting to deny for ever to the youth, who could not afford the luxury of a guide, the adventure, health and happiness that are to be found in the mountains, and did their utmost to pinion his wings. Fortunately, the new movement weathered the storm and steadily pursued its course, until to-day purely amateur parties completely outnumber the guided. Nor are the ranks of the guideless recruited solely from those who cannot afford the expense of guides; on the

contrary, many of the old faith, having once tasted of the more satisfying joys of the new, have definitely embraced the latter.

The statement has been made more than once, and may even be seen in print, that the first-class amateur is superior, as a mountaineer, to the first-class guide. Surely such a statement can emanate only from those who have no actual, *personal* experience of the highest capacities of a great guide. The truth is, that the first-class guides of the Alps number less than the fingers of one's two hands, and—let us be humble—the first-class, British, all-round amateur mountaineers less than one third of that. The ideal, strongest mountaineering party would be composed of two or more first-rate guides ; but obviously such a party has no *raison d'être.* The next strongest party, therefore, would be a combination of first-class guides and first-class amateurs. Such a party would be able to attack the most difficult mountaineering problems with the greatest possible prospects of success and a wide margin of safety. Herein is probably the chief reason why a few proficient amateurs still endeavour to obtain the services of the few guides of the highest rank.

With the firm establishment of guideless mountaineering, the exploration of the range of the Tödi entered upon its last phase. Diffident of their powers, the new climbers who thronged the Grünhorn, St. Fridolin's, and other club-huts were at first content to feel their feet on the old familiar paths ; but soon the more adventurous began to yield to the lure of the unknown and seek their chosen summit by hitherto untrodden ways. Almost without exception, the discovery of every subsequent new route up the mountains of the Tödi group has fallen to the lot of guideless climbers. To-day,

in this part of the Alps, a guided party is seldom seen, and then, as a rule, only on the well-beaten track which marks the easiest way up one or other of the more popular summits. So successfully have these keen young men carried out their work that the end of the era of exploration in the range of the Tödi is in sight. Possibilities of new routes still exist, though it is only too obvious that these will provide climbing of exceptional difficulty and tax the capabilities of the guideless climber to the uttermost. Of the few fine problems still awaiting solution, perhaps the most alluring is the crossing of the Bifertenlücke, one of the wildest and grandest of Alpine passes.

Early in September, 1913, persistent snowfalls having seriously impaired climbing conditions in the Mont Blanc group, Guy Forster and I turned our attention to the range of the Tödi where, thanks to its position well to the north of the main chain of the Alps and comparatively low elevation, climbing possibilities were still at their best and likely to remain so for some time. Our main interest centred on the Bifertenstock, whose culminating point reaches an altitude of 11,241 feet above sea-level. Belted, as it were, from head to foot with girdle upon girdle of bronze-coloured rock besprinkled with the crystal of snow and ice, the Bifertenstock was unique not only in appearance, but in that its west ridge, which rears itself up out of the Bifertenlücke towards the summit in a series of huge, precipitous, even overhanging buttresses, had never suffered the imprint of human foot. Here was one of the few problems that still awaited the explorer in the Tödi. More than one party of mountaineers had gone up to the Bifertenlücke with the avowed intention of climbing this ridge; but the aspect of the first buttress, a tremendous overhanging corner rising

The Bifertenstock from the Bündner Tödi.

The west ridge commences in the Bifertenlücke, just beyond the snow slope in the foreground.

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straight out of the pass, had so successfully repelled them all that no one had ever even come to grips with it. On September 5, 1913, in the hope of meeting with better fortune, Forster and I set out from Zürich to investigate the chances of success. As there is so far no direct approach from the north to the Bifertenlücke, whence the climb must begin, we selected as our base the Ponteglias hut which stands on the southern side of the range.

A five-hours' rail journey *via* Coire brought us to the village of Truns in the Rhine Valley, whence professional help in the shape of a guide assisted in carrying up to the hut our ponderous rucksacks replete with a full week's provisions, ropes, spare clothes, photographic equipment and all the other things that add to the interest and comfort of life in the solitudes. Towards nightfall, after a laborious three hours' walk through the narrow, steep Ponteglias Valley, we arrived at the hut where our guide, having dumped his load, was paid off and returned to the village. Plans for the following day provided only for an ascent of the Bündner Tödi, a little snow-capped summit to the west of the Bifertenlücke, whence a commanding view of the west ridge of the Bifertenstock could be obtained, and for a reconnaissance, at close quarters, of the first great buttress of the ridge. There was, therefore, no need for an early start on the morning of the 6th. It was daylight when we arose to cook a breakfast which proved so much to our liking that we immediately set to and prepared another even more sumptuous one. At length, in the bright sunshine of a cloudless day we sallied forth. For an hour we strolled leisurely up the gently-rising, stone-strewn surface of the Ponteglias Glacier which reaches from just below the Bifertenlücke to within a few hundred yards of the hut. At the point

where the glacier becomes snow-covered and crevassed and rises more steeply towards its source, we put on the rope and steered an uneventful, zig-zag course round the more fissured zones towards a little scree slope lying just below the Bifertenlücke. At 9 a.m. we were in the pass, and looking down the breathless precipice that falls away to the Biferten Glacier. Here we deposited the knapsacks and, after twenty minutes' trudge up a broad snow ridge, gained the summit of the Bündner Tödi.

A careful glance at the west ridge of the Bifertenstock sufficed to show that the only really crucial sections were the first and last buttresses. But these two steps, the first rising out of the pass and the last leading on to the final easy summit ridge, were so awe-inspiring and immense that they seemed fashioned only for Titans. The first, in particular, looked absolutely impregnable, and, had the usual everyday conception of the sporting element been present, there is no doubt that the betting would have been largely in favour of the Bifertenstock's west ridge remaining inviolate. But we were both too old hands at the game to be dismissed by mere appearances, and returned to the Bifertenlücke to prepare for a closer examination of the initial difficulty. Back at the spot where the knapsacks were dumped, we settled down to a meal and a smoke; and then, as the rock was limestone, upon which nails can get but little grip, we replaced our boots by rope-soled canvas shoes and roped on at each end of one of the two one-hundred-foot climbing ropes. Leaving almost all our kit behind, we moved up to the attack, Forster armed with the second rope and my camera and I with a *piton.*[1] While still only a short distance along the

[1] A stout iron pin or nail provided with a ring at one end.

narrow but not very steep ridge from the Bifertenlücke, we found ourselves at the foot of the obstacle, a smooth, perpendicular, at times even overhanging, corner of rock about one hundred and sixty feet in height. Further progress along the crest of the ridge was out of the question. To the right, smooth, vertical slabs crowned by an overhang and utterly devoid of hand- or foothold, completely excluded any possibility of climbing on that side. But in the wall on our left lay the semblance of a chance. It was very steep, indeed beetling in places; but the rock was not so pitilessly smooth as elsewhere, and it looked sufficiently broken to afford some hand- and foothold. The route would lead us on to the face of the giddy precipice that falls away to the Biferten Glacier over three thousand feet below; but it was the one possible line of ascent. Forster placed himself securely at the foot of the great step and, well-braced to hold me in the event of a slip, paid out my rope inch by inch whilst I made my way leftwards along a narrow, sloping, terribly exposed ledge.

After working along the ledge for about thirty feet, I saw above me an ill-defined, shallow chimney which, though overhanging towards the top, might have afforded some possibility of climbing directly upwards; but to attempt it seemed likely to prove such a desperate venture that I decided to keep to the route across the precipice in the hope of finding a better way up. This further search failed in its object, and there remained nothing but to go back and try conclusions with the chimney. First I returned to where Forster was standing, then, making sure that my shoelaces were tightly tied and the ends well tucked away, and that the rope about my chest was not so tight as to interfere with freedom of movement, I returned to the ledge and at 10 a.m.

began to grapple with the chimney. Handholds and footholds proved to be of the minutest, and the rock was unreliable. Every hold had to be carefully tested before use. Inch by inch, painfully slowly and exerting every effort of which I was capable, I gained in height. The upper, overhanging portion of the chimney required an almost desperate struggle before it yielded, but I was at last able to grasp a large and firm handhold and drag myself on to a platform at the top. This platform was none too commodious; about a foot wide and no more than eighteen inches long, it sloped slightly downwards and afforded room for only one man. Nevertheless, it gave me an opportunity to stand and rest while I nerved myself for the next pitch. A little to the left, a fairly clean-cut chimney commenced, which led up towards and ended underneath a gigantic, protruding tooth. I thought, however, that it might be possible to avoid the overhang by leaving the chimney about half-way up and, by traversing over some slabs to the right, gain the crest of the ridge of the great buttress at a point where it was climbable. So I set out to put my idea to the test, but had not gone far up the chimney before the weight of the rope between myself and Forster, who was now a good thirty feet below and as much to one side, threatened to destroy my balance. Returning to the platform, I took in the rope while Forster climbed up towards me. At the very moment when he grasped the good handhold and was ready to pull himself on to the platform, I vacated it and recommenced work on the chimney. We were now in a situation which should rarely, if ever, occur in mountain climbing. A slip on the part of either would have involved the fall of both. There was no projecting piece of rock within reach over which to belay the rope, neither did the platform on which he stood afford sufficiently good footing to enable

Forster to hold me in the event of an ill-judged movement or false step on my part. Climbing the chimney which was already taxing my powers to the full, I should have been powerless to arrest a slip on my companion's part. No matter who fell first, he would drag the other after him. Fully realising the precariousness of the position, we climbed on, determined not to slip, and exercising all the care and skill at our command.

On drawing level with the slabs across which I had thought to reach the ridge, they looked so forbidding that, situated as we were, the risk of embarking upon them without the safeguard of a belay appeared too great. So I proceeded farther up the chimney until my way was blocked by the overhang at the top. Jamming myself securely in the now narrower and deeper cleft, I took the *piton* from my pocket and with the help of a stone hammered it well into a little fissure seaming the smooth rock wall on my left. Then I unroped, passed the end of the rope through the ring of the *piton* and tied myself on once more. It was a lengthy process, for I had only one hand to spare for the work, but well worth the trouble, as it put an end to the unpleasant situation in which we had found ourselves ever since Forster had come up to the platform. The *piton* was firm, and it would now be an easy matter for either of us to hold the other in the event of a slip. After retreating half-way down the chimney, I worked out across the slabs to the right. They by no means belied their appearance and afforded most difficult climbing. But as the rope passed from me up to the *piton* and then down to Forster, any tendency to slip could be immediately and easily checked. Once across the treacherous slabs, a quick scramble up firm and easy rocks landed me on a spacious platform on the very crest of the

ridge. Glancing upwards, I saw that, in so far as the rest of the buttress was concerned, all serious difficulties were over.

Forster now prepared to join me. Climbing up to the *piton*, he unroped, withdrew his end of the rope from the ring and tied himself on again. He then descended the upper half of the chimney, carefully negotiated the slabs and climbed swiftly up to me. Together on the roomy ledge, we yelled ourselves hoarse in giving vent to our hitherto pent-up feelings and in anticipating the triumph of which we now felt assured. It was half-past noon ; so exigent had been the ascent that we had taken two and a half hours to accomplish this small section. We had, however, made up our minds to push on the reconnaissance as far as the top of the buttress ; so, after regaining our breath, we set to to tackle what remained of it.

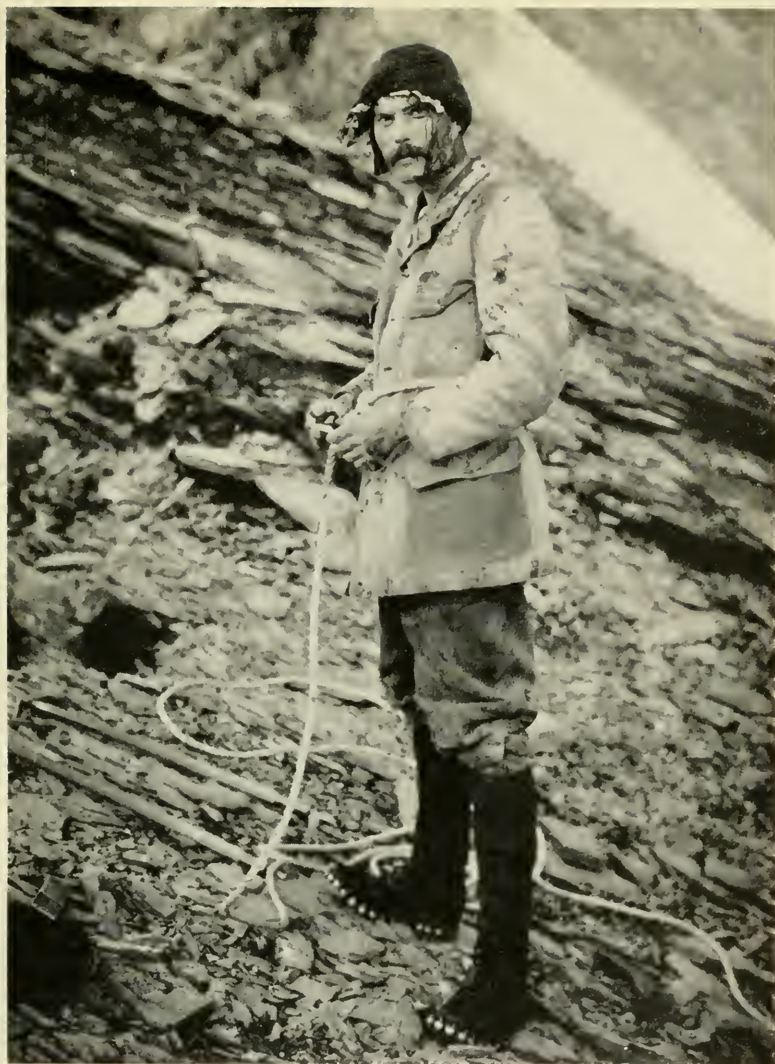
The crest of the ridge once again became too smooth and precipitous, but close to it, on the right, a feasible route could be detected. It led up steep slabs to the foot of a crack which debouched on the very summit of the buttress. The rope was all paid out before I had gained the crack, and Forster had to make his way up towards me. But I had good standing ground on a fairly wide ledge and could hold his rope securely. He was about fifteen feet below me and just about to wrestle with the hardest part of the ascent when, in an effort to improve my footing the better to cope with a slip, I felt the greater part of the ledge, which I had hitherto looked upon as solid with the mountain, break away from under my feet, and a great mass of rock slithered down the slabs, aiming with deadly accuracy at Forster. Powerless to move out of its way, he received a glancing blow which inflicted a deep scalp wound and all but stunned him. Swept out of his holds by the impact, he was left hanging helpless in mid-air. By all that is merciful, however, sufficient had remained of the

ledge to leave me with just enough footing to withstand the strain on the rope and hold Forster up. Blood was spurting freely from the wound in his head, the extent of the injury was unknown, and no time was to be lost in getting to a place of safety, where it would be possible to staunch the flow. Staggered though he was and dripping with blood, Forster still had his wits about him. As I held his rope taut, he climbed up to me and took his stand on what was left of the ledge, while I made my way up to the foot of the crack and, with all possible haste, gained the broad level platform at the top of the buttress. There he rejoined me. Inspection revealed the reassuring fact that the extent of his injuries was limited to the scalp wound, which, however, still bled freely. By means of a few sheets of paper kept firmly in position underneath a knitted silken cap, the flow was eventually stopped. Except in its purely physical result, the little drama had not adversely affected either of us. Indeed, if there had previously been any doubt as to the final conquest of the west ridge of the Bifertenstock, there could be none now. The rough handling had got our blood up, and we felt the ridge was doomed. For the present we had fulfilled the object with which we had set out, namely the reconnaissance of the first great obstacle, and it behoved us to return to the Bifertenlücke where we had deposited our kits. We did not, however, hasten our retreat; for Forster was weakened through loss of blood, and, that he might recover his strength as far as possible, we rested on top of the buttress for over an hour. Building a cairn, smoking and chatting the while, the time flew past merrily enough, and at 2 p.m. we turned to face the problem of the descent.

Exercising the greatest possible care, all went well as far as the platform whence it was necessary to traverse out across

the slabs leading to the chimney near which the *piton* was fixed. It was obvious that the last man down could neither venture across these slabs nor descend the final, shallow chimney below without the steadying help of a rope from above. Held firmly on the rope by me, Forster moved out across the slabs and climbed up to the *piton*, where he unroped, threaded his rope through the ring of the *piton*, re-roped, and then descended right down on to the lowest ledge and over to the good standing ground on the ridge at the foot of the buttress. There he again unroped and tied the spare rope on to the end of the one passing through the *piton* to me. It was now my turn to go down. I crossed the slabs with due care, but, thanks to the assistance of the improvised belay, the rest of the descent was a simple matter, and in a few minutes I had rejoined my companion. I untied myself, and, by hauling on the spare, the climbing rope was pulled down through the ring of the *piton* and recovered. A little later, in the Bifertenlücke, my camera had made a faithful record of Forster's blood-bespattered condition. Our sensational entry into the Ponteglias hut was witnessed only by the too friendly sheep that haunt the surrounding grassy slopes.

On the following day the weather broke and snow fell. But we cared little, and time passed pleasantly in the preparation and consumption of oft-repeated meals. On September 8, the weather was once more fine, but the desire to be up and doing had to be curbed until the sun should melt the fresh snow that lay on the Bifertenstock, and yet another day was spent in cooking and eating, and in frustrating the effects of over-indulgence with spasmodic bouts of step-cutting practice on the snout of the Ponteglias Glacier. Towards evening we packed the rucksacks and made everything ready for an early start on the morrow.



" . . . *a faithful record of Forster's blood-bespattered condition.*"

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At 5 a.m. on September 9, we left the comfort of the hut and in little more than two hours had gained the Bifertenlücke. Then, exchanging the heavy mountain boots for rope-soled shoes, we commenced the attack upon the west ridge in real earnest. Leaving my knapsack and ice-axe with Forster at the foot of the great buttress, I worked out along the ledge, climbed up the shallow chimney and, gaining the little platform, paused to rest after my exertions. Then, being now familiar with the position of every handhold in the next chimney, I climbed quickly up to the *piton*, threaded the rope through the ring and crossed over the slabs lower down to the broad ledge on the right. As soon as I had firmly established myself, Forster unroped. Drawing the rope free from the *piton*, I flung it down to him so that he might tie on to it our knapsacks and axes; the latter were necessary, for it was our intention to traverse the mountain, descending by the south ridge and the Frisallücke. The goods were soon pulled up to my level and removed, and once more the coils of rope swished through the air to Forster, who again tied himself on and was soon up beside me. From here onwards, past the scene of the accident to the foot of the last great buttress, all was plain sailing. Five intermediate steps or buttresses had to be surmounted. One yielded to a frontal attack; the others were turned without great difficulty either on their right or left. Twice we had to take to steep snow, a change of footgear being necessary on both occasions. At length we stood on the ridge at the foot of the last buttress, the most formidable barrier remaining between us and success. The ridge itself and the wall to the left both overhung to such an extent that they defied attack. To the right, however, the rocks were less steep and more broken up, and for about one hundred feet

we made our way across them under the great wall of the step. On attempting to strike upwards, however, we found that we had misjudged the gradient, and after a stern struggle I recoiled defeated. We then continued our traverse still further to the right across a series of smooth, precipitous slabs where, for the second time on this ridge, in spite of the great length of rope at our disposal, the utter absence of belays or suitable standing grounds forced us into a situation in which the protection afforded by the rope was nil, and a slip on the part of one of us would have involved the destruction of both. Each knowing that where one could climb the other could follow, and both confident that neither would slip, we did not dream of retreat. But had we been at the mercy of a companion who was clumsy and frequently in need of assistance, even at this advanced stage where we were so near our goal, we would have broken off the climb. Why, one may ask, not dispense with the rope altogether in such a situation where it is little more than a dangerous encumbrance? My reply is a simple statement of fact, from which each may draw his own inferences. I would prefer not to climb with the man who advocates such a policy.

Safely over the slabs, we came to the foot of a very steep, shallow gully leading to a great snow cornice on the ridge above the buttress. With much difficulty we climbed the first hundred feet and reached a broad, almost level shelf barely fifty feet below the cornice. A huge lump of the latter had fallen away, leaving a gap that gave easy access to the ridge. Between us and the gap lay a stretch of easy, broken rocks, so, once more changing footgear and donning mountain boots, we scrambled up and at last stepped out through the cornice back on to the ridge.

A north breeze, cool and bracing, met us. The snow

under foot sparkled in the brilliant noonday light. The neighbouring peaks stood up bold and sharp in the clear atmosphere. The sun flooded all with warmth. It was good to be alive. A last, half-whimsical glance at the little St. Fridolin's hut, a tiny brown speck at the foot of the great four-thousand-foot wall, and we turned our steps along the snow-crested ridge towards the summit. Chipping a step here and there where the cornice forced us out on to the steep north flank, we mounted speedily. One more clamber over a pitch of easy, broken rocks and the fight was over. At 2 p.m. we stood atop of the Bifertenstock.

CHAPTER X

MONTE ROSA

UPON a bright summer's morning in 1911, we[1] lay on the warm rocks of the Monte Moro, gazing spell-bound at the avalanche-swept slopes of the greatest precipice in the Alps—the east face of Monte Rosa. Max saw chances of a grand climb and thought some of the bergschrunds looked bad; then, turning his attention to more personal matters, proceeded to indulge in a rigid foot inspection. Obexer could not contain his enthusiasm and greeted each avalanche, as it swept down the Marinelli Couloir, with merry song and derisive yells. Case "guessed you 'd have to hustle some in the Rockies to go one better" and, curling up comfortably on a warm slab, went to sleep.

Perhaps from nowhere else are the impressive beauties and the almost overwhelming grandeur of the Monte Rosa of Macugnaga to be seen to better advantage than from the Monte Moro. From the Jägerhorn up the Nordend, over the Grenz Gipfel, beyond the Zumstein Spitze and the Punta Margherita down to the Colle della Loccie, the eye travelled on that still, clear morning along a bewildering succession of clear-cut snow crests, aglow and glistening in the morning light, interrupted here and there by gaunt rock cliffs all dusted with freshly-fallen snow. Rolling mists obscured the Macugnaga Glacier and gently bathed the foot of the precipitous slopes and avalanche-seared cliffs that towered

[1] J. C. Case, F. Obexer, M. B. I. Finch and G. I. Finch.

up, tier upon tier, to the support of the summit ridges—a support seemingly robbed of stability by the clouds that concealed its foundations ; an immense wall perched up above illimitable space and threatened with imminent dissolution. The trembling, bluish haze of distance, deepening in hue as the sun's rays gained in strength, softened the sharp outlines of the ridges, the harsh contrast between rock and snow ; and, with the thinning of the mists above the Macugnaga Glacier, cliff and cloud gradually merged into each other. A grand and glorious sight had now been transformed into a vision, almost ethereal in its sublime beauty, and into my half-waking dreams there came a fleeting glimpse of the climber's paradise.

The moments passed, bringing in their train a multitude of thoughts and happenings of which the mind, with such happy facility, selects and stores up none but the pleasant, to serve later as a panacea for all the evils that beset those of the true faith during their servitude in the plains. Max had donned his boots, and together we discussed the problem confronting us. Case stirred uneasily on his rocky couch, awoke, and joined in the solemn conclave. Then came Obexer, who, with the optimism of all his nineteen years, pointed out a route leading up to the rocks of the Grenz Gipfel, to follow which would have led to certain and sudden death. Detail was lost in the hazy distance, and we could arrive at no solution of how to avoid the badly-broken belt of séracs which crowns the rocks of the Imseng Rücken. Avalanches fell frequently ; many, finding insufficient room in the Marinelli Couloir to contain them in their mad rush towards the glacier far below, plunged down over the broken rocks of the Imseng Rücken in rolling clouds of driven snow.

We lunched in Macugnaga. The porter, Alessandro Corsi,

the sole survivor of the ill-fated Damiano Marinelli's party which was overwhelmed by an avalanche on the Imseng Rücken in 1881, joined us at our table with that delightfully unassuming camaraderie which is still an endearing feature of the natives of the unspoilt valleys of Alpine Italy. The news of our project spread rapidly, and all too soon we were forced to beat a hasty retreat up the path to the Belvedère Hôtel, in order to escape the lively torrent of questions and comments which were rained down upon us from all quarters. But it was only another case of out of the frying-pan into the fire. Long before we found shelter in the Belvedère, a thunderstorm had drenched us to the skin. Towards sunset, the clouds lifted from the summit ridges, to reveal a generous sprinkling of new snow on the upper slopes of Monte Rosa.

After sunrise on the following morning (August 7, 1911), we left our comfortable quarters and strolled up the Macugnaga Glacier past the Pedriolo Alp. Here a halt was called to enable Max and myself to submit to a critical examination the séracs above the Imseng Rücken. If only possible, we wished to avoid having to find a way through the lower belt of these grotesquely piled-up pinnacles whose stability was so obviously doubtful. Apart from this, I was well aware of the difficulties with which this intricate labyrinth abounded, and of the loss of time that the overcoming of these difficulties would entail—a most serious matter on such an expedition as this. From the Imseng Rücken to the Silber Sattel, the Marinelli Couloir glistened with ice, and the idea of cutting up its full length was soon renounced. Quite apart from the volume of step-cutting in promise, the couloir serves as a huge drainage funnel for the avalanches falling down the walls of the vast amphitheatre extending from the Nordend to the Punta Margherita, and to remain in it for hours on end would

R. H. K. Peto.

The east face of Monte Rosa.

The summits on the skyline ridge are, from left to right, the Punta Margherita, Zumstein Spitze, Grenz Gipfel and the Nordend. The Marinelli Couloir descends from the depression between the Grenz Gipfel and the Nordend.

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be to incur too grave risks. Finally, we decided to try to evade the worst of the séracs by cutting up the Marinelli Couloir to a point about six hundred and fifty feet above the head of the Imseng Rücken ; then, turning to the left towards the Punta Margherita, we would grapple with the broken medley of séracs, ice cliffs and bergschrunds through which a way must be forced ere the final bergschrund below the rocks of the Grenz Gipfel were gained. Actually the expedition was carried out in conformity with these plans, down to almost the last detail; but in the light of later experience I believe that following the Marinelli Couloir throughout would have brought us to our goal more quickly and in far greater safety.

While the others wandered off at intervals towards the rocks of the Jäger Rücken upon which the Marinelli hut is built, I remained behind for some moments to make a few rough sketches and notes which might serve later to guide our party through some of the more intricate portions of the climb. Upon rejoining my companions, I found that they had missed the ill-defined track which leads to the hut ; but as time was our own, and no one evinced a desire to waste energy looking for anything so elusive as a mountain track, we muddled along contentedly, always keeping to the northern slopes of the Jäger Rücken. The steepening rocks were interspersed with abominable screes and slippery grass, and in due course the inevitable happened, and further progress appeared to be barred. Closer inspection, however, revealed a long and narrow chimney of forbidding aspect and furnished with a tremulous chock-stone. It led upwards in the desired direction towards the ridge of the Jäger Rücken to our left. A first attempt to scale the chimney failed, and I beat a retreat to the foot of the stubborn obstacle to rid myself of the encumbrance of the knapsack and tie myself on to the rope

which Max had meanwhile uncoiled. The second attack met with more success, and, after a wobbly fight with the unsteady chock-stone and having run out to the full length of a hundred-foot rope, I found good standing ground. Those below resolutely refused to be cajoled into climbing up to me with their lawful burdens upon their own shoulders, and, in spite of my protests, I was reduced to hauling the knapsacks up on the rope. The others speedily followed, and in a few strides we were on the ridge. A moment or two later the track revealed itself, though somewhat late in the day. The easy-going methods of the guideless climber, who seldom bothers to find the correct way to a hut, and the last little tussle with the chimney had cost much time; we had been over five hours on the way, when four hours' easy going should have seen us settled in the hut. Now, however, everything was plain sailing, and the level of the hut was rapidly approached. Just as we were about to leave the ridge to traverse towards the hut, a large stone — gentle reminder, perhaps, of what the morrow held in store—hurtled down through space with a fiendish "whirr-whirr" and crashed into the rocks a few yards below. This sort of thing was somewhat disconcerting, for do not the most learned authorities assure the climber that falling stones are not met with on ridges? Perhaps this was merely the proverbial exception to the rule; but, not wishing to become embroiled in a contest with another such exception, we left the ridge and, under the comparative shelter of some steep rocks, traversed rapidly towards the hut. At midday we had successfully solved the problem of unlocking the door with an ice-axe, that most efficient of master-keys.

The Marinelli hut is built against an overhanging rock wall at an altitude of over 10,000 feet on the Jäger Rücken, a

broad and somewhat ill-defined rocky ridge which, forming the lower boundary of the bottom half of the Marinelli Couloir, separates the latter from the Nordend Glacier. The floor space of the hut measures some thirteen by nineteen feet, of which half is occupied by two bare, wooden shelves which do duty as sleeping quarters ; the other half accommodates a table, a couple of rough benches and a stove which, for lack of firewood, appeared to us to be the only superfluous luxury in an interior of otherwise Spartan simplicity. Eight musty and evil-smelling blankets which we hung up outside to air and dry, a visitors' book and a few dirty pots and pans completed the inventory. The visitors' book soon fell into the eager hands of Obexer, and whilst Case and Max busied themselves with preparations for lunch and struggled with a refractory spirit stove, he proceeded to pump me dry of all the information at my disposal which would help him to compile the array of facts entering into the calculation of what he gruesomely termed "the mortality percentage of the east face."

Having done justice to Max's combined lunch and tea, I wandered over to the Marinelli Couloir. Case, whose usually somewhat dormant interest in external matters had been roused to a greater pitch than usual by the frequent thunder of collapsing séracs and the continuous rumbling hiss of snow sliding down the couloir, elected to accompany me. Traversing almost horizontally along a series of broken ledges, we gained the edge of the couloir in less than ten minutes. About a hundred and fifty feet above, a low but overhanging buttress jutting well out into the couloir obscured part of the view. A few minutes' stiff scrambling, however, placed us above the obstruction, and we were able to indulge in an almost complete survey of the whole of the route by which we hoped to gain the rocks of the Grenz Gipfel.

The warmth of the rays of an Italian sun was loosening the precarious grip of the heavy masses of fresh snow that had fallen during the thunderstorms of the two preceding evenings. A steady, unbroken stream of wet snow hissed rapidly down the deep-cut channels with which the bed of the Marinelli Couloir is scored. At frequent intervals, larger masses, often mixed with ice and stones, would break loose, swell over and out of the channels and, as if impatient of the bonds thrust upon them by the narrow confines of the couloir, would overflow the Imseng Rücken and with the reverberating noise of thunder dash down to the glacier below. Far aloft, gleaming proudly in the brilliant light, a great ice pinnacle nodded sedately forward, turned slightly round as if to recover balance, then, dragged down by the irresistible pull of gravity, crashed and broke into a thousand fragments which bounded down the great gully in grotesque leaps and jumps. A small cave, close at hand and opening out towards the valley, afforded refuge from the onslaughts of the blocks of ice and masses of snow that careered past within a few feet of us. The whole wall was literally alive with movement; during our sojourn of fully two hours, five consecutive minutes never passed without the rattle of falling stones or the mad, headlong rush of an avalanche.

While I was trying to reconcile the rough sketches made from the Macugnaga Glacier in the early morning with the foreshortened appearance the mountain now presented, Max hove in sight, and together we talked over plans. Finally, it was decided to begin the attack upon the couloir from the rocks upon which we stood, and then, by cutting across in a slightly ascending direction, to gain the rocks of the Imseng Rücken at their nearest point, distant by nearly two hundred yards. Once on the rocks of the Imseng Rücken, the original

plan of ascent, formulated *en route* to the hut, was to be adhered to as far as possible. Two other points were impressed upon us; first, the need for all possible speed and the avoidance of any unnecessary delay after having once embarked upon the ascent; and, second, the necessity of postponing the carrying out of the expedition for one, possibly two, days in order to give the sun an opportunity of clearing away as much as possible of the loose, fresh snow which still remained upon the slopes above.

Meanwhile, the sun had disappeared behind the Punta Margherita. The chill air of deepening shadows conjured up, by contrast, a glowing picture of our quarters for the night. Near the hut, hidden under a stone, a welcome find revealed itself—a few handfuls of wood. A merry fire was soon crackling and blazing away in the crazy little stove. The bright flames, the dancing shadows, and the curling wisps of smoke, supplied the heretofore wanting elements of cheerful warmth that made the hut a real home.

It was too late for breakfast and too early for lunch when the first sleepy head, with an inquiring eye as to the weather prospects, was poked out at the door. But August 8 was no exception to the golden rule of 1911; the sky was cloudless. The day was usefully spent in marking the best route to the Marinelli Couloir by numerous cairns, and by prodigious efforts at demolishing our generous stock of provisions. Towards evening, knapsacks were packed, ropes were laid ready, and the fit of climbing irons was tested. Not until then did I discover that Obexer's irons were only six-toothed, and that the front teeth lay quite two inches behind the toes of his boots. That meant making deeper steps, and consequent loss of time.

On August 9, at 1 a.m., under the light of a brilliant moon,

we left the hut. We were roped in two parties. Case and myself led off; Max and Obexer brought up the rear. All wore climbing irons. We followed the now familiar route on to the rock promontory jutting into the couloir. A glance above. All was quiet in the cold night air. A hasty step in hard frozen snow, and the attack was launched. Here the slope of the couloir is about 46°, but the climbing irons gave firm grip and, ascending slightly, we crossed at the double. Now and again ice showed through in the beds of narrow, deep-cut troughs, and the axe was brought into play. Two of these troughs gave trouble. Both were over twelve feet deep and sixteen feet wide, with under-cut sides. The difficulty in crossing lay, not in getting on to the floor of the trough —a jump did that—but in cutting out over the ice of the overhang on the far side. Beyond these obstacles, steep snow slopes led to the rocks of the Imseng Rücken where Max and Obexer soon joined us, little over half an hour after leaving the hut. The rocks, though fairly steep, are, relatively speaking, not difficult; and, climbing occasionally to the left, but more often to the right of the ill-defined ridge, we all indulged in a passion for speed, racing upwards as fast as heart and lungs would permit. The ridge becomes narrower higher up, and the rocks gradually merge into a sharp snow crest which at first is almost level, but rapidly steepens and broadens out to lose itself in the slopes which form the southern bank of the Marinelli Couloir.

According to our pre-arranged plan, a brief halt was called and both ropes joined together. Meanwhile, the moon had disappeared behind the Zumstein Spitze, and two lanterns were lighted. We were now at a height of about 11,500 feet. My watch showed 2.35 a.m.; thus our rate of progress so far was satisfactory. From this point, however, the problem

The Frisallücke.

The snow slope is intersected by a bergschrund, which in turn is cut by a trough formed by stones falling from the cliffs of the Bifertenstock on the left.

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assumed a far more serious aspect. The general angle of the ground was very abrupt, and ice was everywhere laid bare by the scouring action of untold avalanches. A brief but heavy bout of cutting landed us on a small island of rocks, a last outcrop of the Imseng Rücken. Though inclined to be slabby, they were surprisingly easy and in a few minutes brought us to a steep, bare ice slope. To the left, a short traverse offered an easy way into the zone of séracs, the route of our predecessors; but, determined to adhere to original plans, we faced the slopes leading upwards. The axe rang to the tinkle of falling ice fragments. Case kept close behind and, with a lantern tied on to the end of his axe, lit up the ice in front of me. Max hewed staunchly away at deepening the steps, occasionally cutting additional ones to suit Obexer's short legs; for, to save all possible time, the steps were cut as far apart as was consistent with safety. From far above in the wild crags of the Nordend came the rattle of falling stones. Down thundered the avalanche, swelling to a veritable torrent, and poured through the Marinelli Couloir. Some few boulders, as if possessed of a more adventurous spirit than the rest, leapt wildly across the couloir in great ungainly bounds, throwing up thick clouds of snow as they hurried over the upper part of the Imseng Rücken, which we had just ascended. No word was spoken; the labour of step-cutting went on steadily. The slope increased in steepness, until it was only just possible to cut without resorting to handholds. At last, after gaining some three hundred feet by the hardest of work, the slope suddenly eased off, and we found ourselves on an almost level platform at the foot of a huge sérac. Five minutes' rest for sorely-tried lungs, and then onwards once more!

The first signs of dawn appeared and gradually dispelled

the gloom with which the moon had plunged everything when it had disappeared behind the ridges high above; but it was still too dark to dispense with the lanterns. Traversing almost horizontally in the direction of the Punta Margherita, a series of easy snow ledges, interrupted here and there by the scoured-out, icy, avalanche-swept channels that exacted their due toll of step-cutting, led us well into the midst of the crevasses, bergschrunds and séracs with which this part of the east wall is so profusely armoured. Avoiding several likely looking opportunities of once more progressing upwards—for our previous reconnaissance had convinced us that the only way through the labyrinth lay close under the steep slopes of the Punta Margherita—we forced a way across, and sometimes even through, crevasse after crevasse, and above or below sérac after sérac. At last, after having thus traversed across almost the whole of the east face, a steep and rickety snow bridge over a bergshcrund of quite unusual dimensions at last gave access to less steep ground where the climbing irons could find safe purchase without the cutting of steps.

Meanwhile, it had become light; yet, in spite of all possible efforts at speed, we had gained a level of only about 12,000 feet. The outlook was not too good, for there was still much fresh snow on the slopes above, and, with the sun's advent, we should be at the mercy of avalanches until the rocks of the Grenz Gipfel were gained.

Case and Max packed away their lanterns, and, redoubling our efforts, we set out at a furious pace across the ledge leading to the next icefall, the weakest point in which was a slope of, as near as we could judge, 70° in steepness and about one hundred and fifty feet high. At the first glance it appeared perpendicular, but it was just possible to stand in shallow

steps and cut without having more than occasional recourse to handholds. Half-way up this exceptionally steep slope, an irregularity in the ice provided me with a safe footing, so that my companions were able to follow me up in the very skimpy steps with which I had been satisfied in the first instance. The remainder of the ascent of the ice wall was no less severe. Towards the top it became even steeper. Footholds and carefully cut handholds were necessary to enable us to reach the gentler slopes of the terrace above. The last icefall was clearly impassable except on its extreme right, close to where it adjoins the Marinelli Couloir. We had already realised this from our inspection from the Macugnaga Glacier two days ago.

Striking off in the direction of the Marinelli Couloir, we covered ground rapidly, though without gaining much height. On arriving at the very edge of the couloir, we discovered a steep slope of good snow, by means of which the formidable icefall was easily turned. Cutting up this slope, we arrived on the last terrace below the final bergschrund. The only likely bridge over this schrund lay, as we knew, almost under the Grenz Sattel. No time was lost in making for this point, and we raced up over the comparatively gentle slopes with a speed that must have astonished several parties who were warily descending the Zumstein Spitze towards the Grenz Sattel. These parties were none too careful in their climbing, and, before reaching the bergschrund, we were reduced to dodging stones which whizzed past us at an alarming rate. A most efficient snow bridge helped us across the schrund, and we proceeded to cut steps diagonally upwards towards the lowest rocks of the Grenz Gipfel, which lay about three hundred feet above. The snow soon gave out, and we were reduced once more to cutting in bare ice. We were still in considerable

danger from falling stones which the sun was loosening in increasing numbers from the Grenz Gipfel. Numerous parties, spread out over the ridge leading from the Grenz Sattel to the Grenz Gipfel, also added their little contributions in this respect, in their eagerness to watch our advance. At 6.50 a.m. we grasped the warm rocks of the east ridge of the Grenz Gipfel, and, climbing on to a ledge, we felt, for the first time since leaving the Marinelli hut, that we were at last in safety. The ascent of the final ice slope had cost forty minutes. Our pace and the amount of step-cutting had been so stiff, that I was never so glad to take a rest. However, a few minutes worked wonders, and, after taking off our climbing irons and re-arranging ourselves into two parties, Max and Obexer being in one, and Case and myself taking the lead, we got busy with the last stage in the expedition—the steep rocks in front of us. We kept to the ridge itself, only occasionally traversing a few yards to the left. The rock is good, but the climbing is difficult and strenuous. The whole ridge seems to consist of overhanging steps, each about ten feet high and calling for plenty of arm work. By this time, however, we were anxious to see if we could not establish a record ascent from the point of view of time. Max and Obexer affected to take things more easily, and, shortly before we had attained the level of the Grenz Sattel, we parted.

Case shared my eagerness for speed, with the result that in less than two hours' climbing we stood on the summit of the Grenz Gipfel (15,158 ft.). Ten minutes later, at 9.15 a.m., we were prospecting for a suitable place for a sun bath on the summit of the Dufour Spitze (15,217 ft.). We had taken just over eight hours from hut to summit. At a quarter to ten Max and Obexer arrived, and the day was won.

CHAPTER XI

THE TWINS

WHEN mountains reach an altitude of over 13,000 feet, one does not usually call them little. But the Twins, Castor and Pollux, are so overshadowed by their massive neighbours, the Lyskamm and the Breithorn, that one quite naturally refers to them in terms of the diminutive. Dwarfed though they be by their mighty surroundings, they are, nevertheless, every inch great mountains.

Castor

On August 15, 1909, H. A. Mantel, a fellow member of the Academic Alpine Club of Zürich, and I were sunning ourselves on the rocks in front of the Bétemps hut. Mantel, who had heard much of the joys of ice-climbing during the last two weeks we had climbed together, was filled with a keen desire to see for himself if it were really as superior to rock work as I had made it out to be.

The north face of the Lyskamm was ruled out as being too big an effort for the initiation of even such a willing proselyte as my companion. Within easy reach of the Bétemps hut, however, is Castor, the higher of the two twins and one of the most striking forms of Alpine beauty. Seen from the north, it is a wonderfully proportioned dome of pure snow and ice, almost wholly unflecked by rock. The north face of this mountain had never, as far as I knew, been ascended. Beyond the fact that Miss K. Richardson with Émile Rey and Bich had descended its upper third or half in 1890, I had not been able to trace the records of any

other explorers having visited Castor on this side. Long before the chill of sunset drove us inside the hut, we had decided upon this climb for the morrow.

Soon after midnight, snow ploughing parties for Monte Rosa began their usual noisy preparations. We wallowed on in the luxury of superfluous blankets and straw until 2 a.m., by which time the last party had left the hut. At four o'clock, our fragile, early-morning tempers were being severely tried by the moraine leading down to the Grenz Glacier. Once on the glacier, however, the stability of things under foot reasserted itself, and a brisk, pleasant walk brought us to the foot of the formidable icefall which separates the Grenz and Zwillings Glaciers. We attacked the icefall in about the centre of its front and working steadily upwards and to the right, in a westerly direction, fought step by step for a way through the intricate mass of crevasses and séracs which sought to impede our progress. Frequently we were unable to find snow bridges and had to cross crevasses by descending into them and then cutting up the other side. At the top of the icefall we were pulled up short by a final crevasse which appeared to stretch without a break from one side of the glacier to the other. A little searching, however, revealed the presence of an extremely unpleasant-looking bridge which seemed far too heavy for the slender supports by which it was attached to the two sides of the crevasse. The sun, however, had just risen, and everything was still well-frozen; so with due precautions the rickety structure was called upon to lend us all the assistance in its power. Beyond shedding a few icicles, which went clinking down into the soul-shattering depths below, the bridge stood up nobly. We now struck out in the direction of the Zwillingsjoch, as the gap between Castor and Pollux is

A crevasse on the Zwillings Glacier.

Castor.

". . . a wonderfully proportioned dome of pure snow and ice." . . .

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called. Gentle, undulating snow slopes, broken here and there by enormous, but mostly well-bridged, crevasses, provided easy going. Some of the crevasses in this part of the glacier were so wide that we had to rope together at a distance of rather over eighty feet in order to avoid the possibility of both standing on the same bridge at the same time. A second icefall, tame in comparison with the first, was passed through without difficulty, and at 7.45 a.m. we stood at the foot of the north face of our mountain, at a point due north of the summit.

A halt was called for breakfast, and, after a welcome cigarette, we put on our climbing irons. The bergschrund, which gaped widely open to right and left of where we stood, was completely filled with snow and ice — débris from the avalanches which pour off the north face through a funnel whose opening meets the bergschrund just here. To cross the schrund we had to cut steps, as the snow was too closely packed and hard-frozen to admit of kicking. After cutting some sixty steps, however, we were able to dispense with the use of the axe and kicked our way rapidly upwards over steep slopes of frozen snow in the direction of the north-east ridge of the mountain. This earlier part of the ascent, for a distance of about a thousand feet from the bergschrund, was accomplished in a remarkably short space of time, as we were exposed to avalanches from a tier of ice cliffs that enfiladed the funnel up which we were advancing. During the latter portion of the ascent of these slopes, we gradually worked over to the east in order to find a way round the extreme eastern edge of the ice cliffs. A flaw in the cliffs, however, absolved us of the necessity of traversing very far to the left, and we were soon able to strike straight up towards the diminutive bergschrund which cuts into the north-east ridge

of Castor at a height of about 12,800 feet. Before reaching this bergschrund, the general slope eased off considerably, and the snow became powdery and deep. Once upon the gentler snow slopes, the direction again changed, and we struck out towards Pollux, ploughing a way slowly through the tiresome snow. In this fashion we arrived at the bergschrund at a point directly below the north summit of Castor, and paused for a few minutes' rest before assaulting the final steep slopes. So far, Mantel had not been unduly impressed with the supposed difficulties of ice-climbing, but the very last slope was steep, and I felt sure that we would meet with ice which would impede our progress sufficiently to make him alter his opinion. But, once again, the bergschrund was easily overcome, and, to my disappointment, we were able to kick our way up beyond it without cutting a single step. The snow was perfect. Not until we were within a rope's length of the north summit did we meet with ice. The slope here was considerable ; but after a quarter of an hour's hard step-cutting even this final part of the ascent was accomplished. At 11 a.m. we stood on the north summit and a few minutes later had crossed the easy snow ridge leading to the highest point (13,878 ft.), where we arrived in a little over seven hours after leaving the Bétemps hut. The conditions had been exceptionally favourable, save in so far as the first icefall on the Zwillings Glacier was concerned. I have only heard of one other ascent of Castor by this route, and that by a strong guided party who were in all, from hut to summit, eleven hours, some eight hours of which was occupied in step-cutting. This fact shows plainly enough that, with unfavourable conditions, the climb can be quite a severe and laborious one.

The day was fine and all but windless. We were in no

hurry to get back to the hut ; so, seeking a comfortable perch on the rocks overlooking the Italian side of the mountain, we indulged in a protracted summit rest of over two hours.

The descent over the Felikhorn to the Felik Pass was without incident. Shortly after leaving the pass, the snow became wet and soft, and being only two, we had to exert great care in picking our way round the innumerable gigantic crevasses which intersect the upper slopes of the glacier. With the exception of some on Mont Blanc, I do not think I have ever seen such huge crevasses as those met with during this descent. At 4 p.m. we had safely regained our morning track, just where it emerged from the tangle of the lower icefall of the Zwillings Glacier. The passage of the delicate bridge, which appeared to provide the only means of crossing the first big crevasse, was attended with a certain amount of anxiety ; but by crawling on all fours so as to distribute one's weight as equally as possible, and otherwise showing due respect to our decaying friend bridging the gaping depths beneath, the passage was successfully accomplished. The rest of the work, which consisted in further following our morning tracks through the maze of séracs and crevasses leading down to the Grenz Glacier, offered no serious difficulty. At 5.30 p.m. we were once more back in the Bétemps hut.

Pollux.

Liniger, one of the ablest of the younger members of the A.A.C.Z., and I went up to the Bétemps hut on August 17, 1919, with the intention of climbing the north ridge of Pollux. Heavy snow had fallen, and the possibility of carrying out a big climb was out of the question. Not seeing, however, why this should materially affect our prospects of being able to get in somewhere or other a good day's ice work, we had

consulted Dübi's guide book to the Pennine Alps, to find therein no recorded ascent of Pollux by the north ridge.

Since traversing Monte Rosa in 1911, this was my first visit to the Bétemps hut. The hut had been slightly enlarged, but otherwise I found everything much the same. It seemed almost incredible that eight years had elapsed since I had last watched the setting sun tinge with red the summits of that glorious line of peaks which runs from the Matterhorn to the Weisshorn. Numerous other parties arrived at the hut towards the end of the day, and, in order not to impede their preparations for a meal, we turned in to sleep at a fairly early hour.

At 2 a.m. on August 18, 1919, we were up just in time to see the tail-end of numerous Monte Rosa parties disappear. They took with them their unsated curiosity as to our intentions, for, having our doubts as to the possibility of winning through on our climb, we had refrained from giving them any inkling of our intentions. Shortly after 3 a.m. we were ready to move off and descended over the moraine on to the Gorner Glacier, across which we struck in a due westerly direction. Several times we trod through into concealed pools of icy water and got our feet thoroughly soaked. It was still dark when we arrived at the steep moraine which marks the beginning of the north ridge of Pollux ; and in the fitful light of the lantern, the ascent of this moraine, composed of mud and loose stones poised at an almost impossible angle, was little short of misery. At last, however, its summit was attained, and progress became better. Later on, where the moraine fizzled out into snow slopes, the light of day enabled us to dispense with the lantern, and we put on the rope. Proceeding up these snow slopes, dodging an occasional crevasse, we kept steadily on in the direction of

the depression which lies a few yards due north of the first of the three prominent humps on the north ridge. We stood in this depression at 5 a.m. and immediately began the attack on the steep ice bulge which defends the approach to the next hump.

At first we mounted rapidly over fairly steep slopes covered with excellent snow. These, however, gave out as the slope increased, and we were reduced to cutting in bare ice. This proved to be of an extraordinarily tough consistency. It was dark grey, at times almost black in colour, and frequently the only result that a blow from the axe accomplished was to make a small hole, from which the pick tenaciously refused to be removed except at the cost of much twisting and pulling. In all, we had to cut about one hundred and sixty steps; but, for the reasons I have mentioned, progress was inordinately slow. Towards the top of the slope, we were able to save much work by making use of the irregularities in the sides of a crevasse which cut vertically into the ice. Once above the steeper portions of the slope, good snow led up to the summit of the middle hump (nearly 12,000 ft.) which we reached at 7.15 a.m.

The third hump is about six hundred feet higher up, and the ridge connecting it with the point on which we now stood was in part heavily corniced. We therefore kept fairly well to the west of the ridge, but had to pay dearly for doing so; there was a great accumulation of new snow, and the work of stamping was heavy.

By 8.30 a.m. we had passed round and slightly below the third hump, and gained the foot of the final slopes into which the north ridge of Pollux broadens out ere it reaches the summit. The next obstacle in our way was an extremely unpleasant-looking bergschrund surmounted by an enormously

steep ice wall some seventy to eighty feet in height. At a first glance, it appeared doubtful as to whether this obstacle could be overcome, so we wisely decided to call a brief halt in order to recruit our strength.

At 8.45 a.m., leaving my knapsack with Liniger and taking in exchange his axe, I started out to see what could be done with our formidable antagonist. By standing on the lower lip of the bergschrund and pushing both axes up to the hilt into the good snow on the other side, I was able to haul myself across and kick a somewhat precarious foothold. Still making use of Liniger's axe as a handhold and cutting steps with my own, I succeeded in securing a better purchase on the steep slope leading upwards from the upper lip. The angle of this slope was certainly over sixty degrees; yet, in spite of this, it was hung with vast quantities of dry, powdery snow. To obtain a foothold without first sweeping this away and then cutting steps in the ice below, was impossible. To the right, a few yards higher up, a flake of ice had become partially detached from the wall, and, after gaining this, I was able to find sufficiently good standing ground for Liniger to follow. The next hundred feet consisted of perfectly straightforward cutting, though the ice was still very steep and covered with masses of soft, new snow that had to be swept down prior to the hewing out of each step. The cold was considerable, and Liniger began to complain of losing sensation in his feet. For my part, I did not suffer from cold, as I was wearing Norwegian ski-ing boots, inside of which were three pairs of thick woollen socks. Frost-bite would have been a most serious matter at this point of the climb, so we made every effort to gain the gentler slopes at the foot of the final wall below the summit. At 10 a.m. we reached these slopes which stretch in the form of a terrace almost across the whole of the north face of

Pollux. Firmly digging in the axes and belaying our ropes round them, we sat down and, after removing Liniger's boots, proceeded to inspect the damage, if any. To our relief, animation was restored by vigorous and prolonged rubbing, and we replaced his sodden socks with a dry pair which he was fortunate enough to have in his knapsack.

The weather, which up till now had been clear, began to assume a doubtful aspect. A westerly wind was sweeping masses of cloud towards us from the Breithorn, and occasionally we were enveloped in mist. As neither of us knew anything whatever about the descent of Pollux, it was clear that we had no more time to lose. Liniger took the lead and, dashing furiously ahead, kicked his way up the final slopes, until bare ice breaking through the snow rendered this method of progress no longer possible. Once more the interminable step-cutting became necessary. A small bergschrund was passed almost without its presence being noticed. The final slope is steep and consists of pure ice, but we found it covered by the same incohesive masses of new snow which had so impeded our progress lower down. Liniger worked valiantly, and, in spite of the circumstances, we made comparatively rapid progress. Long before reaching the summit, we were shrouded in driving, clammy mist, and the cold became bitter. It was not until 12.30 p.m. that we eventually reached the top (13,432 ft.). We had been almost nine and a half hours on the way, of which time little more than half an hour had been spent in resting. But we were by no means out of our troubles. Having got up, it now remained to be seen how we were to get down. Neither of us had any desire to return by the way we had come, for the idea of a descent of the last formidable bergschrund in doubtful weather was not exactly to our liking. We knew that a comparatively

easy line of descent lay down a ridge somewhere to the south-west of the summit ; but the difficulty was how to find the beginning of this ridge in the intense mists. However, it was no good remaining on the summit itself and waiting for the mists to clear ; there seemed no prospect of that happening within a reasonable time. Taking a compass bearing, therefore, I set off in a south-westerly direction, with Liniger bringing up the rear. It was impossible to survey the slopes for more than a yard or two ahead, and, after having descended some distance in this manner, we gave up the search for the south-west ridge and, turning due west, gained some rocks which, as it transpired later, lie on the west face of the mountain. Their appearance was far from prepossessing. They were extremely steep and slabby, but on the principle of a bird in the hand being worth two in the bush, we decided to venture down. The rocks did not belie their appearance. They proved to be difficult and were thoroughly plastered up with ice and snow. On several occasions we resorted to the use of the doubled rope. A steep, slabby gully ending in an overhang brought us to the top of a tremendously steep ice slope, the first sixty feet of which we descended by means of the doubled rope. Thence, after cutting steps towards a rib of rocks, we descended this, and, plunging down final slopes of soft snow, crossed the bergschrund on to the glacier at a point immediately south of the Schwarztor.

The mists now cleared and revealed to us the west wall of Pollux, down which we had just found a way. It would be difficult to imagine a more unprepossessing line of descent, especially when one considers how much ice and snow lay about on the rocks. However, we had nothing to grumble about now, as our difficulties were over in so far as getting off the actual peak was concerned ; and, in addition, we had,

thanks to the mist, even descended by a new route! That trouble was still in store for us we were aware, because we had noticed that the huge icefall in the Schwärze Glacier was in bad condition. Knowing that we might experience considerable delay in passing through this icefall, and not wishing to run the risk of a bivouac, we lost no time in traversing round to the Schwarztor and crossed over the pass at 3 p.m. The weather showed distinct signs of improvement, and occasionally we obtained fitful glimpses of the sun through breaks in the mist. Such breaks were welcome, for it was sometimes difficult to detect the presence of crevasses when the sun was obscured. As elsewhere, the glacier was laden with fresh snow, and frequently we sank in knee-deep. On leaving the Schwarztor, we descended the glacier practically in the direction of the Gornergrat and met with no serious opposition until arriving at the upper edge of the great icefall. An attempt to break through on the right failed ignobly, and we were reduced to retracing our steps for some considerable distance. Another attempt was then made, this time through the centre of the icefall; but, although we managed to make some headway, a huge wall, from which it would have been impossible to rope down without sacrificing an axe, again blocked all possibility of further descent. Once more we were forced to retrace our steps. Our third attempt proved lucky; we found a way out by crossing a most unpleasant crevasse and traversing along its lower edge. Finally, crossing some broken slopes and running the gauntlet of possible fire from several séracs of doubtful stability, we reached the open glacier. Passing over this and the moraine on the far side, we soon gained our tracks of the morning and, at 6.30 p.m., were once more back at the Bétemps hut.

CHAPTER XII

THE MATTERHORN—A BEGINNER'S IMPRESSIONS

By Agnes Isobel Ingle Finch

THE throngs who swarm on the Matterhorn day after day in the summer, the airy contempt with which some climbers dismiss it as a climbing proposition, the fact that a clumsy novice like myself has actually passed over it—these things do nothing to detract from the wonderment with which I shall always regard the ascent of the most famous mountain in Europe. I have watched it in its moods of calm and storm, sunshine and cloud, and, with eyes glued to the telescope, have seen the braves who callously went to sleep last night in the Schönbühl hut without the slightest apparent tremor of excitement or expectancy at what they were about to attempt in the course of the next few hours, creeping down the slopes in the broad daylight, stepping fearfully forward, slowly gaining each painful inch. I have looked upon it in the soft morning light from the dark pines behind the Riffelalp, as something not of earth, but as it were suspended in the air, splendidly detached from the lowly haunts of men. And always it seemed to me, aloof—almost aggressively aloof—and although I knew that it was part of the ambitious first year's programme that had been drawn up for me, I could never imagine myself scaling its precipitous slopes. There was one point upon which I had made myself perfectly explicit. I was not going to climb the Matterhorn unless I could do so with zest and enjoyment. If one respects a

mountain, one ought to approach it with a joyful mind. I was not going to be pulled up the steep pitches till the cruel rope bruised my waist so that I dared hardly move myself for days afterwards—a sacrifice that the Matterhorn had apparently frequently demanded of its votaries. I had myself suffered in likewise on a defiant little overhang on the Riffelhorn and found the experience of acting as a sack of potatoes irritating to the temper, painful to the flesh and thoroughly demoralising. Altogether, when I reviewed my general conduct on the Riffelhorn, I had little hope for success in the greater venture.

Nevertheless, on an afternoon in August, 1923, I found myself at the Hörnli, where begins the climb of the Matterhorn by the Swiss ridge. The evening meal provided a certain amount of esoteric amusement. Our table was shared by two stalwart Americans who, regarding us through immense tortoiseshell-rimmed spectacles, rushed into a diatribe on the guideless climber who was evidently the root of all Alpine evils. Their ideas upon this abnormal specimen of humankind were almost as profuse as they were fantastic, and their faith in the word "guide"—it could only have been in the word, for they confessed to being unable to discriminate between good, bad or indifferent members of the fraternity—touching to the point of tears. The new light shed upon my companion, who was, of course, every inch an outlaw, was rather upsetting, and I began to be very glad indeed of the justifying presence of Padrun.

Padrun was admirable. He had recognised my husband at Lausanne station and introduced himself as a guide from the Engadine. No; he had never climbed round Zermatt, but he would be honoured to accompany us as porter and to be third man on the rope where madame was middle.

He hoped to learn and one day become a first-class guide. This no mean ambition and his diffidence regarding his own merits won us at once, and it was straightway arranged that he should join us later in Zermatt. He was young and strong, frank of countenance and speech, good to look upon and always willing. Extremely intelligent and deeply interested in all mountain lore, his general knowledge of the world of nature as well as of men was amazing, and the keenness which he brought to his everyday actions made him the most agreeable of companions. He spoke English, French, Italian, German, Swiss-German and Romanche—all well and freely, so that from the linguistic view point alone he was invaluable to us on our journeyings. But perhaps best of all he was a very perfect " maid." At the close of a long, tiring day Padrun would cheerfully minister to our creature comforts. Without a flicker of annoyance, he would scour out cooking utensils that ought to have been left clean ; dig round for ice and snow to fill the pan for tea ; light the fire and lay the table, seemingly oblivious to the lack of civilised amenities ; and turn down the rough blanket or mangy-looking sheepskin with all the *sangfroid* and care with which Célestine would have turned down the cool, fine linen and soft, fleecy blankets in the perfect flat. This seeming disregard of discomfort was merely the outcome of a common-sense philosophy, to which, however, I do not think I can attribute Padrun's invariable success in securing a bed for me, even when a surplus of climbers was already in the hut. That was more a case of ability to seize the opportunity.

We turned in early. But the presumptuous nature of what I was about to attempt kept me wakeful ; so that at one o'clock I was glad to hear the voices of my husband and Padrun in low conversation outside as they made their preparations

for our high adventure. I was soon beside them, ready to move off. The night was beautifully clear, blue-black, for there was no moon ; and the silence was so deep that it almost made one ache. We roped. My husband, as leading man, carried the only lantern we possessed. It proved to be a sorry affair, for we had just passed along the short level ridge to the foot of the obelisk, which in the darkness looked ten times as large as usual, when the candle dropped out. We recovered and relighted it, and pursued our scrambling course upwards. The way was easy ; countless feet had trodden out what was almost a path leading along the ridge, or a little below it either to right or left. Soon the other parties began to follow, and twinkling lights showed all about the base of the Matterhorn, making it look like a gigantic Christmas-tree. Holds were always ready where wanted. I soon began to lose all consciousness of effort, my body felt light as the cool night air ; and feet and hands, as if instinctively, sought and found hold. We mounted higher and higher—right out of ourselves, so to speak. There was none of the straining and panting that I had thought must mark my climbing attempts. Here and there, as we seemed to wind our way in and out amongst the rocky towers of the ridge, I was aware of the tingling depth of precipice or chasm, and once I made a false step and dipped my right foot over into nothingness.

Presently the last of our stock of candles had fallen out of the rickety lantern, and we went forward in the darkness, lighted by the occasional flash of an electric torch. This proved troublesome, and was retarding our progress so much that we were moved to borrow a lantern from a party of three Swiss boys who, like us, were bound for the Italian hut.

Thenceforward we climbed comfortably and without haste,

until at 3.30 a.m. we arrived at the ruins of the old Matterhorn hut which, built in 1867, two years after the first ill-fated ascent, had afforded welcome shelter to many of the early conquerors of the great mountain. Situated in an exposed position on a small ledge at the foot of a great vertical bluff, it is not surprising that its present state is one of roofless demolition. We rested here in the gloom for five minutes, then moved off once more.

The next step was to be the Solvay Refuge. This information was emphatically impressed upon me ; it meant, in reality, that I was forbidden to linger and watch the dawn come up and chase the night from sky and hill. In due course we reached the place that is now known as Moseley's slab. The historic interest of the Matterhorn is enhanced beyond that of all other mountains by the fact that so many of its different features bear the names of the men associated with them ; a story seems to hang to every stone. At the slab, a steep, smooth pitch where hands and feet and additional effort are all required, the lantern was extinguished ; and I saw that the rock around me and at my feet was losing its bluish-black tint. But I dared not divert my attention from the work in hand. To gain the first foothold on the slab, I had to have a little leverage from below and a pull from above ; my limbs and climbing experience were alike too short to enable me to reach it unaided. With the exception of this and one other occasion on the ascent, I managed by myself, if the second person on a rope can ever truly be said to do so. My previous reading of Alpine literature had led me to conclude that, in any mountaineering venture, the man to whom admiration is due is he who is first on the ascent and last in the descent. On him falls the real work and responsibility ; the others are merely backers-up, adequate

or inadequate as the case may be. While the party is on the move, the leader must never relax even for a fraction of a second. He must never slip, must always be sure of himself and never lose his presence of mind. He brings the others up to him or lets them down while he holds them securely from above. When, therefore, I remark that I "managed by myself" I mean that, well nursed from above on a strong leading string, I contrived to lift my feet into the holds that were obligingly waiting for them. I had also learnt on the way up to support and trust myself to my arms alone, and swing myself up on them. An improvement this on my Riffelhorn behaviour. I could not then bring myself to believe that I could hang on my arms without their breaking or being pulled out of their sockets. What had actually occurred, of course, was that I had discovered the use and strength of fingers.

At about half-past five we reached the Solvay hut. To describe sunrise on the mountains is a task that must be left to the brush or pen of the artist. The ordinary mortal must be content to worship before a sight than which "earth has not anything to show more fair." Every mountain-top was on fire, and I chafed at the thought that had we left earlier, or had I been quicker, we might now have been on the summit of the Matterhorn knowing what it was to be bathed in the clear, transparent, rosy glow that, deepening, crept all too swiftly downwards and disappeared. Half an hour was spent in the refuge, resting and eating a frugal breakfast; the real banqueting ground was to be the summit. Just as several others parties were arriving, we resumed our climb. The ridge proved rather unstable, and great care had to be taken not to loosen stones. Keeping close together and all moving at once, we presently reached the Shoulder. Here begin the

fixed ropes which render the climb too easy to the expert but are so useful and comforting to the tyro. Then came a short stretch of extremely sharp ridge with an appalling precipice falling away on the right. We were now moving one at a time, and as I waited while the leader went out the full length of the rope to find good, firm standing ground, it seemed to me that I simply could not face the teeth in front, to say nothing of the giddy drop. However, a party was following close behind us, and in that party was one of my own sex.

Now to betray "cold feet" in the presence of another woman is out of the question. So I swallowed hard, sailed in with an affectation of nonchalance and conquered. Indeed, I believe that the main cause of my unwonted display of prowess, or rather the absence of my wonted display of clumsiness, throughout the ascent of the Swiss ridge was the thought that the girl behind might be watching. It is true that I once looked back, and found that she was completely occupied with her own doings. She seemed even more raw at the game than myself. But that was no guarantee that she wouldn't find time to criticise.

Just below the last gentle slope leading to the Swiss summit is a rather exposed bulge. There was no rope, though I have been told that there is usually one at this spot. I was too short to reach the handholds and pull myself up so that I could use my knee, and, disappointing though it was, I was forced to accept Padrun's proffered shoulder as a foothold. Thenceforward to the top was a mere walk. The Swiss summit being too small to meet with our requirements, we took a quick, dizzy peep over the top into a new country and crossed over to the Italian summit. Here we found the three Swiss boys who were to follow us on the descent. We

The Swiss summit of the Matterhorn from the Italian summit.

The metal cross in the foreground was erected by a party of enthusiastic Italian mountaineers headed by a priest.

The summit of Mont Blanc in 1911.

The partially snowed-up hut seen in the photograph is now completely submerged.

A contrast in mountain tops.

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returned their lantern with many thanks, and seated ourselves on a fairly commodious platform lower down.

It was about a quarter to eight ; we had been over six hours *en route*, having taken our time and extracted as much enjoyment out of the climb as was possible. And now we were to reap at least one of the advantages of guideless climbing. Our time was our own ; there was nobody to hurry us off to the summit after a cursory glance round at the view. I felt moved to pity for the girl who had agonised her way up behind me when I saw her ruthlessly bundled off the top after five minutes' breathing space. I prepared to settle myself comfortably for the next hour and, acting on the assumption that I might never again visit the summit of the Matterhorn, proceeded to indulge in a process of cramming, mental and physical. My husband found a comfortable seat for me, which Padrun padded with knapsacks and coats. They then produced the wherewithal to appease my voracious appetite. I am not of those who, when above a certain altitude, lose all desire for food and perfunctorily nibble at an inadequate morsel of chocolate, nor yet of those who forget physical needs in the intensity of their emotional delight. Like the Persian, my paradise is one which caters for the body as well as the soul, especially after six hours' scrambling. I clamour for bread, lots of it, and the thicker the better, and a generous helping of cheese. I was given what I craved and a thermos of tea, and therewith settled down to a profound enjoyment of my position and surroundings.

Just how much of the pleasure of being on a mountain-top arises from the view alone, I have so far been unable to gauge. On a clear day, the eye can see for a hundred miles, perhaps two hundred miles, in every direction, and the breath catches at the unexpected width and bigness of nature and the littleness

of the man-made dwellings in the far-down valleys. From above, the actual beauty of the rolling, snow-white ranges is, I think, less great than from below. I am of opinion that it is the feeling that one is actually on top of a peak that causes the pleasure, or rather elation, that grips one; and that with thick mist blotting out all view the elation would still exist. One is buoyed up, away from the earth. It is the same indefinite sensation of pleasant wonderment that one experiences during the not uncommon flying or "levitation" dream. One is simply off the earth.

We sat in calm enjoyment of the wonderful panorama. The day was quiet, the breeze was of the gentlest, the sky of the clearest and bluest, and the sun was bright and warm. At our feet the mountain sloped steeply down on all sides. Away below, Breuil lay still asleep; and all around, range upon range of snow and ice-clad peaks stretched to the far horizon. It must have been on just such a day that Whymper made his memorable ascent, and human foot first trod the summit of this noblest of pyramids.

About a quarter to nine, we began to repack in preparation for the descent, and by nine were ready to embark upon what I regarded as the most thrilling part of the day's work. Padrun went first, I, as before, was middle-man, and my husband came last. At a discreet distance followed the three Swiss boys who betrayed some little amusement at my audacity. I thought that the Italian ridge of the Matterhorn was one long succession of vertical, even overhanging precipices, over which one let oneself down on ropes. Like most people who have never climbed, I was possessed of various preconceived ideas regarding precipices, the chief of which was that I would find being on the edge of one so dizzy an experience, that I would immediately lose my head and

tumble over. A rather more interesting one was that I would want to throw myself over! I had often when on top of high sea-cliffs, watching the waves splash and whiten against the rocks below, been strangely conscious of the uncanny lure of depth. Though I had not been unaware of the presence of appalling steepnesses while ascending the Swiss ridge, I had neither suffered from vertigo nor evinced the slightest desire to fling myself into space. I had not had time. My faculties had been concentrated on what was immediately before and above me, and not on what was behind and below. Precipices were part and parcel of the mountain, and to act like a fly on a wall seemed the most natural thing in the world. It is not to be supposed for one moment that I could walk along the edge of a house roof and escape disaster!

Padrun went forward, and soon came his shout, "A fixed rope!" He lowered himself over, out of sight. I waited for his signal. "All right!" Cautiously I approached the brink and peered over. I must confess to a shock. Padrun was standing below me, grinning cheerfully on what seemed a most inadequate platform for one pair of mountain boots, let alone two. He assured he, however, that there was room and invited me to "come along." From the rear came an order to the same effect. I was greatly troubled. How to lean down on the edge of nothing and catch hold of the fixed rope was a difficult problem. My feet were dreadfully far off. But the plunge had to be taken. I suppose I must have turned face in towards the rock, kneeled down and lowered myself on my arms until I had slithered far enough over to be able to grasp the rope—a pleasantly thick one it was! I scraped for footholds and found them at distressingly long intervals, so that practically all the time I was hanging on my hands. I had not yet learned to shin down a rope, sailor fashion,

using feet as brakes. I was, of course, held securely from above on the Alpine rope. My nurse was conscientiousness itself, but the Alpine rope looked terribly puny, and I was not quite convinced that, if I released my hold on the fixed rope, the other could stand my weight. All manner of interesting information as to the strength and breaking strain of an Alpine rope had been vouchsafed to me, but I was sceptical. So I clung as if for dear life with my hands. Presently I joined Padrun on the little shelf, and, as soon as I had made myself secure, he went down the next pitch. "All right!" I passed the word up to my husband, who came down at an amazing speed as I took in his rope. Then he once more let me down to Padrun. And so it went on. I meant to count the ropes on the Italian ridge, but failed to carry out my intention. They seemed innumerable. In time the strain on my arms began to tell, and the friction was beginning to tear the skin off my hands, but still I could not be induced to trust to the climbing rope and permit myself to be lowered over. Finally, however, came the last straw that broke down the barrier of distrust. Half-way down one very long rope, my outraged arms struck work. Willy-nilly, I was hanging on the Alpine rope like a spider on its thread —and behold! it did not break under my weight. The pitch was safely negotiated, and almost immediately afterwards we were at the famous ladder of Jordan. It was a very pretty ladder with strong rope sides and wooden rungs, but it hung over a great bulge and dangled in space. Padrun held it as near the wall at the bottom as he could while I descended face towards the rock. As I approached the nose, the ladder showed a tendency to swing away from the rock, and when I actually arrived at the tip, the space between myself and the wall was disagreeably wide. It was the most thrilling part

Descending the Italian ridge.

"... a pleasantly thick fixed rope."

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of the descent so far, but soon over. From the spacious platform at the foot, I watched carefully, on the look-out for the correct way to descend Jordan's ladder, and I saw that when my husband reached the tip of the nose, that is, the edge of the actual overhang, he changed his position and came down on the *inside* of the ladder.

All the time since passing the first fixed rope, we had been working more or less down the face of the mountain. Now we turned slightly to our right and gained the ridge. On the broad shelf that marks the beginning of Carrel's corridor, we rested for fully an hour. It had been our intention to snatch only a short breathing space, but two parties were coming up towards us, and, as the ground was loose and unstable, we waited until they approached. The first was a party of three, whose feet were continually getting entangled in their rope which lay in coils between each member and dragged loose stones about in a most disconcerting manner. It was warm and sunny, we had many hours of daylight at our disposal—for our destination that day was only the Italian hut—and the world was beautiful to look upon.

About eleven o'clock we again resumed work on the ridge. The ground was scaly and unpleasant. Thin, flat flakes of stone slipped out underneath the feet. Keeping close together we soon arrived at the Col Félicité, so called in honour of the first woman who reached it; but a more incongruous, name, from the point of view of appearance, could not have been found. A little later we came to a narrow snow bridge connecting the shingly slope of the Italian face above with the long level ridge of the Pic Tyndall. Some fifteen inches wide, the bridge falls away nearly perpendicularly on either side to a tremendous depth. I could not help thinking that it would have been much more agreeable if the

approach to the bridge had been level and stable instead of sloping and loose, and the exit had not been blocked by a little vertical tower some fifteen feet high over which it was necessary to climb. Padrun sauntered over as calmly as if he were walking on the finest Roman viaduct, and scaled the wall of the tower at the other end. It looked a giddy proceeding. I felt sure that I would wobble to one side or other, and, despite the fact that I would simply dip for a moment into space and then be hoisted up on the rope, the demoralising effect would doubtless be calamitous. However, that " there 's nothing either good or bad but thinking makes it so " is nowhere so true as on the mountains. The idea of the venture proved one thousandfold more dreadful than the actuality. I kept my eyes on the turret a few feet away, and was clambering up before I realised it. Daring greatly, I paused to look down, just for the good of my own self-respect. The effect was quite exhilarating.

Once on the ridge of the Pic Tyndall, the going was easy. A stretch of snowy crest provided a welcome change. At the farther end of this I suddenly felt fatigued. Padrun was encouraging. He indicated a great tower on the ridge. " The hut is just below," he said. " It will take only fifteen minutes." The result was marvellous ; the distance did look short, and my husband, who must have known well enough how deceived Padrun was, had apparently not the heart to dispel our fond illusions. So tired was I, that even my scepticism had vanished, and my memory failed to remind me that ridges have a habit of magically stretching as you proceed along them. Their ends, like the tops of mountains, seem to recede as you advance, and indulge in the playful game until the very last moment. From the Pic Tyndall to the Italian hut took us almost exactly one and a half hours. Before arriving at

the big tower we left the ridge and descended by an exceedingly long fixed rope well down into the face on the left, until we found a ledge that led us again to the right. The slope, known as the "Linceul," over which it is customary to make one's way by cutting a few steps, was devoid of ice, and a slight deviation from the normal route was necessary. Up and down we seemed to go, and once round a little natural balcony that hung out over space but proved not in the least heady. A handrail in the shape of a fixed rope was provided. Thence onwards the route was well marked. Short, helpful ropes led down chimneys and over slabs to the hut where we arrived at three o'clock.

The hut is small, and we found it already overcrowded. But going straight down to Breuil was not to be thought of. The two sleeping bunks arranged one above the other were full of inmates sleeping off the effects of their labours: most had walked up from Breuil, and were to return next day. I made up my mind to sleep either on the floor or sitting by the table; either course, uncomfortable though it might be, was more enticing than the questionable comfort and warmth of the sheep-skins that served as bed-linen. Padrun, the indefatigable, set about clearing a space on the littered table, prior to preparing a meal. Finding that there was no water in the hut, he picked up two buckets and went forth in search of ice; something of a quest on the Matterhorn during last year's phenomenally fine summer. Meantime, my husband proceeded to build a fire in the stove and soon had it alight. Padrun presently returned with a supply of ice. After removing as much of the superficial lining of the pans as he could, he filled them with the ice and put them on to boil. The noise of these activities began to communicate itself to the other occupants of the room, as also did the dense

smoke from the fire. Blowing their noses, coughing and wiping tearful eyes, sleepily stretching themselves, they slowly forsook their couches. I put on my snow-glasses to ward off the attacks of smoke and, having ensconced myself in a corner near the window, interestedly watched further happenings.

There is no crowd so amusing as a crowd of Italians. Good-naturedly they jostled each other, all talking at once. A change this from the last fifteen hours. Mountaineering is almost as silent as whist ! Scarcely a word is spoken while the game is in progress, save as command or assurance — or when a player is argumentative or more than usually clumsy, in which circumstances the leader waxes eloquent indeed ! The spirit of emulation was strong within the inmates of the hut. I watched thirty of them all trying to regale themselves at once—from Padrun's precious water pans ! Presently my attention became riveted to one quarter. A youth stood lolling against the door. Every few seconds he expectorated in the direction of the fire. Fearful, but undeniably fascinated, I regarded Padrun's cooking-pots. That boy had a beautiful aim. The pots took half an hour to boil, and during all that time the water remained undefiled.

We had tea seasoned with loads of sugar and lemon. Then we had soup ; at least, that is what they call the concoction in the mountains. A spoon will stand upright in it. The chief ingredients are macaroni, chunks of bread and cheese and a tin of beef. A good chef will make his own little distinctive additions and alterations. The meal over, I went outside. Interested as I was in our gaily-chattering companions, it was scarcely fair to keep a seat that another hungry being would welcome. Besides, the atmosphere within was stifling ; the window was closed and the fire

smoking as furiously as ever. Without was the sweet cool mountain air and the silence of open spaces, broken only by the roaring of the stone avalanches that made all the south face of the great mountain alive.

Dusk fell. Padrun came out and fetched me. Would I like to lie down and rest ? He had obviously seized an opportunity ! The idea of the bunk and the sheepskins was no longer so repugnant, for I was very weary. I stepped inside. Padrun had found a place for me in the lower bunk, and begged me to accept his coat as covering. Sleep was out of the question. The incessant talk and bustle precluded any idea of such a thing ; but just to stretch out and relax every muscle was sheer luxury of feeling. About ten o'clock the entire family was abed. The floor space was all utilised, likewise the little loft where the wood was stored. I lay all night long in the same position—on my right side, and so squeezed up against the wall of the hut that I dared not budge an inch for fear of bumping my nose. The breadth of my "bed" could not possibly have exceeded nine or ten inches. But I slept.

About half-past two next morning, movements were heard in the bunk above, and once more the bulk of the inhabitants yawned their way out of bed. At half-past five no one had left the hut, so that all shared the excitement that followed. A terrific cracking followed by a mighty roar was heard. Flying missiles struck the walls and roof of the hut. Tearing its way down towards the glacier was a huge mass of rock which must have weighed some fifty tons. The whole of the slab on the lower side of the first rope immediately above the hut had detached itself from the parent mass.

When the excitement had died down, the first party began the descent towards Breuil. Others followed, and by seven o'clock the hut was empty except for ourselves and a party

of two young Swiss boys and their guides, who had made the ascent of the Zmutt ridge on the previous day. Both parties agreed to wait until the last Italians were well out of sight. We would then go down, keeping as close together as was possible on account of loose stones. We breakfasted and left the hut at eight. The party of four went first. They descended quickly and soon outpaced us, so slow was I. As my arms still ached from yesterday's exertions, the idea of more fixed ropes was not exactly pleasing. They were very short, however—all but one, which was sixty feet in length, but, mercifully for me, knotted. The experts found the knots a bane and a hindrance to shinning down ; but to me they were an unqualified boon. They prevented my hands from slipping and furnished me with an occasional rest. Soon we were on the wide, slabby ridge once more, and descending with as much speed as my presence and the necessary care would allow. Suddenly my attention was arrested by a loud shout from my husband, " Falling stones ! " Now teaching, common sense, to say nothing of life in London during the war, all told me that when missiles fall from above the decorous thing to do is to take cover. But curiosity proved stronger than common sense or teachings. I sat down and stared, fascinated by the two immense blocks surrounded by smaller satellites that came whirring relentlessly down towards us. I saw my husband make himself as small as possible on the slab. Padrun went down on his knees and hid his head, ostrich-wise, in a most inadequate hole. His bulky, nobbly knapsack, bristling with two ice-axes, stuck up in the air—a fair target for any missile. I was busily engaged calculating what the effect on Padrun would be of the impact of a boulder upon the spike of one of the axes, when I heard an agonised warning from my husband, and at the same time received

a jerk on the rope about my waist which effectively laid me low. The spectacle Padrun presented proved too much for me, however, and I lay there shaking with laughter, totally heedless of the danger to which we were undoubtedly exposed. The rocks passed over us ; we were unscathed. Some fifty feet farther down, they crashed explosively into the ridge and, their number increased a hundredfold, resumed their mad course. When everything was quiet again above, we moved off with all speed and presently arrived at a fairly well-defined track over scree slopes which led on to the Col du Lion. Thence skirting for some distance round the base of the Tête du Lion, the path brought us down the so-called Grand Staircase to the green pasture-lands above Breuil.

Something made us stop simultaneously and look back. Mists concealed the mountains ; but through a little circular rift in the clouds, immeasurably far above and seemingly overhead, appeared a patch of blue sky and a dark, irregular dome-like shape. "See where you have stood," said my husband proudly. Then only did I realise that what I saw was the summit of the Matterhorn. Inexpressibly awed, I turned towards the valley.

CHAPTER XIII

THE MATTERHORN

PERHAPS no other mountain in the Alps, or for that matter in the whole world, can make such an appeal to the eye as the Matterhorn. This appeal is not merely one of beauty and boldness of form, but also one of position. The Matterhorn has no neighbours in close proximity to invite comparison; it stands utterly alone—a great, dark, rocky pyramid with sides of tremendous steepness, and towering up towards the heavens from out a girdle of glistening séracs and snowfields. It was one of the last of the great summits of the Alps to succumb to the onslaughts of man, and the terrible tragedy whereby four of the seven men who were the first conquerors lost their lives on the descent is still fresh in the public memory.

The summit of the Matterhorn consists of a narrow, almost level, rock ridge, about two hundred and fifty feet in length. The northern end of this ridge is called the Swiss summit, and the southern the Italian summit. In the former converge the Swiss and Furggen ridges and in the latter the Italian and Zmutt ridges. The first successful ascent of the Matterhorn was made by the Swiss ridge. Here the climbing is nowhere really difficult until one is above the level section lying immediately below the summit and known as the Shoulder. Beyond the Shoulder, the rock is steep and difficult, and would demand great care and climbing skill were it not for the fact that this part of the ridge is festooned with stout ropes, thanks to which the most inexperienced

and untalented of climbers can be dragged in safety to the top. The second ascent of the Matterhorn was carried out over the Italian ridge. The climbing here is more difficult than any met with on the Swiss ridge; and though, even here, the rock is nowadays decorated with a profusion of thick ropes which enable many to climb it who would otherwise not even dream of attempting to, there are still unroped sections of such difficulty that the Italian ridge is unquestionably a harder climbing problem than the Swiss. Of the other two ridges of the mountain, the Furggen ridge, though it has been climbed, is in sections so exposed to falling stones that it cannot be regarded as a justifiable undertaking. But the Zmutt ridge is a sound climb and has the distinction of being the only really practicable route to the summit which is devoid of the artificial aids of fixed ropes and chains. Both the Swiss and Italian ridges of the Matterhorn were climbed in 1865, but it was not until many years afterwards that the summit was gained over the Zmutt ridge.

In September, 1879, two of the strongest climbing parties that have ever been known in the Alps at last succeeded in opening up what is to-day the finest line of approach to the top of the Matterhorn. The first party consisted of the late Mr. A. F. Mummery, with the guides Alexander Burgener, Johann Petrus and A. Gentinetta; the second, of Mr. W. Penhall with Ferdinand Imseng and Louis Zurbruggen. Mummery's party followed the ridge almost throughout, but Penhall climbed for the most part on the Tiefenmatten face, that immense series of cliffs enclosed between the Zmutt and Italian ridges, reaching the ridge only at a very elevated point.

After crossing Monte Rosa from Macugnaga, Case, Obexer, Max and I arrived at the Monte Rosa Hotel in Zermatt, where

we were welcomed by two old members of the Academic Alpine Club of Zürich, Ernest Martini and Val Fynn. The latter suggested that we should join forces and make a combined attack upon the Zmutt ridge of the Matterhorn, descending *via* the Italian ridge to Breuil. Coming as it did from Fynn, probably the most experienced and best guideless climber the Alps have ever seen, the suggestion was received with enthusiasm ; and, on the evening of August 12, 1911, the six of us berthed down together in the Schönbühl hut which lies far up in the Zmutt Valley, at a distance of about three and a half hours from Zermatt.

At one o'clock next morning, under the guidance of Fynn who had reconnoitred the preliminary part of the route on the previous day, we descended over the loose blocks of the moraine below the hut on to the glacier, and made our way across towards the great shut-in basin of the Tiefenmatten Glacier which lies at the foot of the Zmutt ridge. Keeping far over to the right so as to avoid the crevasses of the icefall, we gained the basin, whence we were able to work round in a wide curve towards the cliffs below the lower, snowy section of the Zmutt ridge. Soon we were climbing up the rocks and, passing by two little walls of stones, possibly the remains of Mummery's bivouac, we reached the snow slopes above. The snow was good and well-frozen, and we were able to kick steps up on to the ridge which we struck just above the lower end of the prominent snowy section. The ridge was not steep, and the snow was in excellent condition. Kicking steps, we made good headway. The snow ridge finally merged into a crest of broken rocks up which we scrambled, to arrive at a deep gap beyond which towered several grim *gendarmes* or rocky teeth. It was six o'clock, and, though our progress had been anything but hurried, we were nothing loth to

The Matterhorn from the Stockje.

The Tiefenmatten face is enclosed by the Zmutt ridge, seen on the left, and the Italian on the right. In the foreground is the Tiefenmatten Glacier.

The Matterhorn at sunset.

Facing page 184.

making breakfast an excuse for a halt. The early morning sun, weak though its rays were, helped to take the edge off the knife-like northerly breeze. Nevertheless, we were glad enough when Fynn, reminding us that the real part of the day's work was now before us, gave the order to prepare to move off.

We roped in two parties; Fynn, Max and Obexer on one rope, Martini, Case and myself on the other. Our commander-in-chief, bent on putting the younger recruits through their paces, detailed Max and myself as leaders. We on our part were only too eager to obey, and, as soon as all was in readiness, we climbed down into the gap. Despite appearances, no difficulty was encountered; the three prominent teeth in the gap were easily circumvented. By the time that we had passed the third, the sun disappeared behind the mountain, and for the first time the cold really made itself felt. A few days previously, a violent thunderstorm had deposited a sprinkling of snow, and the steep rocks now before us were still white and partly glazed with a thin veneer of ice. Under these circumstances we considered it advisable to forsake the back-bone of the ridge and traverse out for some considerable distance into the huge and precipitous gully falling away to the Matterhorn Glacier. The work now demanded great care, for, owing to the absence of jutting out bits of rock over which the rope might have been belayed, a slip would have entailed grave consequences. We all felt we could trust each other, however, and without anxiety we pursued our course, cautiously plying the axe to clean out the snow and ice from every hand- and foothold, until we at last reached some good broken rocks which, though steep, led us without much difficulty back to the ridge. We were now far above the teeth. For a short time the ridge was adhered

to, but once again it became steep, and a treacherous layer of ice on the rock, masked by a covering of snow, drove us once more out into the gully on the left. The rock here was very steep, but more broken up. To even matters up somewhat, however, snow filled up the interstices. It was extremely cold for midsummer, but, owing to the steepness of the gully and the tricky nature of the work, gloves could not be used, as they interfered too much with one's grip on handholds. For the second time that day we were climbing under conditions where a slip on the part of one man would have involved all his comrades on the rope in destruction, and we could not afford to make mistakes. Fynn's cheery voice exhorting us to "take our time and put hands and feet down as if the Matterhorn belonged to us" supplied extra encouragement, if indeed such were necessary, to do our best to show a master in mountain-craft that the younger generation were eager to emulate.

Up and up the gully we climbed, and, as we rose, it became steeper and steeper, until the man below saw nothing but the nailed boot soles of the man above. Snow choked all cracks and crannies and concealed handholds, but fortunately the rocks were free from ice. Carefully scraping and kicking, we cleared the snow away, and at last, just as my bare fingers had become so cold as to be devoid of feeling, I scraped out a channel in the little snow cornice crowning the exit of the gully and stepped back on to the crest of the Zmutt ridge. Here at last was good standing ground. The ridge was fairly broad. Behind us stood a prominent rocky tower; in front the ridge led up towards the summit. On the left, flanking the great gully by which we had ascended, was that tremendous overhang on a branch on the ridge, which has been so aptly called the "Nose of Zmutt." The sunshine on the ridge was

" . . . *that tremendous overhang called the 'Nose of Zmutt.'*"

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welcome indeed after the chill hours spent in the shade. During the intervals in a course of energetic exercises designed to restore circulation and warmth to feet and hands, we ate a second breakfast. Again, however, the north wind cut short our stay, and at eight o'clock we prepared for the final section of the climb. Given normal conditions, two hours might have sufficed to see us on the summit. As things were, however, five hours were needed, in spite of the fact that from here onwards we climbed as fast as we could go with safety and without resting. We attempted to follow the ridge, but in a short time great steep steps, which occasionally were overhanging and from which gigantic icicles depended, forced us off the crest, this time out to the right towards the Italian ridge. Hitherto, though we had undoubtedly surmounted two pitches requiring care and delicate handling, and the work as a whole had been far from easy, the task which now confronted us was an even more serious one. I gathered the impression that under favourable conditions the ground over which we were now to pass would have been perfectly straightforward and by no means difficult. As it chanced, however, fresh snow lay about everywhere, and, more pernicious still, the rocks were glazed with ice. Shortly after leaving the ridge, we had to cut steps across a wide ice slope on to a little rib of broken rocks, the crest of which was ice-free. Viewing the rest of the ground from this point, I judged it advisable to continue the traverse before attempting to climb upwards. Fynn, however, who had taken over the lead of the second party, elected to proceed directly up, although by so doing he had to climb over more difficult ground. The reason for this choice was quite simple. There was a great deal of loose rock about, and, owing to the difficult nature of the ground, it was quite within the bounds

of possibility that one or other of us might start stones falling. It was in order to minimise danger from this source that Fynn set himself the more laborious and intricate task of continuing straight upwards.

After traversing for another hundred feet or so, I appeared to be almost vertically under the summit. Considering that my opportunity had come, I struck up over ice-glazed rocks and through ice-filled gullies ; preferably the latter, as the ice, as a rule, was sufficiently deep to permit the cutting of good steps. Our party soon drew level with Fynn's, but could not overtake them, though we were working over less difficult ground. Steadily and safely, Fynn led his party across ice-covered rocks which would have taxed the skill of the very best. For over three hours we fought our way inch by inch, until at last, almost simultaneously, both parties reached the famous ledge known as Carrel's Corridor. This ledge runs from the Italian ridge across the face of the Matterhorn to the Zmutt ridge. Here our difficulties were at an end. It is true that the rock wall above the ledge was vertical, even overhanging, and that below were the slippery slabs up which we had just come ; but the corridor itself was in places almost level and broad enough to afford perfectly secure footing—a relief after what we had undergone. The ledge was heavily laden with powdery, incohesive snow, through which we ploughed, knee-deep, over towards the Zmutt ridge. Fynn had gained the corridor at a point nearer the ridge than we had, and presently I saw him disappear round a bold corner of rock. Obexer and Max in turn followed, and from their lusty yells of joy we knew that they were back again on the ridge, and all was now plain sailing to the top. On rounding the corner, I looked out beyond those grim slopes, the scene of the tragedy of 1865, and espied two parties

making their way down to the Shoulder on the Swiss ridge. Then I looked up. All was clear. The ridge, though in parts still steep, consisted of rock which offered a profusion of holds for hand and foot, and, dashing ahead at a great pace, we caught up Fynn's party just as they arrived on the Italian summit (14,705 ft.).

It was one o'clock. With us arrived another, and to us unpleasant, visitor. Harbinger of ill weather, a dense bank of cloud shut out the sun and obscured the view. But bad weather or no bad weather, we now claimed the right to a square meal and a rest. The cooking apparatus was brought forth, and knapsacks searched for food. Fynn unearthed a veritable gold mine in the shape of a plum pudding, while Martini produced that peculiar speciality of Italy called salami, a sausage whose inside is reputed to be either cat, dog or donkey, or a discreet mixture of all three. But appetites were too big to be over-fastidious, and what with plum pudding, salami and other good and solid odds and ends, to be washed down by generous supplies of hot tea, a feast was laid which received full justice.

At two o'clock Fynn shepherded us together again, and the descent was begun. Martini was the only one amongst us who had ever been on the Italian ridge before, but, as he confessed to a bad memory, I was deputed to find the way down, while to him and Fynn fell the onerous post of bringing up the rear of their respective parties. In the dense fog surrounding us, I was, for a moment or two, at a loss as to where to seek for the start. Acting on Fynn's advice to "go to the edge of the drop," I stepped out carefully towards the brink of the huge precipice that falls away towards Italy. Almost at once I saw before me the bleached strands of a stout rope fixed to a strong iron pin driven into the rocks. The details of the

Italian ridge having been dealt with in the preceding chapter, it will, therefore, be unnecessary to repeat them here. Suffice it to say that we descended the frost-riven rocks and precipices of this magnificent ridge with all possible speed, goaded by the constant threat of a storm that fortunately never broke.

It was not until we were far below the Pic Tyndall, and had descended the great rope which enables one to avoid the battlemented crest above the great tower, that we met with adventure. To regain the ridge below the tower, a steep ice slope known as the "Linceul" has to be crossed. On approaching this slope, we sighted a party of four German climbers, who later informed us that they had already spent two hours endeavouring to cross. Incapable of cutting steps, they were helpless. One, however, possessed of more resolution than his comrades, was preparing to set about making a last desperate effort to cross and, to assist him in his endeavour, had called upon one of the others to hold him on the rope. The latter untied the rope from around his waist and held it in his hands as his companion did his utmost to cut steps. To us, who came upon the scene at this very minute, the base object of the second man in untying himself was only too obvious. He feared that, in the event of the first man slipping, he might not be able to check the fall, and, tied to the rope, he too might be dragged down over the precipice. By unroping and merely grasping the rope in his hands, he would, in the event of a slip proving too much of a strain on his strength, be able to save himself at the expense of his comrade, by simply letting the rope go. The mountains are indeed true and stern testers of friendship, loyalty and courage. On seeing us, the Germans brightened up. They were profuse in their explanations of their difficulties and requests for assistance. Both were

unnecessary, especially the former, for we recognised at once the peculiar type of mountain climber with whom we had to deal. They belonged to a self-styled group of "guideless" climbers who are singularly deficient in mountaineering knowledge and ability and many other qualities besides, which it will not be necessary to enumerate. Their kind are to be met with everywhere in the Alps. Usually they confine their activities to the easiest of climbs and snow trudges, where they can follow unthinkingly in the deep-trodden tracks of previous parties. Sometimes they venture on expeditions the difficulties of which are beyond their powers; and, on such occasions, they take care to follow on the heels of some efficient climbing party, be it guided or unguided. This is actually what these four men had done. Early that morning they had started out to follow a guided party up the Swiss and down the Italian ridges of the Matterhorn. As far as the summit, they had contrived to keep close behind. The difficulties of the descent, however, overtaxed their powers, with the result that the guided party soon far outstripped them, and they were left to their own resources. Hence the sad predicament in which we found them. It is this special breed of "guideless" climber, who is guideless only in that he does not himself engage and pay for the services of a guide, that has in the past done so much to bring discredit upon guideless climbing proper. The man who professes to be a guideless climber should avoid frequented routes and has no right to embark upon an undertaking to which he is not fully equal, no matter what the circumstances may be.

Fynn sent on my party to cut the necessary steps across the Linceul, while he, with the assistance of Max and Obexer, carefully nursed the four incompetents over to the safe ground beyond. Soon afterwards we passed the ruins of the old

Italian hut and, descending some steep slabs by means of a long fixed rope, arrived at the Italian Club Hut at 6.30 p.m. It was filled with climbers intending to make the ascent on the next day, and, as the four rescued men were clearly incapable of proceeding farther that evening, we had to make up our minds to continue the descent, in order that they might find room for the night. We carried on past the Col du Lion, down the Grand Staircase—those easy, broken rocks south of the Tête du Lion—and gained the meadows above Breuil just after nightfall. We boasted only one lantern amongst us. Fynn carried it and unravelled the vagaries of a twisting track leading down towards the far-off, beckoning hôtel lights. At ten o'clock, twenty-one hours after leaving the Schönbühl hut, tired but happy, we made our way through a throng of inquisitive holiday makers to the dining-room of the Jomein, and were soon bringing such hearty appetites to bear upon the good food provided that the brows of even our worthy host rose high with astonishment.

CHAPTER XIV

THE DENT D'HÉRENS

ONE of the younger generation of mountain climbers once complained bitterly to me that there were no new climbs to be done in the Alps, the pioneers having, in his opinion, with extraordinary thoroughness and selfish disregard for their posterity, climbed every virgin pinnacle and explored all climbable ridges and faces. To his surprise, I replied that our thanks were due to the pioneers, for though some had no doubt digested much of the grain, the fattest and best grains remained for the man of to-day who knew where to look. The good grain that is left can no longer be picked up without trouble. We all know what faces and ridges of mountains have not been explored, but the successful climbing of these must be preceded by careful and patient investigation.

In August, 1911, I enjoyed a happy day of perfect laziness on the Stockje. My main purpose was to examine the Zmutt ridge, with the intention of climbing it on the following day. But ever and again my gaze was irresistibly drawn, as if for relief, from the solemn, dark magnificence of the Matterhorn to the white purity and graceful curves of the hanging glaciers of the north face of the Dent d'Hérens; and I found myself seeking in vain to trace the way by which it had been climbed. That winter, on searching Alpine literature, I discovered, with no little astonishment, that the whole vast north face of the mountain, from the Col Tournanche right round to the north-west ridge, was every inch of it virgin ground. Here truly

was a grain fat enough to satisfy the greediest appetite, and I made up my mind to secure it.

It was not until 1913 that I had an opportunity of returning to the Schönbühl hut. From there I set out on a prospecting trip and, traversing the Wandfluh from the foot of the Dent Blanche down to the Col d'Hérens, not only succeeded in spying out a feasible way of conquering the north face of the Dent d'Hérens, but also gained some insight into the geography of the mountain itself. The peak is a curiously complicated one, and the errors into which even surveyors, especially on the Italian side, have fallen, are well known. The summit is supported by four ridges—the south ridge which leads down to the lower Za-de-Zan Glacier, the west ridge to the Tiefenmattenjoch, the north-west ridge to the Tiefenmatten Glacier, and the east ridge to the Col Tournanche. The west and north-west ridges meet at a point less than one hundred feet west of the summit. The north-west ridge, when seen from the Schönbühl hut, is easily confused with the west ridge, from which it is actually separated by the steep, glaciated slopes of the north-west face. The fact that the ice cliffs of this face seem to be perched on the north-west ridge has probably given rise to the impression that this ridge can no longer be climbed owing to the formation thereon of a hanging glacier. In reality the ridge is entirely free from such encumbrances. Between the north-west and east ridges lies the north face. The watershed ridge between the Val Tournanche and the Valpelline does not reach up to the Dent d'Hérens; shortly above the Col des Grandes Murailles it loses itself in the southern slopes of the east ridge.

From my point of vantage on the Wandfluh, I saw that the north face of the Dent d'Hérens carries a huge glacier terrace, or corridor which, beginning low down near the foot of the

north-west ridge, rises diagonally upwards across the face and reaches the east ridge just below the great final *gendarme* east of the summit. It was perfectly clear that, could this terrace be gained at its lower end and left at its upper, the problem of climbing the face would be solved. Despite my conviction that the climb was feasible, however, the objective dangers—that is, unavoidable dangers from falling ice and stones—appeared so great that for the time being I gave up all idea of making the attempt.

During the war a handful of mountain photographs beguiled many a weary hour, and among them was one of the Dent d'Hérens as seen from the Wandfluh. I studied this picture intently, and finally promised myself another look at the mountain as soon as possible after the war. In 1919, therefore, the Schönbühl hut became once more my base of operations. I again traversed the Wandfluh and later, by climbing the Tiefenmattenjoch from the north, was able to inspect more closely the possible approaches to the lower end of the great ice corridor. Eventually, in order to obtain a more comprehensive view of the upper reaches of the corridor, I climbed the Matterhorn. At last, believing that nothing else would furnish the required information, accompanied by Mr. Hafers, I made the ascent of the north-west ridge. This climb showed me that the dangers of the north face were by no means to be underrated. The whole terrace gathered up much of the rock that crumbled away from the uppermost slopes of the mountain, and the approaches to its lower end were not only swept by stones from sunrise to sunset, but were also defended by frequent falls of ice. Indeed, real safety there appeared to be none until the east ridge had been gained at the foot of the great *gendarme* before mentioned. I retired discomfited. But the magnet was

strong, and, in 1921, having meanwhile somewhat modified my views as to what precisely constitutes objective dangers, I returned to the Schönbühl hut, whence a series of visits to the Pointe de Zinal, the Stockje, and the Tête de Valpelline at length convinced me that what, in ordinary circumstances, would be a dangerous climb, could, if tackled properly, be converted into a safe and justifiable undertaking. The lateness of the season, however, prohibited my putting any theories into practice, but plans were maturing favourably. By gaining the lowest rocks of the north-west ridge, and climbing up either these or the rocks and ice of its north flank to the level of the terrace, a short traverse over steep ice would give access to the terrace itself. On account of the frequent stonefalls which ricochet across the barely emerging rocks of the north-west ridge when the sun is shining on the highest slopes of the mountain, this part of the climb would have to be completed during a cold night, before sunrise. As the ground was obviously difficult, a moon would be of advantage. Two-thirds of the way along the terrace, a large bergschrund threatened trouble, but, this overcome, there seemed to be nothing to prevent one's gaining the east ridge at the foot of the great *gendarme*. The whole of the route along the terrace itself appeared to be swept by falling stones and, in its lower end, by falling ice; but, owing to the comparatively gentle angle of the terrace, I believed that stones would be held up in the snow. In 1921, I also crossed the Col Tournanche and from there received confirmation of the fact that no insurmountable obstacle barred the exit from the upper end of the terrace to the east ridge.

Unfortunately, in 1922, being busy elsewhere, I was unable to return to the fray, but in 1923 the long-wished-for opportunity arrived. Towards the end of July, I set out on

An ice avalanche.

The height of the cliff down which the avalanche is falling is over two thousand feet.

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a final series of investigations, determined that they should lead to the conquest of this great north face. My friend, Raymond Peto, and I climbed the Dent Blanche, returning by the 1862 original route of Kennedy, leaving the *gendarmes* above us, while we traversed back along the snow and ice-plastered slabs of the south-west face. The ascent was made with a twofold object: firstly, to get one more thorough insight into the great terrace of the Dent d'Hérens, and, secondly, to give Peto, whose maiden climb this was, a chance of finding his mountain legs, it being my intention that he should be one of my companions on the new venture.

And here I may be permitted a slight digression. I have more than once been criticised for taking inexperienced people on difficult and what my critics too readily refer to as hazardous climbs. In reply, I would point out that a difficult enterprise is not necessarily a rash one, though it may well be made so if one embarks upon it without thorough investigation and detailed planning. If, by the simple inclusion of a beginner in the party, the difficult be transformed into the hazardous, the reflection is on the capabilities of the leader. Also, fifteen years of guideless climbing have taught me, *inter alia*, that in the mountains one must not take one's responsibilities lightly. Furthermore, the inexperience of the beginner, who is physically sound and no coward, is a much less dangerous drawback to the leader of a party than the argumentative embryo-mountaineer who, after three or even fewer brief summer seasons spent in climbing, often only in a secondary capacity, imagines that the mountains hold no more secrets for him. To the experienced climber who feels that there is still something new for him to learn, I would commend the tyro as a companion—for his puzzled, but often fundamental

questionings may suggest a new train of thought or throw fresh light upon what seemed but the obvious and commonplace.

To return to our problem. From the Dent Blanche I could see that both the bergschrund at the foot of the north-west ridge and the one intersecting the snows of the great terrace were of formidable proportions and likely to give a great deal of trouble. Next day, by going up the Tête Blanche, I was able to get a better idea of the ground from the foot of the north-west ridge up to the terrace.

On the strength of the knowledge now possessed, I drew up a provisional time-table. At midnight we would leave the Schönbühl hut. Going round the Stockje and passing through the two icefalls of the Tiefenmatten Glacier, we would reach the bergschrund at the foot of the north-west ridge not later than 3 a.m. The bergschrund and the difficult ground above, consisting of ice interspersed with rock, would have to be tackled in the moonlight, and this would give us time to gain the lower end of the terrace about six o'clock, before the sun's rays had become powerful enough to start stones falling. All would then be plain sailing until about two-thirds of the way across the terrace, where the formidable bergschrund would have to be negotiated. Should this obstacle prove impassable, we could return in all haste to near the end of the terrace, where, in the shelter of a great ice cliff, it would be possible to bivouac. In the earliest hours of the following day, the retreat would be completed *via* the north-west ridge and the summit. Should the bergschrund go, however, there would be nothing to prevent our gaining the east ridge.

These studies of the north face of the Dent d'Hérens had entailed in all eight visits to the Schönbühl hut of a total duration of nearly six weeks. Was it time thrown away, or is not mountaineering worth the endeavour to make it

a justified source of intellectual and physical training, invaluable in every phase of one's daily life?

On returning to Zermatt we were joined by Guy Forster. The functions of the various members of the party were easily arranged. Forster and I were to act as guides and Peto as porter. On July 29, Peto, bent on sketching, set off once more for the Schönbühl hut, and on the 30th, Forster and I followed with the necessary provisions, climbing irons, a one-hundred-foot Alpine Club rope, and a two-hundred-foot cotton sash-line. The latter might prove useful in the event of a forced retreat back to the north-west ridge and perhaps also on the terrace. At a few minutes past midnight we left the hut, telling the caretaker of our intentions. We crossed the glacier to the Stockje in the light of a strong moon. Just beyond the ruins of the old Stockje hut, we put on climbing irons and roped. The first icefall of the Tiefenmatten Glacier was easily overcome near the left bank. But the second, which experience had told me was most vulnerable on the extreme right bank, gave more trouble. Here, close under the Dent d'Hérens, we were in the shadow of the moon and had to make use of our lantern. For perhaps a quarter of an hour, while making our way as fast as possible up through a series of steep ice gullies and crevasses, we were in danger from the séracs perched on the great cliffs above. Once in the upper basin of the glacier, we ascended the slopes, bearing to our left round towards the foot of the north-west ridge, and eventually arrived on the lower lip of the bergschrund which defends the foot of the ridge. The spot was strange, forbidding. In the gloom, a hundred feet above us, towered the upper lip—inaccessible. In dark, shining patches the rocks of the north-west ridge showed through, pitilessly smooth and glazed with a thin covering of treacherous ice.

To cross here was impossible, but, by working out into the north-west face and following the bergschrund to where it curves upwards almost parallel with the north-west ridge, we found a likely place.

The first attempt to get over the bergschrund met with failure. The bridge selected afforded, it is true, a means of access to the slopes above, but I quickly discovered that it was too delicate a structure and preferred to go back to where we could descend a few feet on to some snowed-up blocks in the steeply rising schrund, whence we could cut up the vertical other side. I gained the upper lip, but the work involved was far from easy, and, before its completion, I had to retire for a rest while Forster improved my sketchy foot- and handholds. It was then that I took stock of the time: it was four o'clock; we were an hour too late, and there was nothing for it but to go back. On Forster's return, I recommenced work on the ice-steps, converting them into great holes which would be certain to hold out until the following day. This done, I informed the others of my decision, and, without a murmur of dissent on their part, we turned back. Instead of going straight down on to the glacier, however, we worked down along the lower lip of the bergschrund to some distance beyond the foot of the north-west ridge, in an endeavour to find another way across which would give more direct access either to the north-west ridge or to the slopes leading up to the lower end of the terrace. The search was vain, and, just as the first red rays of the morning sun touched the summit of the Dent d'Hérens, we fled towards the Tiefenmatten Glacier from the stones that were soon falling. No time was lost in hurrying through the upper icefall—for here safety lay in speed.

That morning, in time for a belated eight o'clock breakfast,

three dejected climbers arrived back at the Schönbühl hut to a welcoming chorus of "We told you so." The one crumb of comfort was the word "Unmöglich,"[1] freely applied by all and sundry to the north face of the Dent d'Hérens!

In the afternoon the weather changed for the worse. At 11.30 p.m. we looked out to find rain falling heavily; towards morning it actually snowed in the vicinity of the hut. It was not until after midday on August 1 that a strong north-west wind set in and swept away the clouds—all but the gossamer-like streamers which clung tenaciously to the Dent d'Hérens and the Matterhorn, and the thick banks of mist that sought and found refuge from the gale in the grim recesses of the Tiefenmatten basin. Heavy, new snow had fallen on our mountain, and great wisps of it were being torn up over the ridges and the slopes of the north face and borne away on the wind. But the weather was good; and the new snow, though it would undoubtedly impede us in some places, would hold loose stones firmly in their beds for long after sunrise and thus actually render our climb more safe. That night was the coldest I experienced in the course of the wonderful summer of 1923.

At a quarter to midnight, on August 1–2, we left the Schönbühl hut. The moon was hidden behind the Matterhorn which was silhouetted against its light with almost startling clearness, and it was not until we had gained the moraine of the Stockje that we were able to dispense with the lantern. Walking rapidly and finding our way through the icefalls without hesitation, we arrived in the upper basin of the Tiefenmatten Glacier at a point below the north-west ridge, just where the slopes steepen up towards the bergschrund. Here, sheltered from the cold wind behind a huge block of

[1] "Impossible."

fallen ice, we halted (2.30 to 3 a.m., August 2) to adjust climbing irons, breakfast and rearrange knapsacks. I had the pleasure of handing mine over to Peto. We re-lighted the lantern and climbed up to the bergschrund, to find the steps cut two days before quite usable. Once over the bergschrund a steep ice slope lay between us and the nearest rocks of the north-west ridge, now about two hundred yards away. Alpine literature contains many examples of that looseness of description which permits the raconteur to describe as ice, a slope covered with inches of good firm snow. But here in front of us was the real thing. On warm days, water from the ice cliffs perched on the rocks above flows down over this slope, not in well-defined channels, but fanwise, so as to leave bare ice. What the angle of the slope is I cannot say, as I had no clinometer, but where we cut across, always keeping about a hundred to a hundred and fifty feet above the upper lip of the bergschrund, it was very steep. Higher up, the inclination was somewhat more gentle ; but for two reasons we chose to cross the slope at its steepest—in the first place, fewer steps would bring us to the ridge, and in the second, should stray stones or odd blocks of ice fall in spite of the early hour and the intense cold, there would be much more chance of such missiles going over us than if we were standing on the less steep slopes higher up. The order of the party was as follows. I led, untrammelled by a knapsack, Forster came in the middle, and Peto brought up the rear. How Peto would manage was rather uncertain, as this was his first serious essay with climbing irons. Forster was to look after both my rope and Peto's, and would, in the event of a slip on the part of the latter, have to hold him—a task of which I knew he was fully capable if only the steps were well cut and reasonably large.

Just as we began to cut our way across the slope, a fierce gust of wind blew out the candle ; and henceforth, though it was still rather dark, for the light of the moon did not reach the secluded spot directly, we decided to dispense with artificial light. I cut the steps as quickly as possible without wastage of blows, but very carefully. Always the same method—left-handed cutting, for we were traversing from right to left ; six or seven medium blows marking out the base, twice as many heavy blows to break down the roof of each step, half a dozen dragging hits to make floor and wall meet well inside, a scrape or two with the blade to make sure that the floor was clean and slanting into the slope, and another of the many steps was ready. But while I was steadily cutting out my first rope's length from Forster, he and Peto were getting the worst of it in a heated difference of opinion with the lantern. Now a lantern which is not burning should be folded up and put away. But this particular sample proved stubborn. Peto's struggles to make it behave being unavailing, he very considerately passed it on to Forster, by which time I was already straining at the rope to cut a next step. Having only two hands, both of which were wanted on more important business, Forster thrust the lantern between his teeth, came up a few steps, and so gave me sufficient rope to proceed. After a further desperate but vain effort to fold the lantern up—with the candle still in it !—and handicapped by his limited number of hands, he at last solved the difficulty by biting the candle in two, and eventually succeeded in stowing away the very refractory and useless article in his pocket. From then onwards we really got into our stride. I worked away in a perfectly straight, almost horizontal, line towards the rocks of the north-west ridge ; my comrades moved one at a time,

Peto evidently enjoying the slope in spite of its appearance—particularly formidable with darkness surrounding us and the ever-increasing drop beneath.

It was very cold, and from time to time the fierce gusts of a fresh wind made us pause in our labours and crouch well down on to the slope to retain our balance. At a quarter past four, the last step had been cut, and the rocks of the north-west ridge gained at a point a little above the bergschrund. We immediately crossed over to the north face where the rocks were more broken. They were well plastered up with ice and snow, but nevertheless we all tucked our axes into the rope at our waists and, with both hands free, moved upwards at a good pace. Our mode of advance consisted in my going out the full sixty-foot length of rope between myself and Forster and finding good standing-ground or reliable belay; whereupon the other two, moving together with the rope taut throughout, would climb up to me. There was much ice on the rocks, and everything was buried in fresh snow; but I steadfastly refrained from using the axe, utilising hands and fists to clear doubtful places and relying as much as possible on the climbing irons. To use the axe on this kind of ground before it is absolutely necessary invariably results in the loss of valuable time. We kept to the north side of the ridge, only twice touching the crest, and, after one and a half hours' climbing at full pressure, arrived at a point high up above the lower end of the great terrace, where a feasible way of gaining it at last appeared. Between the terrace and the rocks of the northern flank of the north-west ridge lies an immense gully, at the narrowest point of which we now stood. It was extremely steep, as the ice had run and formed a sort of bulge. Forster and Peto having stowed themselves firmly away on the last little island of rock, I started to cut across the gully. After

some heavy step-cutting in extraordinarily steep ice, I arrived in the middle, only to see, about one hundred feet lower down, a better means of gaining the terrace. So I returned and, joining the others, descended these hundred feet and once more set out to cross the gully. It was not very wide, being only some eighty feet from the last of the rocks to the terrace itself, but the work was certainly hard. After about twenty minutes' step-cutting, I found myself standing in the bergschrund formed by the terrace and the ice slopes above, and there Forster and Peto soon joined me.

By following the lower lip of the bergschrund for a short distance, and leaving it at a point where it curved abruptly upwards, it would have been possible to make a horizontal traverse of about three hundred feet across a steep snow slope to where the terrace was more gently inclined. Unfortunately, owing to the state of the snow, such tactics could not be indulged in. The slope was heavily covered with an accumulation of new snow, much of which had fallen down from the steeper slopes above. The old snow underneath had a smooth surface and was hard frozen, and the fresh snow was of that powdery, non-cohesive quality which already possessed the thin, dangerous, wind-formed crust so respected by the winter mountaineer. To traverse such a slope would be simply asking for trouble : there was almost certain danger of treading loose a snow-shield and being swept down by it across the terrace and over the cliffs below. The only alternative lay in descending for a distance of about two hundred feet and then crossing the slope at its very foot, where it was no longer steep, hard up against the lower edge of the corridor where it breaks away in the vast ice cliffs overhanging the Tiefenmatten Glacier. It was here that our spare rope proved most valuable. We cut out a large block of snow in the lower

lip of the bergschrund and laid our doubled spare rope over the improvised belay. With Peto going first, we then went straight down the dangerous slope towards another suitable belay lying about a hundred feet below and consisting of a large stone which had fallen from the Dent d'Hérens and was now firmly embedded in the old snow. By means of this second belay we descended another hundred feet and then arrived at the very foot of the slope, where its angle eased off so rapidly that, in spite of the great masses of powdery snow, it was at last possible to cross, in safety and without fear of loosening a snow-shield, over to the great terrace.

The angle of the ground where we now found ourselves was gentle—sometimes no more than 20° ; but, under the threat of ice falling from the hanging glacier above, Forster and I urged Peto, who still led, to move forward with all haste until clear of the danger zone. At one place our way passed through an extensive field of ice-blocks—débris from the cliffs above. That practically the whole of this particular fall of ice had been arrested on the terrace will indicate how easy is the gradient at this point. 7.30 a.m. saw us more than half-way along the terrace at a point where it appears almost level. We were more or less directly below the summit. Close to the edge of the ice cliff in which the terrace breaks away, we were at last in perfect safety. Nothing falling from above could reach us now ; for the gentle slopes of the terrace between us and the final wall of the mountain provided an efficient trap for all stones tumbling down from the summit rocks.

It was with a sense of complete security that we sat down to another breakfast and to enjoy a well-earned rest ; for, since crossing the bergschrund four and a half hours ago, we had been working at high pressure. The spot must be one

of the wildest and most solitary in the Alps ; behind us a rampart of precipitous cliffs, before us at our feet a few yards of gently sloping snow, then nothing until the eye rested on the Stockje, a mile and a half distant and nearly three thousand feet below. Several parties were toiling up the Tête Blanche, but halted upon hearing our exuberant yells of delight as we settled down to our meal. It was cold ; the wind was still strong and blowing snow dust about, and, though all wore extra clothing and windproof overalls, we were by no means overburdened with warmth.

Shortly after eight o'clock we again set off. The slopes of the terrace now steepened up rapidly, and soon we were once more cutting steps—this time in good hard snow—up to the bergschrund separating us from the upper end of the terrace. Just before gaining the lower lip, we heard the rattle of falling stones, and a generous avalanche from the gully between the great *gendarme* on the east ridge and the summit crashed down straight towards us. During one of my reconnaissance trips, I had watched, through a telescope, stones falling down this gully and had observed that they were all caught by the lower lip of the schrund. Indeed, it was precisely this fact that had led me to the conclusion that the lower lip must protrude very much beyond the upper which would, therefore, form a serious barrier in our path. On this occasion, again, every stone of the avalanche was swallowed up by the bergschrund, without the slightest danger to us. As soon as all was quiet we resumed work and, on gaining the lower lip, moved down along it to the left, where it approached more under the upper lip. The obstacle we now faced was assuredly a difficult one. It appeared to me that the upper lip could be attacked, with fair prospects of success, at its lowest part by cutting steps up about twelve feet of very steep ice and then

drilling one's way through a cornice formed of hard frozen snow, some three feet thick, extending from the edge of the upper lip. An alternative way lay in making a difficult traverse still farther to the left across the ice face leading to a fault or notch in the cornice, affording access to the slopes above. At first I chose the former way. Forster anchored himself well and, holding both my rope and Peto's, let us across the débris-choked floor of the bergschrund to the foot of the steep pitch. I was soon cutting my way up this, while Peto held me steady so as to avoid the necessity of making hand-holds. Now out of arm's reach, but jammed against the ice by his axe, I began to drill through the cornice. I succeeded in driving my axe through into daylight, but only after a great effort, and was forced to return for a rest. Forster then followed up in my steps, but, not liking the idea of laboriously enlarging the hole in the cornice, returned to investigate the possibilities of the alternative traverse to the left. For some distance, Peto was able to support him with his axe, but for the last ten or twelve feet Forster had to cut with his left hand, relying on his right to help him retain his balance. By a brilliant piece of ice-work, he wormed his way through the fault in the cornice out on to the slopes above. As soon as he had obtained good standing-ground and driven his axe to the head into the snow, I followed quickly, and together we gave Peto the necessary aid to enable him to join us.

Once more I took the lead. We were now aiming straight for the eastern extremity of the level section of ridge lying immediately to the east of the great *gendarme*. Everywhere the ground was so steep that steps had to be cut, but four or five blows with the axe were always sufficient, as the snow was hard and of good quality. To gain the foot of the *gendarme* over the slopes directly above us was out of the question on

account of the impassability of an intervening bergschrund. Farther to the east, however, this schrund was well bridged, and we crossed without difficulty. Here the snow changed. It was still good, but no longer so hard. Roped on to our two-hundred-foot length of sash-line, Forster now took the lead and kicked his way right up on to the ridge, while Peto and I enjoyed a welcome, if brief, respite from our activities. At eleven o'clock we were all sitting together on a great flat slab on the east ridge overlooking the Val Tournanche, protected from the wind and revelling in the warm sunshine. We had won. From here to the top was merely a question of time and patience. The great north face of the Dent d'Hérens, which had so long been spoken of as "unmöglich," had this day at last suffered defeat, and many were the shouts of triumph hurled down at its hitherto hidden recesses. In the simple amusements so dear to the mountaineer, a whole hour was spent at this delightful spot. We ate, sunned ourselves, and drank in the beauties of the marvellous view. I will not expatiate thereon, but will content myself with paying tribute to the Matterhorn which, seen as we saw it that morning, must surely be the most strikingly wonderful mountain in the world.

At noon, having discarded our climbing irons, we again roped, Forster leading, I coming as second man, and Peto, as before, bringing up the rear. Making our way up a steep snow ridge, followed by a vertical chimney—which, thanks to liberal handholds, was not difficult, though somewhat strenuous—we had soon covered the distance of about eighty feet that had separated us from the east end of the horizontal stretch of ridge, and now overlooked the uppermost snows of the Za-de-Zan Glacier, from which we were divided by less than two hundred feet of easy scree slopes. Early in the day

we had noticed the formation of fish clouds, and from here saw that Mont Blanc was "smoking a pipe." The weather was obviously breaking; but, provided no time was wasted, we counted on its holding out long enough to enable us to finish the ascent. The horizontal stretch of ridge, despite the fresh snow that was lying about, gave no serious trouble, and soon we were at the foot of the great *gendarme*. It was plain that the latter, even in the best of circumstances, would prove a stubborn customer if tackled directly over the ridge. For the sake of economising time, therefore, we moved out on to the south side, and for more than two hours were kept fully occupied on slabby rocks, where the handholds tended to slope downwards. Had the ground been dry, the climbing would probably have been fairly easy; but to-day ice and new snow were everywhere. Forster, free from the burden of his knapsack, which now graced my shoulders, was in his element. Our pace was not rapid, because the conditions rendered it advisable to move only one at a time, and the rock, apart from being glazed with ice, was so unreliable that great care was necessary. At last, shortly before drawing level with the summit of the *gendarme*, a scramble up some particularly nasty slabs brought us on to a buttress of blocks where we were able to climb together. Forster dashed away in great style. We regained the ridge at the lowest point in the slight depression that lies between the summit of the great *gendarme* and that of the mountain itself. From there the climb along the final ridge was pure joy. Nowhere did we meet with the least difficulty. The rock was extremely good and wind-swept free from snow. The ridge was very narrow—in places even sensational. Sometimes it hung over to one side, sometimes to the other, and once it actually assumed a mushroom-like appearance and overhung on both. Our pace was furious,

The north face of the Dent d'Hérens, showing route followed.

Back at the Schönbühl hut after the climb.

Facing page 210.

and Forster's exclamations of delight at the splendid climbing quite invigorating.

At 3.15 p.m., fifteen and a half hours after leaving the Schönbühl hut, we passed over the little snow-crest which forms the summit of the Dent d'Hérens. We did not halt; the weather was too menacing, and it behoved us to get off the mountain as quickly as possible. Just beyond the summit, we again altered the order of the rope—Forster retained the lead, Peto came next, and I brought up the rear. After a short, easy climb down the steep but firm rocks of the little summit cliff overlooking the north-west face, we struck a well-trodden track in the scree slopes, and passing down these and two ice slopes—the first a short one, the second long enough to induce us to put on climbing irons—we reached a point on the west ridge whence a convenient descent could be made over broken rocks towards the Za-de-Zan Glacier. With the exception of one chimney, which might well have been avoided, all was easy going until, at the foot of the rocks, we had to descend a little ice slope and cross the bergschrund below it. The deep snow covering the ice slope was in a parlous condition, and Forster had to cut well into the ice beneath in order to obtain secure footing. As luck would have it, we chanced to strike the best place to cross the bergschrund; for the misty haze now obscuring the sun also hid detail to such an extent that, until we were actually on the bergschrund, it was at times hard even to detect its presence. The usual sort of little zigzag manœuvre by means of which the weak points in the bergschrund's defences were connected up, saw us safely over on to the soft snow slopes below. We had no difficulty in getting through the first small icefall to the Za-de-Zan Glacier, though at one place we had to descend into a crevasse and make our way up the other side in order to effect a crossing.

Passing close under the Tiefenmattenjoch, a long tramp in soft, wet snow brought us to the edge of the lower icefall. Having been through this fall in 1919, I now went ahead. But, failing to keep sufficiently far to the left, I did not succeed in finding the quickest way through, with the result that, to escape from its clutches, we finally had to resort to the spare rope to descend a bergschrund which must have been nearly fifty feet high. From there onwards all was plain sailing. A glissade and a gentle walk over the nearly level basin of the glacier led to the top of the moraine, whence, free from the sodden rope, we plunged down towards the corner of the west ridge of the Tête de Valpelline, at the foot of which stands the Cabane d'Aosta. The ten minutes' uphill walk to the hut was, for three weary mountaineers, as hard a pitch as any they had tackled that day. The hut was none too tidy, but we had food and, some kindly climbers having provided us with sufficient wood, we were able to cook quite a passable meal. The weather did not actually break that evening, but the whole sky was filled with dense masses of cloud driven up by the south wind, and we went to sleep expecting to have a lively time in crossing the Col de Valpelline on the following day.

Next morning we were under way at 6 a.m., and in less than three hours had gained the Col de Valpelline. The sky was completely overcast, and all major summits were hidden in cloud, but we suffered no inconvenience from mist and, in under four and a half hours after leaving the Cabane d'Aosta, were receiving the warm congratulations of the Schönbühl hut caretaker, who had watched our ascent through his telescope with such assiduity that he had strained his right eye and was now in a state of perpetual wink !

CHAPTER XV

MONT BLANC

MONT BLANC, 15,781 feet in height, the highest mountain in Europe, was almost the first of the great Alpine peaks to be climbed. On August 8, 1786, two Chamoniards, Dr. Paccard and Jacques Balmat, starting from Chamonix, made the first ascent. Forty-six years later Balmat was interviewed by Alexandre Dumas, who shortly afterwards incorporated the Chamoniard's tale of the conquest of the great mountain in his *Impressions de Voyage*. And so the name of Jacques Balmat has come down to fame. To-day Chamonix boasts of two statues to his memory ; while Dr. Paccard is almost forgotten. Yet recent, patient investigation tends to show with a fair degree of certainty that the leading spirit, the driving force throughout the wonderful adventure, was not Balmat, but Dr. Paccard.

As the years passed by it became almost fashionable to climb Mont Blanc ; and to-day the many who make the ascent for the mere sake of saying that they have stood on the crown of Europe, still follow the route of the original discoverers in most of its essential details, except where, in one or two cases, deviations have resulted in considerable improvement. The ascent of the mountain from Chamonix by the well-established route is nothing more than a long, uphill walk ; a good, sound walker could go to the summit with his hands in his trouser pockets, should he feel so disposed. But since Paccard's day many other routes have been discovered ; and on all of these climbing is, at one stage or another, necessary.

Indeed, some of these routes involve expeditions which rank amongst the most formidable that have ever been undertaken in the Alps, or, indeed, in any other mountain range.

The frontier between Italy and France crosses the summit of Mont Blanc. From the Col de Miage over to the Col du Géant, a distance of eight miles, the frontier follows the watershed ridge without once falling below an elevation of 11,000 feet above sea-level; and two routes, following more or less this frontier, lead to the summit of Mont Blanc. From the point of view of mountaineering difficulty, neither of these can be compared with any of the tremendous routes by which Mont Blanc may be climbed from the south. Nevertheless, both are sufficiently difficult to safeguard one against monotony, and the scenery on both is superlatively wonderful. For these two reasons, Max and I chose to make our acquaintance with Mont Blanc by these frontier or border-line routes. We planned to go from Courmayeur to the Col de Miage and pass the night there in the little Refuge Durier. On the following day we would climb along the border-line, passing over the Aiguille de Bionnassay and the Dôme de Goûter, and spend the second night in the Vallot Refuge (14,350 ft.) within an hour and a half of the summit. Next morning we would pass over Mont Blanc and Mont Maudit, whence, deviating from the border-line, we would visit Mont Blanc de Tacul, and finally make our way across the Géant Glacier to the Col du Géant. Three days would elapse between our departure from Courmayeur and our arrival at the Rifugio Torino on the Col du Géant; but, lest bad weather should delay the carrying out of our projects, we bought in provisions for five, or at a pinch six, days. Thus our knapsacks, which contained in addition to the food, a cooking apparatus, camera and large supply of

films, climbing irons and two one-hundred-foot ropes, were far from light.

From Courmayeur the first three hours of the journey to the Col de Miage lead one along the carriage road and mule track which winds through the Val Veni round the southern foot of Mont Blanc. As mules are readily obtainable in Courmayeur, Max and I strolled forth unburdened from the village after an early lunch on August 25, 1911. Leaving knapsack, coats and axes to a mule-driver and his faithful animal, we marched gaily along the broad path with the tremendous cliffs and fantastic, jagged outline of the Peuteret ridge towering up before us, luxuriating in the freedom of shirt sleeves and the even more unwonted freedom of unladen shoulders, and revelling in the happy lot of the mountaineer. Dawdling, however, we were not permitted to indulge in; for the mule, like others of his species in Courmayeur, seemed eager to get to his journey's end with all possible speed, and it was only by the simple stratagem of inviting his driver to drink a glass of wine at the little Cantine de la Visaille that we succeeded in snatching a rest.

Farther on, where the immense, frontal moraine of the Miage Glacier advances into and, indeed, almost across the bed of the valley, the path steepens up; but though the mule walked as fast as ever, we kept pace in comfort, for the sky was rapidly becoming overcast, and an invigorating coolness had taken the place of the hitherto close and oppressive heat. Passing by the little Combal lake formed by the moraine damming the stream, its black, sunless waters whipped into a semblance of life by fitful gusts, we turned off to the right along a dwindling track. Here we dismissed the mule and his driver and, after collecting firewood for use in the hut, settled down to a meal to gain strength for the long walk in

front of us. At 4 p.m., a few heavy drops of rain from the lowering sky stirred us up, and, shouldering our cruelly heavy and distinctly awkward burdens, we climbed up the steep flank of the moraine and gained the gently-rising, stone-strewn surface of the Miage Glacier.

White wraiths of mist, sinking from the black thunder clouds that overcast the sky, settled over the tops of the magnificent mountain walls which enclose the glacier. Our loads were oppressive, and, though we struggled with them to the best of our powers, our pace was slow and rests were frequent. At twilight, even the foot of the slopes below the Col de Miage were still far distant, and dense masses of cloud were rolling down across the col towards us. Realising what a drag our knapsacks were, we decided to change our plans and make for the Dôme instead of the Miage hut. We knew that darkness would be upon us long before the former were gained, but, in spite of that, we felt certain of being able to find it. After passing below the icefall of the Dôme Glacier, we turned to the right towards the foot of the Aiguilles Grises ridge. An inky blackness had already blotted out all surrounding details before the rocks were reached; but, on lighting the lantern, we were delighted to find a well-marked track leading up in the desired direction over steep screes. We were now really tired, and halts to relieve our shoulders from the depressing weight of the knapsacks were frequent. During such enforced respites from our labours we consulted the map and were able to form a fairly good idea as to where to look for the hut. At ten o'clock, just before the thunderstorm burst, we found it at last, though not without some searching.

Though tired, we were ravenously hungry, and had energy enough to prepare a good, square meal. Through the little window we saw frequent lightning flashes, and the sharp crack

that followed within a fraction of a second of each flare told us that we were very near the centre of the storm. After dinner we ventured without to see what were the prospects for the morrow. Snow was falling, and the atmosphere was charged with electricity. Holding up my hand and spreading out the fingers resulted in a curious noise as of the tearing of linen, and, in the darkness, from each finger-tip issued a blue stream of light. The chimney pipe of the little hut stove was thrown into relief by an aureole of bluish light, especially intense at the top. It was evident that the storm had come to stay for the night at least, and that, with snow falling at its present rate, there was little chance of being able to continue the climb next morning. I must confess that the prospect of a day's rest was anything but displeasing.

The sun was high in the heavens when we awoke on the morning of the 26th. The weather was perfect. All signs of the storm had been swept away, except for the abundance of new snow which, on the rocks round the hut, was already yielding to the warm rays. Mont Blanc, a mountain of quite different aspect on this southern side, is built up of great rock buttresses, separated from each other by steep and narrow glaciers which frequently break into formidable icefalls. Our original plan of following the border-line from the Col de Miage we had naturally set aside, but from the scenic point of view we did not expect the route now proposed, *via* the Aiguilles Grises to the Col de Bionnassay and thence along the border-line, to be one whit inferior. The afternoon and evening of that welcome rest day were mostly spent in consuming our supplies of firewood and demolishing all the weightier articles of food. In those days Max and I were unduly addicted to the delights of tinned peaches!

By three o'clock next morning we had breakfasted and

were preparing to leave the hut. Wearing climbing irons and roped together, we crossed over a snow slope and gained the Dôme Glacier. As our destination that day was the Vallot Refuge, only some three thousand feet higher up, there was no call for hurry. This was a blessing, for, though we had done our best to cut down the weight, the knapsacks were still much heavier than one is wont to carry on a long climb of this nature. Early in the year the ascent of the Dôme Glacier is usually devoid of difficulty; but towards the end of the climbing season one's progress is likely to be somewhat hampered by huge and inadequately bridged crevasses. In 1911, however, despite the fact that the summer had been so hot and fine, we nowhere met with serious obstacles, though occasionally a more than ordinarily large crevasse demanded a little thought and care before it could be successfully negotiated. At sunrise we had gained the uppermost basin of the Dôme Glacier, and, turning round to the left, we cut steps up a steep ice slope, eventually climbing the rocks of the Aiguilles Grises ridge to the south of the highest point on the ridge. The rock was good, and we topped the highest Aiguille at 7 a.m. The day was wonderfully clear and free from haze, so that we could look right out into the lowlands of Savoy. The Aiguilles de Trélatête, which rank amongst the most beautiful mountains in the Alps, stood boldly up to the south. A north breeze, bringer of settled weather, blew with somewhat chilly force and hunted us forth.

From the Aiguilles Grises we walked in comfort along a broad, almost level snow ridge, which later became more narrow and inclined until, just before reaching the point where it meets the border-line ridge, it was so steep that the use of the axe was necessary. Once on the border-line, a wonderful vista down into the Bionnassay Valley

Mont Blanc from the Dôme hut.

". . . great rock buttresses separated by steep glaciers."

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opened out. The ridge was narrow and often corniced, but free from difficulty. Soon it steepened and broadened out and wore a thick covering of fresh snow through which we toiled knee-deep. To the right of the ridge the snow was in bad condition, and any attempt to stamp out steps started avalanches which slid with hissing sound down to the Dôme Glacier below. Therefore, we kept either to the left of the ridge or on the crest itself, where progress was simple, if laborious and thirsty. The loss of moisture by profuse perspiration, however, was readily compensated for by eating snow—an excellent means of assuaging thirst. At length the ridge was transformed into a great plateau, over which we gained the summit of the Dôme de Goûter and looked down into the Chamonix Valley. In accordance with our usual custom, we fed, and then, spreading out our belongings in a wind-sheltered spot on the snow, lay down on them and went to sleep in the warm sun.

At midday we packed up and descended a gentle snow slope to the Col de Goûter, where the well-trodden track of the ordinary Chamonix route was joined. A little later we arrived at the Vallot Refuge. The Vallot Refuge stands at an altitude of about 14,350 feet above sea-level on a tiny island of rock cropping out from a vast surrounding wilderness of ice and snow. It consists of a little wooden hut divided into the two compartments that fulfil the simple requirements of the mountaineer, namely a "kitchen" and a "bedroom." It was in a bad state of repair; the wind whistled through numerous cracks in walls and roof; and the door was too damaged to permit of its being closed, so that quantities of snow had drifted within and the floor was deeply covered with ice. The stove was degenerate and useless; the blankets were full of ice and fouled with the filth and offal that likewise

covered the floor and formed the contents of the only saucepan which the hut boasted. It was altogether a disgusting state of affairs, and, as we were to pass the night here, Max and I set about making our quarters habitable. Blankets were thoroughly shaken and spread out in the sun and wind. With our axes, the snow and refuse was scraped out and the ice chipped away from the floor. Some of the worst cracks and holes in the wall we stopped with snow. Two hours' hard work wrought some slight change, and the hut looked tidier and more wholesome. Since then, I have been, in all, five times at the Vallot Refuge. On each occasion it bore a closer resemblance to a pigsty than a place designed for human habitation. There is, as far as I can see, no excuse for this. Climbers using the refuge should have no difficulty in leaving it in a presentable condition. As it is, its usual loathsome state bears eloquent testimony to the all-round inferiority of many of those who climb Mont Blanc from Chamonix. To leave mountain huts and refuges clean and tidy is the duty of all guides; but the onus of seeing that this duty is properly performed rests with their employers. The ultra-fashionable world that nowadays throngs Chamonix and "climbs" Mont Blanc simply because it is "done" apparently leaves all sense of duty and propriety far below the snow line.

It was past 3 p.m. before we were satisfied with the result of our labours, and from then until sunset a succession of meals—lunch, tea and dinner—was prepared on our little spirit cooker. All water had, of course, to be obtained by melting snow; but this had been anticipated, and our supplies of methylated spirit were ample. The breeze dropped as the afternoon wore on, and at times we felt almost hot as we sat in the sun in front of the refuge.

Bedtime came with the sharp night chill that follows the

setting of the sun. There were plenty of blankets, now dry and comparatively clean, to keep us warm, and we slept well; only occasionally awakening at the sound of the wind as it whistled through the chinks and shrieked past the walls of the refuge. Next morning, at 5 a.m., we started to dress, that is, to put on our boots. This took some time as the uppers were frozen stiff and had to be nursed against our chests until they were sufficiently pliable. Breakfast was not a success, at least in so far as cooking operations were concerned. During the night, snow-dust had been blown into the spirit-burner which, inside the draughty hut, had no chance to burn itself dry. In the end we made shift with raw bacon fat, bread and jam, and munched snow in lieu of drinking coffee or tea. At 6.30, having folded up the blankets and cleared up generally, we put on the rope and climbing irons and moved off.

A deep-trodden track in the snow, the trail of fashion, led up easy slopes on to the crest of the border-line ridge. Always keeping to the ridge and walking at a good, steady pace, we continued our uneventful journey. No miseries of mountain sickness such as so often attacked the early climbers of Mont Blanc, and to which many still seem to succumb, disturbed the monotony; no blood gushed forth from our ears, nor did we even suffer from lack of breath. Before 8 a.m. we stood on the summit (15,781 ft.). The little refuge erected here a year or two previously was all but buried beneath the snow; part of the roof and a chimney alone remained visible.[1] The day was perfect, cloudless and exceptionally clear. There is, amongst its neighbouring mountains, none to challenge the superiority of Mont Blanc.

[1] To-day (1924) no building or structure of any kind mars the sweeping majesty of Mont Blanc's snowy dome.

From its summit one looks down upon Europe, hill and plain. The sea of ice-clad peaks surrounding it are so much lower or so far off that they appear immeasurably below one. Whilst engaging in the delightful pastime of recognising old mountain friends in the distant ranges, we brought the spirit cooker into action and prepared a belated brew of tea. The match with which we lighted our cigarettes needed no shielding, and its faint blue smoke drifted lazily skywards, so still was the air as we sat and basked in the warm morning sunshine. Such was our first kindly reception by Mont Blanc. Since then I have stood four times on the summit; twice surrounded by cold, clammy mists, once chilled to the marrow by a fierce north-west wind, and once to be driven down fighting for foothold in the teeth of a snowstorm such as is seldom experienced in the Alps.

Our stay on the summit lasted but an hour, for the major portion of the day's work, namely the descent *via* Mont Maudit and Mont Blanc de Tacul, lay in front of us. With France on our left and the great precipices of the Brenva falling away to Italy on the right, we descended the hard-frozen snow of the broad ridge. Passing a little outcrop of rock, now plastered up with wind-driven snow, we arrived at the top of a rather steep ice slope—the Mur de la Côte. One of the worst accidents in the history of mountaineering occurred not far from here in September, 1870. Eleven people were caught by a snowstorm. Instead of fighting their way out of its clutches, they sat down to wait until it passed. All were frozen to death. In a snowstorm on the mountains, as in war, safety lies in action. It is far better to do something, even if it be the wrong thing, than do nothing but sit and wait.

With our sharp, long-pointed climbing irons, the Mur de la Côte was descended without the cutting of more than a

few steps. Below it, easy snow slopes led down to the Col de la Brenva, the broad depression between Mont Blanc and Mont Maudit. Beyond this, a succession of trackless snow fields and slopes, sometimes almost level, at other times fairly steep but never steep enough to demand the use of the axe, provided such easy going that we were able to devote much of our attention to the beauty of the surroundings. A pathway fit for the gods, this wonderful border-line ridge whence the eye may travel beyond the snow-free mountains of Savoy to the rolling blue hills of the Jura, or up the tremendous ramparts of the Brenva face and along the magnificent sweep of the Peuteret ridge to the heavily corniced summit of Mont Blanc de Courmayeur. We paid but a brief visit to Mont Maudit (14,669 ft.), a little rock pinnacle just emerging from the snow ; and, after a glance over the great precipices above the Brenva Glacier, we turned down the snowy ridge which falls away to Chamonix, to seek a means of descent into the depression between Mont Maudit and Mont Blanc de Tacul. At first the ridge was a slender snowy crest on which the snow was in splendid condition, but later the rocks emerged. As these were good and never difficult, we were once again, while climbing, able to devote much of our attention to the view. Mont Blanc showed up to wonderful advantage, an enormous snowy dome, the brilliance of its wide flanks almost entirely unrelieved by the darkness of rock. Far below lay the valley of Chamonix, its detail filtered softly through the grey-blue haze of a fine summer's day. Beyond the Buet and the lesser mountains of Savoy, the gaze roved over a purple mistiness shrouding the Lake of Geneva, to the sombre wooded curves of the Jura. On our right were the tapering spires of the Chamonix Aiguilles and the wider snows of Mont Blanc de Tacul, our next objective.

After descending the ridge for some considerable length, a fairly broad, snowy saddle, the Col Maudit, was reached. To the right a rather steep, but to all appearances short, ice slope fell away towards crevassed snow slopes, down which we felt sure of finding a convenient way. After once more donning climbing irons — for they had been taken off on gaining the summit of Mont Maudit — Max took charge of my knapsack, while I set to work to cut the necessary steps down the slope. The ice rapidly steepened but merged into snow, too hard to kick steps in, but ready to yield a secure step for two, or at the most three, blows of the axe. Noticing that the slope did not run out directly into the snowfields below, we suspected the presence of an intervening bergschrund of more than ordinary proportions. Our surmise proved only too true. Within a quarter of an hour of leaving the Col Maudit, we foregathered in a large step hewn out just above the upper lip of a great bergschrund which gaped to right and left with never a sign of a snow bridge within reach. The lower lip was at least fifteen feet below where we stood, but as the schrund seemed to be at its narrowest here, it was obviously the most suitable place to effect a passage. Three ways of doing this suggested themselves : to jump down the fifteen feet, to cut out a belay in the snow and rope down, or to use one of our axes as a belay. On reconsideration, the second and third courses were discarded ; the one because it was getting late in the day and the time necessary to hew out a suitable belay would be considerable ; the other because it would mean the sacrifice of an axe. So we decided to jump. Leaving my axe and climbing irons with Max, I screwed up my courage and leapt wildly out into space, to strike with my feet into the deep, soft snow below the bergschrund with such force that I was almost submerged, and snow found its

way into my clothing in a most disconcerting fashion. Then came Max's turn. He first threw down the axes, climbing irons and other paraphernalia. Then, while I trained the camera on him, he jumped and landed with such a thud that he likewise was almost buried in the powdery snow. After a rest and a meal to soothe shattered nerves, we gathered up our belongings and commenced stamping down towards Mont Blanc de Tacul. Crevasses and ice cliffs enforced a zig-zag course and deep snow made the work toilsome, but we forged steadily ahead, leaving a deeply-furrowed trail in our wake. Passing beyond the depression between Mont Maudit and our objective, we finally mounted up gentle snow slopes and a few simple rocks to the summit of Mont Blanc de Tacul (13,941 ft.), and thus gained our third mountain-top for the day. The view from here was one of the most striking of the marvellous series of changing panoramas which marked this trip. The great rocky buttresses and escarpments of the precipitous south face of Mont Maudit, seamed with appallingly steep ice-filled gullies, the shimmering ice cliffs of the Brenva face of Mont Blanc, and the bold yet almost unearthly graceful outline of the Peuteret ridge formed a peerless picture of nobility and majesty.

It was two o'clock. To judge from what could be seen of the snow slopes leading down to the Col du Midi, where we intended to spend the night, no serious difficulty appeared to be in store for us. We had, therefore, time to spare ; so, while the spirit cooker did its work, we dozed and sunned ourselves on the sun-warmed rocks of the summit. At 4 p.m., though loth to leave, we packed up and tramped off in the direction of the Aiguille du Midi. The slopes became steeper and were covered with great quantities of fresh snow. Here and there a crevasse or minor bergschrund had to be

negotiated, but all went well. We had descended a considerable distance, and could already overlook the greater part of the easy, almost uncrevassed slopes leading into the Col du Midi, when an immense bergschrund pulled us up short. The upper lip was fully fifty feet above the lower. Tracks leading up to, and then retreating from, the lower lip were visible. A party of climbers had evidently quite recently sallied forth from the Col du Midi to climb Mont Blanc, but had been repelled by the formidable obstacle which was now causing us no little concern. A search to the left revealed nothing of value. To work out to the right would entail much, and perhaps purposeless, step-cutting. So, without more ado, we hewed out a huge step as close to the upper lip of the schrund as possible, cleared away the snow from a suitable spot, and worked away at the ice underneath until a great projecting block had been formed. Over this improvised belay we laid the middle of the only spare rope, and shinned down it. With this the last of the difficulties was overcome. We plunged knee-deep down gently-inclined slopes, whose snows, almost unbroken by chasms, waxed softer and wetter as the Col du Midi was approached; and at 6 p.m. we were shaking free from dust and filth the torn remnants of what had once been blankets in the little Col du Midi refuge.

Next day, after discovering a new and rather difficult route up the Aiguille du Midi (12,608 ft.), we tramped wearily across the vast, white expanse of the Géant Glacier to the Rifugio Torino. There we saw the first human being we had set eyes upon since bidding "adieu" to our mule-driver on the Miage Glacier. For five whole days we had roamed over the lonely snows of Mont Blanc without meeting a single fellow-creature. In our daily life we jostle each other cheek by jowl; and sometimes it is good to be alone.

CHAPTER XVI

MONT BLANC FROM THE SOUTH

IT is a curious fact that, to this day, the southern slopes of Mont Blanc rank amongst the least frequented districts of the Alps. Mr. James Eccles who, with Michel and Alphonse Payot, first climbed Mont Blanc from the south, over forty-four years ago, remarked in a paper read before the Alpine Club, "It is singular that, notwithstanding their close proximity to a good mountaineering centre, the glaciers of the south-western end of Mont Blanc have been, compared with other parts of the chain, so neglected by Alpine climbers." Of the Brouillard and Fresnay Glaciers, the serious explorers of which may almost be counted on one's fingers, Eccles's words still hold good.

In its general outline, the geography of the southern slopes of Mont Blanc is simple enough. The western and eastern boundaries are, respectively, the Brouillard and Peuteret ridges, which converge in Mont Blanc de Courmayeur. The region enclosed by these two colossal ridges is bisected by the Innominata ridge, on either side of which a glacier flows down from Mont Blanc; the Brouillard Glacier between the ridge of the same name and the Innominata ridge, the Fresnay Glacier between the latter and the Peuteret ridge. Both glaciers are remarkable for their steepness and the extent to which they are broken up. From source to snout, the Brouillard Glacier forms an almost uninterrupted icefall, the Fresnay Glacier even more so: indeed, from afar the latter resembles the tumbling, foaming crest of a storm-tossed

wave. To the south of the Innominata lies a third glacier, the Glacier du Châtelet, but compared with the other two, it is insignificant in size and gentle in slope. All three ridges rise from the Val Veni in the form of great bluffs and cliffs. These, in the case of the Brouillard, soon narrow down to a well-defined ridge which, unbroken by any really prominent feature, rises steadily up to the two summits of Mont Brouillard (13,012 and 13,298 feet respectively). A gentle dip leads farther to the snowy Col Émile Rey (13,147 ft.), out of which steep cliffs, constituting a somewhat badly-defined ridge, swing themselves up to the Pic Luigi Amadeo (14,672 ft.), whence a long ridge rising at a comparatively gentle angle culminates in Mont Blanc de Courmayeur (15,604 ft.). From beginning to end, the Brouillard ridge forms a vast crescent; curving north-north-west in its lower half, it veers towards the north-north-east in its upper, and terminates almost due north of its source in the Val Veni. The precipitous, rocky south-eastern flank of the ridge between the Pic Luigi Amadeo and Mont Blanc de Courmayeur constitutes the uppermost portion of the south face of Mont Blanc.

Totally different in character is the Peuteret ridge once it has become well defined as such in the vicinity of the summit of the Aiguille Noire de Peuteret, where the two ridges enclosing the Fauteuil des Allemands converge. Following a north-westerly direction, the Peuteret ridge carries two outstanding elevations, the Aiguilles Noire and Blanche de Peuteret, which are separated from neighbouring portions of the ridge by the deep clefts of the Col des Dames Anglaises and the Col de Peuteret respectively. Out of the former tower the bold spires of the Dames Anglaises, enhancing the jagged outline characteristic of the ridge which, from the

Mont Blanc from the Val Veni.

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Col de Peuteret, in a final stupendous effort, soars up to Mont Blanc de Courmayeur.

In the Aiguille du Châtelet (8,292 ft.) the Innominata ridge at first makes rather a pusillanimous attempt to merit the description, then becomes lost in broad scree slopes from which emerge two ridges. One of these flanks the Brouillard Glacier, the other the Fresnay Glacier, and carries the Aiguille Joseph Croux and the depression called the Col de l'Innominata. At a point south of the Innominata itself, these two ridges finally unite, enclosing between their southern flanks the little Glacier du Châtelet. North of the Innominata, the ridge, running almost parallel to the Peuteret, dips into the depression known as the Col du Fresnay. Above the col it rises to a rocky summit over 13,000 feet high and called Pic Eccles, beyond which lies another depression, now known as the Col Supérieur du Fresnay, whence, in a futile attempt to connect with the Brouillard ridge, it rises abruptly in the direction of a point almost midway between the Pic Luigi Amadeo and Mont Blanc de Courmayeur and, after a last supreme endeavour to preserve its individuality in the shape of a huge, precipitous, red rock buttress, eventually loses itself in the rocky escarpments of the south face of Mont Blanc at an altitude of about 14,500 feet.

In so far as successful attempts to reach the summit of the mountain are concerned, the history of the exploration of the south face of Mont Blanc is soon told. Prior to 1919, only two parties met with success. On July 30, 1876, Mr. James Eccles, accompanied by the guides Michel and Alphonse Payot, left Courmayeur and bivouacked on the rocks of the Innominata ridge, about midway between the Col du Fresnay and the Pic Eccles, at about 12,500 feet. Leaving their bivouac at 2.55 next morning, they traversed the Pic Eccles into the

Col Supérieur du Fresnay, whence, descending steep rocks and an ice-filled couloir, they gained the uppermost level of the Fresnay Glacier. Three hours after leaving their bivouac, they crossed the bergschrund and began the ascent of the steep slopes of the great snowy couloir, which falls away towards the Fresnay Glacier from a point on the Peuteret ridge about 1,200 feet below Mont Blanc de Courmayeur. Taking to the broken rocks on the left (ascending) bank of the couloir as soon as possible, they followed these without difficulty to their end. Another bout of step-cutting then brought them out on to the Peuteret ridge, up which they arrived on to the summit of Mont Blanc de Courmayeur at 11.40 a.m. At 12.35 p.m., less than ten hours after leaving their bivouac, Mont Blanc itself was under foot.

The only other successful expedition carried out before 1919 was that of Signor Gruber, with Émile Rey[1] and the porter Pierre Revel, in 1880. Leaving Courmayeur on August 14, they bivouacked on some rocks near the Col du Fresnay. Crossing the col next morning, they descended to the Fresnay Glacier and worked towards the foot of the great rock buttress immediately between the huge uppermost ice-fall of the glacier and the Aiguille Blanche de Peuteret. Late that afternoon, after most difficult climbing, they arrived in the Col de Peuteret, and thence followed the Peuteret ridge until nightfall compelled them to bivouac a second time. They were then about 1,200 feet below the summit. Next day (August 16), always keeping to the Peuteret ridge and very soon joining Eccles's route, they passed over Mont Blanc de Courmayeur and, four hours after leaving their last bivouac,

[1] Émile Rey was one of the finest of Alpine guides. He lost his life, in 1895, through a slip while descending the easy rocks at the base of the Aiguille du Géant.

stood on the summit of Mont Blanc.[1] This climb is usually referred to as if it were merely a variation of Eccles's route. It is true that they have in common the ascent to the Col du Fresnay and the final 1,200 feet of the Peuteret ridge, but otherwise the two routes differ to such an extent that Gruber's is worthy of being described as a new climb, and it was, moreover, the first complete ascent of the Peuteret ridge, from the Col de Peuteret.

For the next thirty-nine years the gaunt ramparts of the southern flank of Mont Blanc effectively repelled all further assault. It seemed almost as if the great white mountain had found fresh strength in the defeats suffered through the hard-won victories of Eccles and Gruber. It was not that Mont Blanc, during this long interval, remained a victor through lack of would-be conquerors. All who came were firmly repulsed. The more fortunate escaped whole in life and limb ; from others the death-toll was ruthlessly exacted.[2]

The spell was finally broken in 1919. On August 20, Messrs. Oliver and Courtauld, with Adolfe and Henri Rey[3] and Adolf Aufdenblatten, bivouacked in the Col du Fresnay. The following day they traversed round the Pic Eccles, close below its summit, and gained the Col Supérieur du Fresnay,

[1] An interesting inscription, written by Signor Gruber and giving brief details of this formidable expedition, may still be seen pencilled on a beam in the Dôme hut, *via* which the party returned to Courmayeur. From the general tone of this inscription, short as it is, can be gathered the strong impression which Mont Blanc had, on this occasion, made upon all members of the party.

[2] In 1874 Mr. J. G. Marshall, with the guides Johann Fischer and Ulrich Almer, fell into a crevasse on the Brouillard Glacier. The two first-named were killed.

Professor F. M. Balfour and his guide Johann Petrus lost their lives in 1882 while attempting to repeat Signor Gruber's ascent.

[3] Sons of Émile Rey.

whence they followed the continuation of the Innominata ridge until, driven over to the left by the vertical, smooth rocks of its great final buttress, they were forced to climb the rocks of the south flank of the uppermost Brouillard ridge. This they gained at a point between the Pic Luigi Amadeo and Mont Blanc de Courmayeur, but rather nearer the latter. In little over eight hours after leaving their bivouac, they arrived on the summit of Mont Blanc, having thus opened a third route from the south.

Early in August, 1921, the fourth successful ascent was effected by the famous Italian mountaineers Si. G. F. and G. B. Gugliermina and Francisco Ravelli—names for ever entwined with the history of Mont Blanc—and a porter from Courmayeur. They followed in its essentials the route of Messrs. Oliver and Courtauld. Their first bivouac was in the rocks of the Innominata below the Col du Fresnay, their second at the foot of the final great buttress of the Innominata ridge, while, on the descent, a third night was spent in the Vallot hut.

Towards the end of July, 1921, I found myself in Zermatt, without a climbing companion—a lamentable state of affairs, due to trouble in Ireland preventing Forster from joining me as had been arranged. When Oliver and Courtauld arrived with the two Aufdenblattens after a successful traverse of the Dom from Saas, I was therefore more than pleased by their kind invitation to join their party. Theoretically, of course, I had no right to accept this, because I was out of training and had done nothing beyond walking half-way up to the Schwarzsee.

Getting into training seems to be a spectre which looms large in the minds of most climbers of to-day. Often I feel impelled to think that, at all events from the physical point of

view and as far as more youthful climbers are concerned, this fantastic mental conception must be, to a great extent, the result of auto-suggestion. In spite of a sedentary occupation, wholly unrelieved by any active form of sport, I am always ready to start climbing by climbing, and not by indulging in a ramble. In this instance, moreover, the immediate programme in view was not too ambitious, our aim being merely to get, somehow or other, to Breuil. The Col Tournanche was chosen as a pass for the sake of its novelty, none of us having previously crossed it. Arrived in Breuil, Oliver and Courtauld went on to Courmayeur, whilst I returned to Zermatt to bring my luggage round to Courmayeur by rail. A few days later, we were together on the Aiguille de Tronchey, with a keen eye to possibilities of a new route up the Grandes Jorasses. The great south ridge of the latter, however, showed no breach in its formidable defences, but the Peuteret ridge of Mont Blanc appeared to be in such a first-rate condition that, could it but be gained from the Brouillard and Fresnay side, it would almost certainly " go." Talking matters over on our return to Courmayeur, we decided to repeat Eccles's route. The ascent of the Peuteret ridge *via* the Aiguille Blanche de Peuteret was ruled out on account of the dangerous condition of the Brenva Glacier and of the Aiguille Blanche itself—a condition due to the huge fall of rock and ice in November, 1920.

On the following day, from a point in the road near the second refuge on the Italian side of the Petit St. Bernard, I carefully examined the south flank of Mont Blanc. The descent from the Col Supérieur du Fresnay on to the upper basin of the Fresnay Glacier seemed feasible, but the bergschrund below Eccles's great couloir leading up to the Peuteret ridge appeared most formidable. The rocks showing

through both to the left and the right of the Peuteret ridge, however, seemed to be as free from snow and ice as they were ever likely to be, while the ridge itself appeared to carry good snow.

On August 7, we left Courmayeur with four porters and two carriages bearing our kit, Oliver, Courtauld, and myself as far as the Alpe du Fresnay, shortly after leaving which we encountered our first difficulty in the shape of the unfordable torrent descending from the Fresnay Glacier. By means of two felled trees discovered in a wood near by, we improvised a somewhat unstable bridge which most of us preferred to cross on all fours. Alfred Aufdenblatten boldly essayed to walk across, but not knowing the secret of keeping his eyes fixed on the bridge instead of on the water, lost his balance and only saved himself by a wild jump which barely landed him on the far bank. Towards nightfall we gained the new Gamba hut, situated on the Innominata ridge a little above the Aiguille du Châtelet.[1]

Next morning we left shortly after daybreak, ascending over the débris-strewn slopes towards the moraine on the left bank of the Brouillard Glacier and took to this glacier at an altitude of about 9,500 feet, at the point where the moraine ends and the rocks steepen up towards the Innominata. The work in front of us now changed completely in character. Ropes and climbing irons were put on; Adolf and Courtauld took the lead; Oliver, Alfred, and I formed the second party; while the porters, roped together two by two, brought up the rear guard of our little army.

[1] The original Gamba hut stood on the Fresnay side of the Châtelet-Innominata ridge. In the winter of 1919–20, however, it was wrecked by an avalanche, and from the débris was constructed the present hut which stands on the ridge itself about ten minutes above the old site, at approximately 8,300 feet.

Our labours began at once. Huge crevasses, the upper lips of which were often disconcertingly high above the lower, soon forced us out towards the middle of the glacier, where constant step-cutting was the rule. Progressing very rapidly, Adolf cut small steps, upon which we improved, so as to make things easier for the heavily-burdened porters. After much twisting and turning and some pretty ice work, we reached a small plateau where the Brouillard Glacier makes an heroic but rather unavailing effort to be level, prior to indulging in a mad tumble over a noisy "Heisse Platte."[1] Here a half-hour halt was called for breakfast. We could now see right up to the head of the glacier, and Oliver pointed out to me the line of their ascent of 1919.

The choice of either of two ways up to the Col du Fresnay now lay before us. We could follow the glacier, keeping more or less in the middle, or else traverse high up to the right across steep ice slopes leading down from the ridge of the Innominata. The latter route bore unmistakable evidence of having been recently swept by falling stones; débris on the glacier, however, testified even more generously to the fact that ice also falls, and, in addition, we could detect an abundance of bridgeless crevasses. We therefore chose honest step-cutting across the steep ice slopes. All set to work with a will, and progress was rapid. Dangers and difficulties ceased at a point somewhat below, and to the west of, the Col du Fresnay, where the glacier once more interrupts its headlong course to the valley by indulging in a small

[1] The rocky bed of a glacier sometimes becomes so steep that the ice falls away and exposes the rock underneath. As the ice at the top of such a rock slope partakes of the continual downward movement of the glacier, it is continually breaking away and crashing down the rock to the continuation of the glacier lower down. Swiss guides call such a place "Heisse Platte," *i.e.* "hot (or lively) slab."

snowfield of moderate incline. No difficulty was offered by the final bergschrund below the col, into which we stepped at 10 a.m., nearly five hours after leaving the hut.

The Col du Fresnay is a striking view-point from which the Innominata and the Aiguille Noire de Peuteret both show to extraordinary advantage. The descent from the col on to the Fresnay glacier does not appear to be difficult, although the rocks are sometimes steep and certainly rather rotten.

After a rest of an hour and a half we once more got under way and, climbing up the ridge in the direction of the Pic Eccles, mounted over a short pitch of steep rock followed by an ice slope where heavy step-cutting was essential. This slope landed us on another diminutive snowy plateau, over which we made our way in the direction of the spur of rocks forming the west ridge of the Pic Eccles, and on which, after crossing a bergschrund and cutting up an ice slope, we effected a lodgment. Just as my party gained the rocks, a loud clattering was heard from the slopes of Mont Brouillard. Quickly pulling out my camera from my coat pocket, I was in good time to take a photograph of one of the most gigantic stone-falls I have ever seen. For several minutes dense clouds of stone dust hung over the track of the avalanche, while many large blocks swept over the Brouillard Glacier, right across the line of ascent followed by the brothers Gugliermina on the occasion of their memorable crossing of the Col Émile Rey.

After a brief halt, for the porters to close up, we commenced our assault on the rocks ahead. The climbing, though occasionally very steep, was not particularly difficult, despite the treacherous nature of the rock and the downward slope of its stratification. Incidentally, it may be remarked that, though unreliable, the rocks of the Pic Eccles were certainly the best encountered during the expedition. Taking the

utmost care to avoid dislodging loose stones, which were sometimes of formidable size, we made our way up towards the summit of the Pic. When still some distance below it, however, Adolf led out to the left on the Brouillard side, and after some healthy passages across ice-filled gullies, we arrived in the Col Supérieur du Fresnay, without having actually passed over the top of the peak. The rocks on the Mont Blanc side of the col were gained at 2.30 p.m., and the several members of the party proceeded to select their couches for the night. It had been arranged that at this point two of the porters should return to the Gamba hut, but beyond depositing their loads, they made no attempt to move; indeed, they even threw out hints about preferring to stay with us till the following day. The polyglot imaginative eloquence of Adolf, however, soon persuaded them of the supreme folly of shivering in a bivouac when the seductive warmth and shelter of the hut were awaiting them. Their two companions were provided with blankets, as they were to remain the night and take down the sleeping-bags and excess kit on the morrow.

The Col Supérieur du Fresnay consists of a narrow snow ridge sloping off abruptly on one side to the Brouillard, and on the other to the Fresnay Glacier. To the east, beyond the Col Émile Rey we could see a snow summit, probably one of the summits of the Aiguilles de Trélatête. The height of our bivouac, therefore, must have been about 13,200 feet. The great south face of Mont Blanc falls away from the Brouillard ridge above, in slopes of broken rocks which finally merge into enormously steep, slabby precipices abutting on the Brouillard Glacier. The eye could follow the course of this glacier almost throughout its length. It is so grotesquely broken up that one wonders that it is possible to thread it. The uppermost basin,

still untrodden, I believe, by human foot, and forming a little, almost level snowfield, is isolated by one or two formidable crevasses which cut right across the glacier from side to side. The west face of the Aiguille Blanche de Peuteret, composed almost wholly of dark grey rock unrelieved by scarcely a single speck of snow, looks practically inaccessible. The route of the late H. O. Jones,[1] led by Laurent Croux, looks difficult and desperately dangerous from falling stones. Formerly, the Col de Peuteret was, so Oliver tells me, a snow-saddle from which either the Peuteret ridge or the rocks of the Aiguille Blanche could be gained with comparative ease. Now, however, as a result of the huge avalanche which fell away from the Peuteret ridge and the col itself in November, 1920, the height of the latter has been considerably lowered, so that from our bivouac we could see beyond it right down to well below the summit of the Grand Flambeau. Great bergschrunds now bar direct access to either the Peuteret ridge or the Aiguille Blanche de Peuteret. From the lower rocks of the ridge itself much has fallen away, and they are now much steeper. Continual stone-falls, and the liberal traces left by them about the foot of the ridge, offered ample evidence of its present unstable condition.

It was impossible to find, or even make, a ledge which would accommodate the whole party ; indeed, none proved wide enough to take more than one man, so that after each had selected his couch, we found ourselves well scattered over the mountain side. The two porters found a berth for themselves at the point where the snowy ridge of the col abuts on the rocks. My own sleeping place was a level stretch of rock and snow ridge slightly higher up on the Mont Blanc

[1] Professor and Mrs. Jones and their guide Truffer were killed in 1921 while climbing the Mont Rouge de Peuteret.

side of the col, and on the very backbone of the Innominata ridge. About three feet wide at the pillow end, but dwindling away to next door to nothing in the region of my feet, it had the advantage of length combined with the pleasant uncertainty as to which of the two glaciers, the Fresnay or the Brouillard, would have the honour of receiving my mortal remains should I lose my balance. The others deposited themselves on more or less inadequate ledges on the Brouillard side of the ridge. The nearest water supply was five minutes' climbing distance down towards the Brouillard Glacier. On their journey back, skilfully balancing well-filled cooking vessels, Alfred and one of the porters (Henri Rey's son) performed some choice feats of rock-climbing.

There were still two hours of sunshine due before the last rays sank behind the Brouillard ridge, and these we utilised by changing our clothing (a lengthy process, as one hand was usually required for balancing purposes) and rearranging knapsacks, all superfluous equipment being put on one side for the porters descending next morning. In spite of all my efforts to reduce weight, my burden for the morrow's climb proved to be quite a respectable one. In addition to spare clothing, comprising shirt, storm cap and gloves, I had climbing-irons, two cameras, films for seventy-six exposures in air-tight tins, and one day's iron ration for the whole party. This, consisting of two pounds of chocolate, the same quantity of sausage, and fifty cigarettes, I had brought with me, feeling confident that the optimistic Adolf had made no provision as far as food was concerned for the possible eventuality of our being forced to bivouac a second time.

At half-past four we had a frugal but welcome meal of hot soup. At five the sun set behind the Brouillard ridge, and the inevitable chill of high altitude soon making itself felt, one and

all prepared for the night. Alfred and I, finding our ledges somewhat too exposed for our liking, roped at either end of a sixty-foot rope which we belayed over a projecting rock. Six o'clock saw us all settled down more or less comfortably. From all accounts, I seem to have spent the warmest night, and in view of this a few particulars as to my sleeping-bag may possibly be of interest. It was home-made: 7 feet long and 3½ feet wide; it consisted of an inner bag composed of 3 lb. of finest grade eiderdown, quilted in 1-foot squares into the thinnest procurable balloon fabric, and an enveloping outer bag of similar material rendered air-tight and damp-proof by a coating of "Duroprene." The total weight was just short of five pounds.

I crawled into my bag. But soon the inevitable stone in the small of the back, the antagonist of many a nocturnal episode in that wonderful Odyssey of the climber, *Peaks, Passes, and Glaciers,* began its insistent ministrations. Unlike the heroes of olden times, however, I, deeming discretion the better part of valour, not only resisted the temptation to put the enemy *hors de combat,* but, by the simple expedient of curling round and clinging fondly to it with my hands, I made of it a comrade in arms whose tangibility did much to dispel the feeling of insecurity born of the airiness of my perch. The last thing I remember was the crimson glory of the sunset touching the huge columns of storm-clouds which reared themselves aloft over the Grivola. I slept soundly. Twice only did I awake; once to find the lower portion of my anatomy dangling coquettishly over the Brouillard side of my couch; and again, stirred from a deep slumber by my instinctive grappling for an elusive handhold, to discover that I had transferred my legs to the Fresnay side.

About half-past four I was aroused by Adolf, rather blue about the gills, but cheerful as ever and obviously looking forward to a good day's work. He winked portentously, then, with a somewhat vacant stare, looked out beyond me towards the plains of Italy. Following his gaze, I soon understood. Over the Paradiso group, vast thunder-clouds still brooded ; the sky was streaked with ominous, long, dark, fish-shaped masses, and I suddenly became aware that a wind had sprung up and was blowing past our bivouac in angry, fitful gusts. It seemed almost as if our climb were going to develop into a race against the approaching storm. I returned Adolf's confidential wink in kind as he passed me a generous cup of hot tea—a luxury which in similar situations, as a guideless climber, I had always had to procure for myself.

After a quickly-swallowed breakfast, all was bustle in our camp. My boots, which I had lashed to a rock to make certain of not losing them (horrible thought !), were easily pulled on, for, though stiff, they were very large. By 5 a.m. everything was packed, sleeping-bags rolled up handy for the porters, and, roping in the same order as yesterday, we began the descent on to the Fresnay Glacier. This led down a steep couloir over extremely rotten rocks. The danger of inadvertently loosening stones was so great that we gave Adolf and Courtauld time to get round a corner out of harm's way before beginning our own descent. Once past the uppermost portion, the slope of the couloir became more reasonable, and we were able to work down over a rib on one side till we reached a point a little above the head of the uppermost icefall of the Fresnay Glacier. Our way to the upper basin of the glacier led across a steep, ice-clad couloir followed by an ice slope which bore palpable signs of being frequently raked by falling stones and ice. Before we were

ready to proceed, however, a stone-fall of generous proportions clattered down into the couloir, isolated pebbles following at odd intervals. Nothing daunted, Adolf, the neatest, fastest, and most powerful step-cutter it has ever been my good fortune to see at work, banged away across the danger zone in great style. The descent on to the Fresnay Glacier occupied, in all, barely an hour. Besides the extreme rottenness of the rock, we had met with no real difficulty and were well satisfied with our rate of progress.

Threading our way through a maze of ice blocks, remnants of icefalls from the huge bergschrund above, we crossed the basin, veering round and up towards the bergschrund at a point almost immediately below the rocks flanking the western bank of Eccles's great couloir. The previous evening we had decided that of the only two possible ways of surmounting the obstacle, this was the safer. The alternative lay in crossing the bergschrund far over towards the Pic Eccles, at the only spot where it was more or less adequately bridged. But this would have entailed hours of step-cutting across the stone-swept slopes above the schrund before Eccles's couloir could be gained. At the point of attack a flake had become partially detached from the bergschrund, and Adolf and Courtauld made rapid headway to the summit of the flake which was, unfortunately, about twenty feet short of the top of the schrund. Seeing that further operations promised to take time, we ensconced ourselves comfortably down below, while Adolf brought his wits to bear upon the solution of the problem of overcoming twenty feet of practically perpendicular ice. He was half-way over the obstacle when he encountered a bulge which threatened to come perilously near destroying his balance. But the last ounce on the right side was supplied by Alfred's ice-axe, after we had hurriedly joined Courtauld

on his somewhat unstable perch. After that all was easy, at least as far as the others were concerned, for they seemed to find no difficulty in gaily walking up Adolf's well-cut steps. But what with a knapsack on my back and a camera in my coat pocket, I found more than a little trouble in balancing myself round the bulge. This obstruction, in all sixty feet high, having been negotiated, a steep slope, sometimes snow, sometimes ice, intervened between us and our next objective, the rocks on the west bank of Eccles's couloir. We mounted quickly, for scarcely a step needed to be cut, thanks to the plentiful pock-marks made by falling stones. On reaching the rocks, we found them almost unclimbable in their lower portion and were forced out towards the middle of the couloir —a procedure which necessitated the crossing of a deep ice-clad stone chute. Thence we climbed over a small island of rocks all but submerged in ice, from the upper end of which we were able to traverse back and finally gain the rocks on the west bank of the couloir, at a point where they were broken up and obviously easy to climb. None too soon, however, for hardly had the last man reached dry land when a stone-fall clattered down the couloir behind us.

It was 8.30 ; we had been nearly three and a half hours under way and for the best part of the time working at high pressure. On looking up towards the Peuteret ridge and Mont Blanc de Courmayeur, it appeared as if we had left all real difficulties behind us, and the optimists of the party prophesied being on the summit within a couple of hours. So, though the weather was fast becoming worse, we settled down light-heartedly to a second breakfast. The iron ration sausage was produced and attacked with gusto ; though of the same breed, it differed distinctly from the ordinary salami, which to me is somewhat reminiscent of cat and dog. Whatever its

constituents may have been, it went down well, being as savoury as usual, but less salted and not so highly spiced. We allowed ourselves half an hour's grace, then stowed away our climbing-irons and started up the rocks. They proved to be easy, though most unreliable. Here and there ice, covered more often than not by bad snow, took time to negotiate, but on the whole we made rapid progress. Shortly after ten we gained the end of the rocks; slightly below us and to the right was the point where the snowy upper half of the Peuteret ridge begins. A little snow slope brought us out on the ridge itself, but not without free use of the axe. The snow was deep and very bad; it lacked cohesion and concealed hard ice. Working along slightly on the Brenva side of the ridge, we at first found snow just sufficiently good to bear our weight in kicked steps, but in less than a rope's length it had become so bad that it had to be cleared away before the climbing irons would bite into the ice underneath. The spikes of my irons, fully three-quarters of an inch longer than those worn by the others, proved their value here. By merely stamping, I could force my foot far enough through the snow to grip the ice below. This was one of the several occasions arising on this expedition where the presence of an indifferent ice-climber would have proved not only troublesome but a real danger to the safety of the party, by causing the loss of much valuable time. After progressing in this manner for about a hundred yards, we got tired of threshing down the execrable snow which seemed to get worse as we gained in altitude. Within easy reach both to the left and the right were rock ribs which offered a less tedious means of advance. A traverse of about thirty yards across the steep western flank of the Peuteret ridge brought us on to one of these ribs, the rocks of which soon showed themselves to be exceedingly rotten. Once more

the climbing irons were removed and placed in our knapsacks. Oliver, at this point, had the misfortune to lose his axe; he placed it on a ledge, where it lost its balance and fell down in a few stately bounds towards the Fresnay Glacier. It was while watching the axe disappear that I realised for the first time the enormous general steepness of the ground upon which we were climbing.

It now looked as if rocks could be followed practically all the way to the summit—a relief for which we were duly thankful, having had quite enough of snow. There was some difference of opinion as to the best line of ascent up these rocks; but, on the whole, there seems to have been little in our respective choices, for Adolf and Courtauld, whose route converged with that of our party from time to time, always succeeded in maintaining a lead of one or more rope's lengths. The climbing was difficult, and throughout extreme caution was necessary, on account of the unreliability of the rock. Occasionally, a belt of almost vertical red rock of a fair degree of firmness would crop up, but even this was invariably crowned with the rotten, dark brown variety. Nevertheless, we climbed quickly, for while still six hundred feet below Mont Blanc de Courmayeur, swirling mists practically obliterated all view of our surroundings, and it was evident that, if we were not soon to find ourselves in a critical situation, every minute gained was precious. The rocks came to an end about a hundred feet below the summit of Mont Blanc de Courmayeur, and only a slope covered with the usual pernicious snow lay between us and safety. Adolf, trusting more to his climbing irons and to gentle treatment of the snow than to his ice-axe, climbed rapidly up to immediately beneath the cornice, cut himself a good step, and with a few powerful strokes hewed a channel through which he was speedily

followed by Courtauld. While we were putting the finishing touches to the donning of extra clothing, in preparation for the cold weather up aloft, Adolf's stentorian voice shouted down a cheery "Come along!" Looking up, I could just barely make out his well-muffled-up head framed in the notch in the cornice. Then he disappeared.

At 1.15 p.m. we, in turn, stepped through the cornice on to Mont Blanc de Courmayeur, to be greeted by a high and chilly wind. Adolf and Courtauld were already out of sight, though they were certainly not far away, for the jingling of their axes against the rocks of a *gendarme* close by was audible above the sound of the gale. The mist was so thick that we could not see each other at rope's length. Adolf's tracks led off along the crest of the ridge towards Mont Blanc. Having painful memories from last year, however, of what this ridge could be like in stormy weather, I forsook his tracks and plunged down on to the Trélatête side, in the hopes of there finding more shelter from the icy blast. In view of Oliver's axeless condition this involved step-cutting; but, on looking back after having cut about twenty steps, I saw him coming along as nonchalantly as if he were on a London pavement, so immediately gave up further cutting and relied upon climbing irons alone. In this way we skirted round the bases of three or four rocky outcrops and regained the ridge at about its lowest point between Mont Blanc and Mont Blanc de Courmayeur.

A little farther on we found the other two, who were inclined to mistake a small snowy hump for the summit of Mont Blanc. To avoid the wind, we now crossed over on to the Brenva side of the ridge and, traversing diagonally upwards, found tracks leading up from the Mur de la Côte. These were followed to the summit where we

arrived at 1.45 p.m., having been eight and three-quarter hours under way from our bivouac.

The state of the weather precluded descending by either the Rochers or the Dôme route, and we contented ourselves with going down directly to Chamonix. Being the only member of the party with first-hand knowledge of the Grands Mulets route, I was deputed to show the way. The descent was uneventful, except for Oliver's spraining his ankle, and for the fact that my pigheadedness in refusing to follow the tracks brought us out to the Pierre à l'Échelle, which route, I have since learnt, has been recently discarded in favour of the Montagne de la Côte.

This narrative would be incomplete were it brought to a close without expressing my admiration for the professional members of the party. Adolf and I were not unknown to each other, for twelve years ago, on a stormy September day, we had stood together on the summit of the Lyskamm. Since then he has joined that select coterie of first-class guides whose number can be counted on one's fingers. He has climbed Mont Blanc by nearly every conceivable route and thus knows the mountain better than any other living guide. I need say little of his prowess either on ice or on rock; he is first-rate on both. Last, but not least, he is an excellent companion, ever eager to be doing, and ready to put every ounce of energy into any problem upon which he embarks. Alfred, who was serving only the second season of his apprenticeship, is fast following in his brother's footsteps. He too will, sooner or later, become a first-class guide. Four Courmayeur porters accompanied us up to the Col Supérieur du Fresnay. They carried heavy loads, but through all the trying situations that arose, they preserved their good humour and determination. Their conduct was admirable.

CHAPTER XVII

TWO CHAMONIX AIGUILLES

NORTH-NORTH-EAST of, and near to Mont Blanc, is a compact group of bold buttresses and ridges supporting a multitude of dark rock pinnacles whose slender spires seem close against the sky. These are the Chamonix Aiguilles. The conquest of the more important of these bold granite towers was largely due to the inspiring energy and determination of the late Mr. A. F. Mummery, one of the greatest of bygone mountaineers. For devotees of rock-climbing pure and simple, the Aiguilles of Chamonix are a veritable paradise, for they form one of the few mountain groups in the Alps where the rock is so firm and reliable that one can climb for hours on end without encountering a single loose stone or questionable handhold.

Rock-climbing, particularly on good, sound rock, has never held any great charm for me. I have always regarded it as but one of the simplest, most easily learnt and less important branches of a wider art, and, as it is met with on almost any big snow-and-ice expedition, I have never felt disposed to go out of my way in search of it for its own sake. It was not until the close of the summer season of 1910 that my friend, Ph. Visser, induced me to launch out on an expedition where rock-climbing was avowedly the main attraction.

The Requin

The Dent du Requin, one of the more popular of the Chamonix Aiguilles, is a bold, rocky tower rising to a height

of over 11,200 feet from one end of the long ridge which falls away from the Aiguille du Plan towards the east. Early on the morning of August 29, we left the Montanvert in two parties, the first consisting of Mr. Lugard and his guide, Joseph Knubel, a rock climber of great distinction hailing from St. Nicholas in the Zermatt Valley, and the second of Visser and myself. Following the customary route towards the Col du Géant as far as the great icefall of the Géant Glacier, we made our way up unpleasantly steep screes to the d'Envers du Plan Glacier, over whose much crevassed surface we eventually gained the southern slopes of the ridge connecting the Plan with the Requin, at a point where broken rocks gave easy access to the crest. Six and a half hours after leaving the Montanvert, we arrived at the point on the ridge known as the Shoulder, and the Requin appeared in full view. I must confess to a feeling of disappointment; it was obvious that there could not be more than an hour's difficult climbing. The six and a half hours' ascent from the Montanvert had been tiring and utterly devoid of interest in the mountaineering sense, except for the comparatively short passage over the d'Envers du Plan Glacier, and I failed to see how one hour's rock-climbing could merit such a tedious approach. Knubel, who had already made several ascents of the peak, now went ahead with Lugard and, climbing without difficulty, arrived at a gap in the ridge just below the lower end of the immense and partly overhanging chimney that cleaves the Requin almost from head to foot. At the foot of the chimney, a steep slab falls away towards a ledge which Knubel and Lugard gained by the use of the doubled rope. Visser and I followed, retrieving the rope after reaching the ledge. Then, mounting a series of short, very steep chimneys, we arrived on a broad platform. Henceforward, working spiral-wise, we climbed

to the summit. The climbing was difficult throughout, but it was always perfectly safe. The holds were everywhere extraordinarily reliable, and it was probably this selfsame reliability and the fact that a party preceded us all the time that made the Requin, as a climbing proposition, seem hopelessly dull and monotonous. Only now and again when one's eye travelled down the tremendous precipices to the gloomy, shut-in basin of the d'Envers du Blaitière Glacier, did one become conscious of one's airy position and feel the vivid sense of exhilaration that every real mountain climb provides almost throughout.

If the ascent, however, had been weary, stale and unprofitable, the descent was to provide me with at least one compensating thrill. With the aid of the doubled rope, the great chimney before mentioned can be descended, and the dreariness of going home by the same road, as it were, avoided. Knubel and Lugard led off down the chimney, the upper half of which is barren of outstanding difficulty. We fixed a doubled rope, but there was no need to use it. In the middle of the chimney, however, there is a sloping platform which was plastered with ice; and below the platform the chimney falls away in a great overhang. We discovered a rusty *piton* driven into a narrow fissure in one side of the crack, but it was very loose. So Knubel hammered away some of the ice from the platform and laid bare a projecting stone over which he passed the spare rope. Together we let Lugard down to the bottom of the chimney. Then came Visser's turn, and Knubel went next, preferring to rely entirely on the doubled rope. Having nothing else to do for the moment, I relaxed, and was absorbing the view when, by the merest chance, I happened to glance down at my feet. To my horror, I saw the rope on which Knubel was now hanging

in free air slowly but surely rolling itself off the belay. Just in time to prevent its slipping off altogether, I trod heavily on it with my foot. Knubel, all unconscious of how near he had been to destruction, swung gaily downwards to the others. Then came my turn. After what I had witnessed, I felt disinclined to trust myself to the treacherous belay. After some little delay, during which I was much chaffed by the others, who were unaware of the cause of my hesitation, I succeeded in jamming the rusty old *piton* firmly enough into its fissure to satisfy even my now somewhat critical ideas of safety; and, passing the doubled rope through the ring, I shinned down. The climb was over. There remained nothing but the dreary return to the Montanvert; there had been one thrill, and that an undesirable one and unshared by my companions. The impression that survived was one of monotony, and I longed for all the wonderful variety and wide appeal which makes the real mountain adventure such a thing of joy.

The Grépon

A gigantic saw set up on edge and crowned by an array of irregular teeth—such, as seen broadside on from either the Mer de Glace or the Nantillons Glacier, is the great serrated ridge formed by the Charmoz and the Grépon. The deep col, or depression, which divides the ridge approximately in half, bears the composite name of the Col Charmoz-Grépon. Both of these peaks were climbed for the first time by a party consisting of Mummery, Alexander Burgener, that Viking of guides, and B. Venetz, a young fellow who must have been a very active climber; and all three declared the ascent of the Grépon to be "the most difficult climb in the world." The

advance which has taken place since Mummery's time in modern rock-climbing has robbed the Grépon of its right to this proud title ; but its ascent is still held to rank amongst the most difficult rock-climbing problems which the climber is able to find in the Alps or, indeed, in any other part of the world.

The ascent of the Grépon formed the last item upon our programme for the summer of 1911. Like the Requin, the Grépon is built up of huge blocks of marvellously firm granite, and, after my experience of the former, I hoped for little mountaineering enjoyment from the latter. As far as we could gather, there would be real mountaineering only on the ascent to the Col Charmoz-Grépon, whence the actual climb starts, and on the descent from the Col des Nantillons. Several mountaineers, however, had assured us that rock-climbing was not only more attractive than snow and ice work but also more difficult. So, desirous of testing fairly the truth of this statement so far as we ourselves were concerned, Max and I left the Montanvert at 2 a.m. on September 5, bound for the *ne plus ultra* of rock ascents.

If care is taken never to lose sight of it, a path, at first well marked but dwindling away to a diminutive track, may be followed almost on to the Nantillons Glacier, whence the broad couloir running down from the Col Charmoz-Grépon is reached. The head of this glacier is enclosed in a cirque of horseshoe shape formed by the cliffs of the Charmoz, Grépon and Blaitière. In line with the ends of the horseshoe, the glacier tumbles over a cliff, and the icefall thus formed divides it into an upper and lower half. We succeeded in keeping to the Montanvert track all the way to the glacier and, while walking up the gently inclined snow-free surface of the lower half, had ample

time to study the icefall. It was easy to recognise in a steep island of rocks lying close under the cliffs of the Blaitière the best line of ascent to the upper half of the glacier. Below these rocks the ice steepened somewhat, and a few steps had to be cut before the island was gained. Once on the rocks the traces of previous climbers were everywhere in evidence, and we followed a trail of empty tins, bottles and other leavings of humanity to the farther end of the island, where, just after daybreak, we roped and embarked upon the glacier. We had proceeded only a few yards, when we were suddenly brought up short on the edge of an enormous crevasse which stretched away, unbridged, on either hand to the bounding cliffs of the cirque. To cross would have involved hours of hard work and step-cutting, but for the fact that two ladders tied together and laid across the chasm at its narrowest point were still in a sufficiently serviceable condition to enable us to gain the farther edge without trouble. Thence, hastening through a short zone endangered by the séracs of an ice wall at the foot of the Blaitière, we gained the middle of the upper basin of the Nantillons Glacier and proceeded leisurely up the hard-frozen snow to the foot of the couloir which gives access to the Col Charmoz-Grépon.

The summer having been exceptionally dry and fine, the mountain was practically free from snow and ice, so we left one of our axes and a knapsack containing all superfluous baggage at the foot of the couloir, to be recovered on the descent. In the remaining knapsack we carried spare clothing, a spare one-hundred-and-fifty-foot rope and a few provisions, including a can of peaches and a tin of condensed milk reserved for the summit feast. Camera and spare films were stowed away, as usual, in my coat pocket. Some little difficulty was experienced in effecting a lodgment in the rocky bed

of the couloir, the glacier having shrunk away from the rock to such an extent that a rather deep cleft had been formed. The descent into the cleft was easy enough, but it was only after a sharp, if short, struggle up a very steep chimney with unreliable holds on the upper side of the cleft that the broken rocks of the couloir were gained. Here the climbing was perfectly easy, though the rock was far from firm, and care was necessary. We climbed close together on a short rope on account of the many loose rocks, some of which needed only a touch to start them crashing down to the glacier. Without meeting with any real obstacle, we mounted rapidly, keeping for the most part well to the left of the couloir which bore unmistakable signs of stone-falls. At the point where the couloir bifurcates, we took the branch to the right. It was much steeper and narrower than the lower part of the couloir and was partially filled with ice, but the remains of steps were still fairly well preserved and needed but little re-cutting. Shortly before 7 a.m. we gained the Col Charmoz-Grépon. On a little level ledge overlooking the immense and tremendously steep precipice falling away towards the Mer de Glace, we found shelter from the icy morning breeze and, warmed by the rays of the sun, settled down to our first rest and meal since leaving the Montanvert. Progress had been on the whole leisurely. The climb had provided mountaineering of the ordinary, everyday kind without notable difficulty, though, had it not been for the ladders, the large crevasse would undoubtedly have provided hard work. But it had been real mountaineering with all its essential variety, now rock, now ice, now snow; everything had been taken as it came, and, in addition, we had been almost throughout in, to us, an unknown region of wild and beautiful scenery. But now from the col onwards, if the information of others could

A sérac.

" Two ladders tied together and laid across the chasm. . ."

Facing page 254.

be relied upon, we should for hours on end be indulging in nothing more than a strenuous form of gymnastics.

For one whole delightful hour we dallied, basking in the warm sun; then, deeming it time to begin acrobatic operations, we returned to the col to have a good look at the famous Mummery crack with which the climb commences, and which is held to be the most difficult portion of the ascent. The crack lies on the Nantillons side of the ridge and is formed by a huge flake of rock which has become partially detached from the main mass of the mountain. It is about seventy feet high and almost vertical; indeed, in its lower part it appears even to overhang slightly. A spacious enough platform at the bottom provides a good jumping-off place. Leaving my camera and all other impedimenta behind in the col, I gained the platform and immediately set to work, while Max, perched on a slender, leaning spire jutting out of the col, belayed the rope. The crack was sufficiently deep to permit me to get my right arm into it beyond the elbow, and, though narrow, it was sufficiently wide to admit my right foot. Left arm and foot sought and found hold, though minute, on the rough crystalline texture of the outside surface of the flake. By twisting my right arm or turning my right boot, either could be wedged firmly into the fissure at will, and an absolutely reliable hold obtained. By adopting a method of progression similar to that of a caterpillar, that is, alternately bending and straightening myself, I rose quickly, passed beyond the lower overhanging portion, and about half-way up gained a small ledge on the flake which provided good standing room for the left foot. Thus far the climbing had been more a question of knack than a trial of strength, and I looked up at the second half of the crack expecting to see some hitherto hidden feature that would give serious trouble. If anything,

however, it seemed easier than the part already overcome. Here and there a stone jammed tightly into the fissure promised perfect handhold. I rested for a few seconds, then resumed the attack. A little way above the ledge, both surfaces of the flake became very smooth, and for the first time I had to struggle really hard ; but soon my right hand gripped the first of the chock-stones, and the remainder of the crack to within six feet of its top was easily negotiated. The final wall to the right was studded with plentiful handholds and soon I was standing on the crowning platform. The ascent of Mummery's crack had taken me just over two and three-quarter minutes. While I held his rope, Max, with ice-axe and knapsack, now climbed over to the ledge at the foot of the crack. There he unroped and tied on the baggage, which I then hauled up to my perch. As soon as it was safely stowed away, I flung the end of the rope back to Max, whose turn had now come. He clambered up at an amazing pace without even pausing to rest at the halfway ledge, and was soon beside me on the broad platform, panting out a scathing criticism on those who dared to compare gymnastics on rock with the varied difficulties of snow and ice work.

From here onwards the climbing, though almost throughout difficult, never came up to the standard of that of the crack. Sometimes we climbed on one side of the ridge, sometimes on the other, and at times on the crest itself. Belays were in evidence everywhere, and the rock was uniformly good. Never did we meet with a single loose or unreliable hand- or foothold. After passing the bold pinnacle which is the northern summit of the aiguille, we arrived on the great platform which breaks away in the precipitous, unclimbable wall, called the Grand Diable, leading down to a deep gap in the ridge. Thanks

to our plentiful supply of rope, this obstacle was easily overcome by resorting to the time-honoured dodge of roping down. From the gap, a level ledge known as the Route des Bicyclettes winds along the Mer de Glace face and enables one to circumvent the ensuing be-pinnicled portion of the ridge. After some further scrambling we stood at the foot of the final summit pinnacle. This, a great square-cut tower, capped by a huge, flat stone and seamed by a formidable-looking cleft, had been in full view before us ever since passing the northern summit, and we had already jumped to the conclusion that the way to the top led up this cleft. As the description of the summit crack given to us, a few days before, tallied more or less with the fearsome-looking thing to our left, we decided to disregard an obviously easy ledge running round to the Nantillons face. It is true that we had been told that the summit crack was much easier than Mummery's, and we failed to see anything easy in the crack before us ; also, as it hung right out over the terrific precipices running down to the Mer de Glace, one would be in a frightfully exposed position while climbing it. But appearances are never so deceptive as in the mountains, so I buttoned up my coat, made sure that the knot fastening the rope about my waist was well tied and started off. Max had good standing ground and could belay my rope securely. Once in the crack, the work began in earnest ; a very real earnest indeed, as subsequent events proved. It was wider than Mummery's crack, but not wide enough to allow me to get right inside it ; with my left arm and shoulder and leg inside whilst right hand and boot scraped outside in search of hold, I slowly struggled and fought my way up. It was most exhausting work. Just below the summit I had to turn round and get my right shoulder and leg into the crack, and left leg and arm out ;

a change of position that was accomplished only after an almost desperate struggle which robbed me of breath and sapped my strength to such an extent that, when it came to swinging myself up over the flat, overhanging summit stone, I found myself unequal to the effort. I was powerless alike to retreat or advance. Max, however, who had never for a moment relaxed his attention to my movements, had noted my dilemma and, with a warning shout that he was coming, hastened to my assistance, armed with knapsack and ice-axe. With my left hand and my teeth I took in his rope as he climbed upwards. When his head was just below my feet, he stopped and jammed himself firmly into the fissure. With his head as a foothold and a prod from the axe, I received the extra ounce of steadying support that enabled me to complete the ascent and haul myself up to the safety of the flat table-like stone that is the distinguishing feature of the summit of the Grépon. As fast as my breathless state would permit, I pulled in the rope until it was taut between us; and a few minutes later, just before midday, Max was seated by my side.

We were both rather puzzled and not a little humbled. The fierce tussle which the last crack had demanded, had provided something of a shock. If this were the sort of thing that most climbers of the Grépon called by no means excessively difficult and certainly easier than Mummery's crack, then it would have to be admitted that rock-climbing had, indeed, its points, and that we were sadly in need of practice. A little later, however, the mystery was solved. Going over to the Nantillons side of the summit platform, with a view to glancing at the way down to the Col des Nantillons, I discovered a perfectly straightforward crack of no great length which ended on the easy ledge that we had

previously neglected to explore. There could be no doubt that we had taken the wrong way up the final summit pinnacle. Several months later, I learnt that this formidable crack was the famous Venetz crack, climbed but once before, and that in 1881, on the occasion of the first ascent of the mountain. To this day the only other ascent recorded was made in 1923 by a party led by Mr. G. S. Bower. That no more than three ascents have been made in the course of thirty-two years is testimony enough to what this crack offers.

Returning to Max, I imparted the reassuring news, but to heedless ears, for he proved far more interested in plying the usual inefficient pocket-knife edition of a tin-opener in an attempt to lay bare the luscious contents of a two-pound tin of Californian peaches. His efforts were too vigorous and determined for any tin to withstand for long, and we were soon enjoying a feast of peaches and Nestlé's milk. The only thing lacking was snow which was sorely needed, not only to dilute the somewhat concentrated ingredients of our meal, but also to assuage the thirst that assailed us. After lunch, following our usual custom where time was of no vital importance, we settled down to sleep, not omitting, however, to secure the rope to the summit stone as a guard against the dangers of rolling out of bed. We found out later that these simple actions had been assiduously watched from Chamonix and gravely misconstrued by the many telescope owners who, while making petty fortunes, had been explaining to their clientèle of trippers that we were two mad young Englishmen who would certainly come to grief because we had with us no stalwart guides to ensure our safety. Now, on lying down to sleep, we suddenly disappeared from their view, and the rumour at once went round that we had fallen off the

summit ! Two hours passed by without our reappearing, and the rumour had deepened into conviction ; even one of our friends in Chamonix had begun to have fears for our safety. At 3 p.m. we awoke and began to prepare for the descent. This sudden resurrection put an end to the supposed tragedy, but henceforward we were not only *fous* but *absolument fous,* for no self-respecting Chamoniard has any use for a mountain-top except to leave it as soon as is decently possible after gaining it. Personally I love to dally in such places as long as is compatible with safety. Memories of hours spent stretched out in half-somnolent ease on the great sun-kissed slabs of summits, in splendid isolation, with the blue vault of heaven above and the brown-green earth spread out below, are treasure beyond price, eternally one's own and never to be lost, inviolate to the onslaughts of the getting, grabbing world.

The descent on the Nantillons side of the summit was effected without difficulty, and landed us out on the previously neglected ledge close to a collection of rope slings indicative of the beginning of the next pitch. This proved to be a chimney some eighty feet long and seemingly quite unclimbable, at all events in its upper portion ; the doubled rope, however, solved the problem as effectively as usual, and we found ourselves on a little platform at the top of an apparently almost unbroken series of huge precipitous slabs falling away to the Nantillons Glacier. To descend without an enormous amount of spare rope seemed out of the question, but, as the edge of the platform on which we stood was garnished with the bleached remains of two rope slings, we concluded that it was the usual way down. So Max held my rope and let me over the precipice. I descended quite a hundred feet, but no feasible way out revealed itself, and I had to go back. The return cost us both a stern effort,

Max pulling in the rope while I lent him as much assistance as possible by making what use I could of the few available holds. Casting round for a way out of the *impasse*, we chanced upon a boot nail in the bed of a steep but short chimney leading up in the direction of the ridge. We immediately followed up this timely clue and gained the top of the chimney, to find, a few steps farther on, a simple and straightforward line of descent open out before us. The way led frequently over steep ground, but everywhere there was a profusion of holds and belays, and the rock still remained as firm and reliable as cast iron. At half-past four, the Col des Nantillons was under foot, and the acrobatic part of the day's work was over. One could not help feeling that a baboon would have acquitted himself throughout with much more distinction than any of his human brothers.

The remainder of the descent was accomplished without incident. The crevasses near the head of the Nantillons Glacier were readily negotiated, thanks to reliable snow bridges that obligingly provided a crossing at the very places one would have chosen oneself. Passing by the foot of the couloir leading to the Col Charmoz-Grépon, we picked up the axe and knapsack left there in the morning and then, swinging round to the left, hurried across the sérac-swept slopes to the great crevasse. The ladder was still in position, and soon we were on the little rock island, where the rope was taken off and stowed away.

We had originally intended to make Chamonix that evening; but to do that now would entail hurry. It was our last day of a wonderful season of health and happiness-giving adventure in the Alps, and we were loth to leave the scene. To hasten from the midst of these great towers of silence and the white purity of the snows they nurse was

impossible. So we decided to pass the night at the Montanvert. Eager to retard the flight of our little season of freedom, we strolled downwards with lagging steps, pausing at whiles to drink in the glories of the mountains as the shades of night closed in upon them.

That evening, after dinner, we sat together, somewhat heavy-hearted, on the hôtel terrace overlooking the Mer de Glace. The Grandes Jorasses and the Rôchefort ridge were dimly outlined against the starry heaven. The Charmoz and the Dru, dark, ghostly pillars almost piercing the skies, stood, as if on guard, at the portals of that great world of snow and ice-bound rock where we had found true happiness, and to which we were now to bid farewell for a space.

* * * * *

It may be instructive to consider in how far a training in British rock-climbing will help or hinder the aspirant to high adventure in the Alps or any of the world's greater mountain masses. To the uninitiated, mountaineering is the dangerous, foolhardy, yet withal praiseworthy sport of the superman, heroic of physique and nerve, who gaily struts along the brinks of, or nonchalantly hangs over, awesome precipices and, disregarding all moral obligations, continually and with careless smile fences with death. In short, the untutored idea superficially conceives of a mountain as a thing of dark, frowning, rocky glories—a natural stage on which a superior type of acrobat displays his muscular agility. And so the term "mountaineer" loses its dignity and becomes synonymous with that of "rock-climber." But the "white domes of frozen air" exist outside the poetic imagination, and mountaineering is not a simple but a complex science, and the proficient mountaineer is not only a rock-climber, but a

snow-and-ice craftsman, an adept in the use of rope and axe, a pathfinder, something of a meteorologist, an organiser and, no less important, must have acquired the knowledge of how to conserve his energy, build up his powers of endurance and cultivate the proper mentality. To what extent can the various attributes of the composite being that is the true mountaineer be fostered amongst the crags and fells of the British Isles ?

From the geological point of view, the rocks of the Alps may be divided into two classes, namely silicious rock and calcareous rock. The mountaineer will further subdivide these two classes into good, bad or indifferent; thus, in all, the climber in the Alps meets with six different types of rock. These might be multiplied according to degree, but for our present purpose such meticulous treatment is needless. As a general rule, the rock-climber in the British Isles encounters only the good silicious class of rock. Other classes are to be met with, but a glance at the list of the more popular and outstanding climbs, such as those on Kern Knotts, the Pillar Rock, and Lliwedd, would seem to show that they are more or less avoided. In time, this one-sided training inculcates bad habits of which the climber does not even know himself guilty. Of the many types of rock met with in the Alps, the good silicious brand is the most rare ; so that there the knowledge of the one form and the inexperience of the other forms of rock are likely to prove quite inadequate, indeed even dangerous, assets. A school that teaches one to master only the safe is no sufficient school for the would-be mountaineer, and the British-trained climber will soon find that he has much to learn of rock-climbing in the Alps.

Again, stone avalanches are unknown in Britain. The only stones that fall there do so through human agency—the clumsy placing of a foot or hand, the careless use of the

rope—and not through the working of the natural forces of sun and frost. When and where stonefalls may be expected to occur is part of the mountain lore that a mountaineer must acquire, and it will not be acquired, at first hand at least, on the Cumbrian or Welsh hills.

It is often reiterated that Great Britain provides climbs of a higher standard than do the Alps. Disregarding the obvious limitations of the former (not least of these being that in Great Britain almost all the difficult climbs are ascents, and difficult descents are neglected), and the fact that they are, as it were, at the back door of one's hotel, whereas the latter are approached only after hours of hard and fatiguing preliminary work which robs one's strength of its edge, I should like to make a few simple comparisons from my own experiences. One morning in July, 1913, I climbed Kern Knotts crack twice, first without the rope and alone, then roped and as leader. The niche was gained by the crack below; the useful chock-stone above the niche was missing. No shoulder was used. During the afternoon I climbed the Eagle's Nest ridge which still ranks, I believe, as one of the most difficult of British rock ascents. On this climb I trailed behind me a hundred-foot length of half-inch diameter rope, one end of which was tied round my waist. Nailed boots were worn on all three climbs. I came to the conclusion that Kern Knotts crack is shorter, less steep, requires less skill and knack, and is altogether considerably less difficult than the famous Mummery crack on the Grépon. It will not for one moment bear comparison with the Venetz crack on the same peak. The Eagle's Nest ridge, though very difficult, is undoubtedly less trying than the first buttress on the west ridge of the Bifertenstock.

What are the opportunities in Great Britain for training

in snow and ice-craft? I have met with only five different kinds of snow in the hills of these islands; and all were good from the mountaineer's point of view. The snow was either cohesive or could be made to cohere. In the Alps I have taken notes of some of the characteristic features and properties of very many distinct types of snow, the majority of which called for the exercise of special caution in venturing upon the slopes on which they lay. Ice is rarely met with in Great Britain, and then never in sufficient quantity to necessitate the cutting, at the outside, of more than a few steps—poor practice indeed for the pitiless ice slopes of the east face of Monte Rosa. Avalanches and snow-shields are unknown here; in the Alps, especially in winter, and in the Himalayas at all times, one must be on one's guard against such dangers. Ignorance in this respect has been the cause of some of the most deplorable of mountaineering accidents. Glaciers and crevasses are non-existent in Britain. In fine, as a training-ground for snow and ice-craft, our homeland hills are useless. To assert what one does not know is a fairly universal human failing; and there are some British rock-climbers who contend that snow and ice-craft is no more difficult than rock-climbing. In reality there is not one of the big snow and ice expeditions of the Alps that does not represent a far more serious undertaking, physically and mentally, than the Grépon, Requin or any other of the better known "crack" rock-climbs. Not only does British rock-climbing fail to provide the beginner with practice in the use of the axe for sounding, step-cutting and belaying, but it also fails to teach him what is almost equally important—how to handle and carry the axe when it is not actually required. On ninety-nine out of every hundred scrambles at home the axe is left behind altogether.

Moreover, in the use of the rope, non-Alpine and Alpine practices vary greatly. Owing to the shortness of climbs in Great Britain, time is immaterial. Parties move one man at a time. The leader climbs on ahead, free from the encumbrances of axe and knapsack, until he finds a suitable belay. The second man follows, likewise unencumbered, as the leader takes in the rope. The last man sometimes carries a light knapsack, though I myself have never seen it done, nor do the numerous pictures of British rock-climbing now before me show any trace of such impedimenta. Time is too valuable in the Alps to permit of such tactics except where the difficulties are considerable. In the case of almost any Alpine expedition, for more than half the time the members of a party are moving all together ; and to be proficient in the use of the rope means that one must be able not only to move without its continually getting in the way, but also to look after it and keep it taut, so as to check a slip immediately, while actually climbing. Practice in this is necessarily limited in Great Britain. Hence it is no uncommon sight to see a party of British-trained rock-climbers on an easy Swiss rock peak, with the rope in loose, untidy coils, catching in jutting out rocks, dragging about loose stones and generally acting as a menace to safety. This abuse of the rope is, paradoxically enough, the outcome of the undeniable virtues of sure-footedness and steadiness that have been learned on the British crags. The fault does not lie in the climbers' incapacity to keep the rope taut, but merely in that, trusting to their steadiness, they do not bother to do so. I have observed that many of those who err in the handling of the rope are as sure-footed as cats.

Route-finding in the Alps, and still more so in the other great mountain groups of the world, is a matter of prime importance. Before embarking on an expedition in the Alps,

the climber first makes his choice of mountain, and then, according to the degree of difficulty desired, chooses the face or ridge by which to gain the summit. This done, he brings all his knowledge of route-finding to bear upon the selection of the easiest and safest way up that face or ridge. Difficulties are avoided as much as possible. The adoption of bull-at-a-gate methods will lead to much loss of time ; and time, of little consequence in England, is a factor to be reckoned with seriously in the Alps. Owing to the limited nature of climbs at home, the reverse practice is adopted. One is taught to look for difficulties, instead of avoiding them and seeking the line of least resistance ; and the habit thus engrained is apt to persist when the British-trained rock-climber looks for adventure abroad. The corollaries are numerous. Those that most concern our purpose are that he learns on British crags only to a very limited degree how to conserve his energy, build up his powers of endurance or cultivate the proper mentality. All these things are acquired only in a school of hardships under physical and climatic conditions that are foreign to our islands.

Once one accepts the fact that the difference between a mountain and a crag is not only one of scale, it will be readily acknowledged that he who disports himself on the latter has much to learn and, possibly, something to unlearn before he can become a mountaineer in the full sense of the word. How many of those who have begun their climbing in Great Britain have accomplished anything of note in real mountaineering ? Rock-climbing is too liable to strangle any innate aptitude for mountaineering proper, and to restrict achievement in the wider craft to a level of dull mediocrity.

For those whose ambitions do not soar beyond home, the crags and fells are a pleasurable playing ground where they may

scramble to their hearts' content ; to those who have well served their apprenticeship in the wider and loftier playground of the Alps, the homeland hills will provide useful muscular exercise and plenty of healthy fun ; but for the beginner who aims at being a true mountaineer, the only safe place within easy reach to learn the craft is the Alps.

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On the morning after our ascent of the Grépon, while waiting for the Chamonix train, Max and I were comparing with the reality M. Vallot's well-known, panoramic sketch on the stone in front of the Montanvert. The first batch of the day's sightseers had arrived, among them a tall, faultlessly garbed young lady, who approached and addressed us.

"Say, are you mountaineers ?"—evidently having come to the conclusion at the sight of our heavy hob-nailed boots and rather tattered clothes.

"Well—yes," replied my brother. "At least, we have been doing some climbing."

Pointing to the Géant, she inquired :

"Have you climbed that mountain ?"

"Yes !"

"And those ?" indicating in turn each of the summits of the Rôchefort ridge.

"Yes."

Finally, with outstretched finger towards the Dru and a note of challenge in her voice : "And that one ?"

"Yes," answered Max ; adding, "we climbed it a few days ago."

Stepping a pace or two backwards, the tall, young lady very slowly, but distinctly, closed the conversation ·

"Well, I guess I always knew you English were some story-tellers !"

CHAPTER XVIII

THE AIGUILLE DU DRU

AFTER our border-line crossing of Mont Blanc, Max and I arrived at the Col du Géant on the evening of August 31, 1911. There we met a German climber armed with a letter of introduction from Martini, who had climbed the Zmutt ridge with us earlier in the season. As our new acquaintance considered ice-climbing to be a vicious and unpleasant way of indulging in the delights of the mountains, a traverse of the Dru was decided upon, in preference to the joys of step-cutting on the slippery slopes of the north face of the Verte. Accordingly, after sunrise on the following morning, we set out across the Géant Glacier towards the Montanvert. Max and I still felt the effects of our recent activities and were consequently inclined to take things rather easily. Before arriving at the top of the icefall, however, our friend's protests against the slowness of the pace began to take effect and stung us into something that was very much the reverse of our previous lethargy, with the result that we worried a way through the broken icefall with quite a useful turn of speed. Well before arriving in the thick of the séracs, a puzzled and rather concerned expression had taken the place of the patronising though kindly smile with which our companion had blessed the previous labours of his two young associates. A little later, he fell a victim to the fact that the size of an ice-step is inversely proportional to the velocity of the party, and he lost his footing. The rope, however, sufficed to palliate the effects of the slip, but was quite

unequal to the task of stemming the torrent of guttural language which condemned as reckless the speed which, after all, merely resulted from the granting of a request! After discarding the rope on the gentle slopes of the Mer de Glace, a normal rate of progress was once more reverted to, and, long ere arriving at the Montanvert, we had all recovered our equanimity.

In the afternoon we left the Montanvert, with three days' provisions and two one-hundred-foot ropes. Max and I, as usual, carried heavy knapsacks and consequently found the struggle with the moraines leading up towards the Charpoua hut both difficult and unpleasant. Our friend, however, bounded on far ahead with the agility of a two-year-old.

We were pleasantly surprised to find that the hut was not in the dirty condition so characteristic of the majority of the club-huts in the Mont Blanc district, and that it also contained most of those little things which go so far towards making life pleasant after a harrowing and steep climb in the heat of the afternoon.

At 4 a.m. next morning we left the hut, taking with us, in addition to our own two hundred feet of rope, an eighty-foot length belonging to the hut and kept there expressly for the use of climbers bound for the Dru, a stake of wood, and only two ice-axes. At 6 a.m., after having been held up by a rather lengthy bout of step-cutting across the head of the Charpoua Glacier, we gained the lower lip of the final bergschrund. This proved to be an extremely difficult customer to deal with, for the upper lip at its lowest point could only be surmounted by cutting up an exceedingly steep ice wall of about thirty feet in height. After the first fifteen feet, only one hand could be used for cutting, and the work became so severe that a rest was necessary after practically

each step. Max and I took turns at the work, each doing a step whilst the other retired to the level floor of the schrund to rest and infuse fresh life into half-frozen fingers. At eight o'clock we gained the upper lip, but, deciding that too much time had been lost for us to be able to complete the climb that day without running the risk of a night out, we drove the wooden stake into the snow and, tying a doubled one-hundred-foot length of rope to it, retreated down the ice wall and joined our companion, whom we acquainted with our decision to retreat, then and there, to the hut.

No time was lost in preparing for the descent, as there was every evidence of the head of the Charpoua Glacier being much exposed to falling stones. My desire that Max, armed with an axe, should bring up the rear of the party was waived in deference to the wishes of our companion who assured us that he could hold both of us should occasion arise. The small, hastily-hewn steps of the morning had become partially effaced by the sun, and a considerable amount of work was required to renew them sufficiently well to afford secure footing. Max followed me, but after a few steps felt so insecure without an axe that he turned round and warned the last man on the rope to be prepared for a slip at any moment. Just as I was engaged in cutting a very large and deep step which would serve as a belay, I heard a shout from behind and, instinctively guessing that a slip had occurred, quickly braced myself as firmly as possible against the slope, with the pick end of my axe pressed well home against the ice. The jerk came, but it was only a mild one, and the strain was easily withstood. Thinking that the trouble had now been averted, I was about to look round, when a second and savage tug came which almost dragged me out of my steps. This is what had happened: Whilst I was engaged in cutting the

large step, our companion had left the firm footing provided by the level floor of the bergschrund to make his way down towards Max. Max had then slipped, and the other had not only failed to hold him but was in his turn pulled out of his steps. The first pull on the rope was due to the checking of Max's slip; the second, and far worse jerk was caused by our companion's slip down the steep, icy slope for a distance of nearly a hundred feet before being held up by the rope. Incidentally, he also lost his grip upon his axe; fortunately, it slid down towards Max, who had the presence of mind to seize it. Thanks to this useful effort, the return of the errant members of the party to their steps was speedily effected. At half-past nine we were back at the hut and spent the remainder of the day in a series of repasts and sun baths on the great, rough, warm slabs near by.

Towards sunset a French climber and two agreeable Chamonix guides arrived. Their intention was to traverse the Dru, starting with the little Dru first. The leading guide was inclined to be anxious about the condition of the bergschrund, but was quite relieved on hearing that we had left a stake embedded in the upper lip, which would enable them to rope down over the hindrance without difficulty. We also came to an agreement whereby axes were exchanged, they undertaking to leave our axes at the foot of the rocks of the little Dru, and we to leave theirs at the bergschrund on the way up to the big Dru. Thanks to this excellent arrangement, we were able to carry out this long rock climb without being encumbered by axes.

On September 3, 1911, at 4 a.m., we roped and left the hut. I led, carrying a spare eighty-foot rope; Max followed, and our companion brought up the rear, Max and I both being firm believers in what is still often considered to be a

Photo T. G. B. Forster.

Where next?

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heresy, namely, that on climbs of this sort the "unknown" element of the party should always be the last on the ascent, on the principle that it is easier for the dog to wag the tail than *vice versa*. Shortly after 5.30 a.m. the upper lip of the bergschrund was tackled and easily ascended by means of our fixed rope. While the process of cutting steps up the short, steep, final slope towards the rocks was going on, Max coiled up this rope and strapped it on to his knapsack. This brought the sum total of the party's available rope up to two hundred and eighty feet. On arriving at the top of the slope, the problem confronted us as to how to gain a footing on the rocks, for a deep, unbridged chasm separated the snow from the latter. Finally, I was let down about twenty-five feet into the cavernous depths below, and by a pendulum process was able to swing across and obtain a somewhat precarious footing on the smooth rock. Climbing with no little difficulty up the ice-worn slabs until about thirty feet above the others, I found secure standing ground on a spacious platform. The others did not trouble to repeat these round-about tactics, but swung straight across on the rope held by me and soon joined me on my perch. A few yards more of rather difficult climbing led to steep, but broken and easy rocks, over which rapid progress was made. Near by on the left, was the somewhat slabby couloir which leads down from the col situated immediately to the north of the Dru. None of the party had anything more than a very vague idea of the best route to be followed, beyond believing that it was unnecessary actually to reach this col before traversing to the left on to the rocks of the peak proper. We kept, therefore, a sharp look-out for the first possibility of crossing the couloir and taking to the rocks on the other side.

About two hundred feet below the col such an opportunity

presented itself. We climbed across the couloir without much difficulty, and gained a narrow ledge leading round under an overhanging buttress towards the foot of a steep slab. The appearance of the latter was sufficiently forbidding to cause one to hesitate and wonder whether this could be, after all, the right way; but, as any further prospecting would have entailed loss of time, we decided to carry on in the hope that things might improve higher up. As a matter of fact, although it was not until almost a hundred feet of rope had been run out that safe standing ground was found, the ascent of the slab was by no means very difficult, even if somewhat sensational. Thence easy scrambling led to a broad and well-defined ledge, which seemed to run without break from the col to a point almost directly under the summit of the Dru. We followed this ledge without meeting with any set back. At one point it is interrupted by a deep cleft where we found a frayed rope, by means of which one could swing from one side to the other. This is evidently the spot known as "La Pendule." The cleft can be crossed without overwhelming difficulty in several places by the ordinary methods of climbing, but there is no doubt that swinging across by means of the fixed rope does save time. The process, also, is quite an amusing one. At a short distance beyond "La Pendule" the ledge narrowed down, but at the same time the rocks towering above on our right became more and more broken and were furrowed by a series of chimneys leading in the direction of the summit ridge. Bearing up to the right, we came across an old wooden ladder, possibly a relic of Dent's first ascent. Soon afterwards, on doubling back a few yards in the direction of the col, we arrived at the foot of a long and wicked-looking chimney, several steps of which appeared to overhang. A closer acquaintance with this obstacle, however,

was reassuring. The chimney was long, and did overhang, but there was such a profusion of holds in the warm, firm rock that the ascent almost resembled the scaling of a ladder. Above the chimney, an easy scramble over huge, rough boulders and broken rocks led on to the ridge. On being rejoined by Max, I unroped and walked up over the ridge towards the two enormous rocky teeth which form the summit of the big Dru. An attempt to gain the summit of the higher tooth from the north failed, but, by traversing slightly downwards to the left, I reached the foot of a short gully leading up into the gap between the teeth. A few steps from this gap placed me on the summit at 10 a.m. The others soon joined me and ensconced themselves on the lower tooth, more room being available there than on my perch.

The day was cloudless, and there was not a breath of wind. The view towards the northern slopes of the Aiguille sans Nom was striking. As if in warning and for our edification, a huge avalanche fell down these precipices whilst we were scanning them for a possible line of ascent.

The actual summit rest was cut somewhat short owing to the cramped nature of the seating accommodation ; but, on the almost level plateau from which the cliffs sweep down into the gap between the big and the little Dru, we discovered almost sufficient room for the laying out of a tennis court. After an unusually excellent, mountaineering apology for lunch, I set out to prospect for the best line of descent into the gap. At one point, almost directly in line with the two summits of the mountain and on the extreme edge of the plateau, there were a number of fixed coils of rope hanging round a jutting out rock ; but on leaning as far forward over the precipice as was possible, it seemed to me extremely doubtful whether we had enough rope to enable us to descend in safety at this

point. Had Max and I been alone, we should doubtless have slid down the doubled rope without more ado; with a new companion, however, we had serious doubts as to the prudence of this method of procedure. It behoved me, therefore, to cast farther around for an alternative route where the individual roping down distances were not so great. We had heard vague rumours of the existence of a so-called "Z" route, but had no notion as to where to look for it. Prospecting in the direction of the Grandes Jorasses revealed nothing useful, and I turned my attention to that corner of the plateau from which the northern precipices of the mountain fall away. Here, a short, partially ice-clad gully revealed itself. Faint traces of steps were still clearly visible in the ice, and a conveniently-placed boulder had a new and serviceable looking sling fastened round it. Not quite satisfied that this was the beginning pitch of the sought-for "Z" route, I went back to fetch a rope and to enlist Max's help in making a more intimate exploration of the chimney and its hidden secrets. Securely held by Max, I descended the gully for about fifty feet, and was then able, just before the gully faded away into thin air above one of the most appalling precipices I have ever looked down, to step over on to a small platform situated directly under a huge, overhanging nose of rock. Crossing this platform in a couple of steps, a clear view of the rocks leading down into the gap presented itself, and showed that one, or at most two, comparatively short descents on the doubled rope would solve any remaining difficulties.

Returning to the foot of the gully, I yelled up the good news to Max, who went off to fetch our friend and the knapsacks. After sending down the latter to be stowed away on the platform, Max fixed a doubled rope to serve as an extra support for our friend's descent of the chimney. Securely held by

Max's sturdy grip, and with a little judicious pulling from below, he was soon down. Max followed, giving a perfect exhibition of how this sort of thing should be done, and was on the platform and pulling in the doubled rope almost before our comrade had realised that he was on terra firma. Twice again we repeated these roping-down tactics over a series of steep slabs, which, however, could have been descended by ordinary methods of climbing without too much difficulty. After the last use of the doubled rope, I went on with a view to saving time by seeking out the rest of the descent into the gap. This lower part of the wall was easily negotiated by means of a series of well-defined ledges leading to a final short chimney immediately above the gap. After passing up this information to Max, I walked over the broad ridge built up of huge blocks of granite, towards the summit of the little Dru, and arrived there at 12.30 p.m., just as the party with whom we had exchanged axes earlier on in the morning were leaving for the big Dru. After carefully shepherding our companion down the last chimney above the gap, Max grew tired of slow and careful methods and completed the descent in great style by a bold glissade which landed him on all fours in a tangle of rope on the broad back of the gap—much to our concern, who mistook his voluntarily rapid descent for the result of a slip. A few minutes later we were reunited on the spacious and flat summit of the little Dru.

The view I suppose must have been glorious, but, candidly, I remember little more than the sinking feeling caused by an inspection of the extraordinary precipices into which the mountain falls away to the north; and even this keen impression soon had its edge taken off by the enjoyment of the result of Max's noble efforts with a tin of peaches, condensed milk and snow.

At 2 p.m. the pleasant sojourn came to an end, and we embarked on the descent. The way down was shrouded in complete mystery though, on the whole, the general opinion of the party inclined to the view that a bee-line for the Montanvert would give the correct direction, at all events for the first part of the descent. In any case we felt no anxiety, for one can do much with plenty of rope. Accordingly, taking the Montanvert as the objective, we set off, and the fun began at once. Immediately after leaving the summit, we had to resort to the doubled rope in order to descend a long and steep chimney which ended on a ledge of most ungenerous proportions. Our friend here provided a little thrill. He was half-way down the chimney, with still practically forty feet to go, when something apparently went wrong, for he turned a somersault in mid air and finished up the descent head downwards, with feet waving frantically in the air and his felt hat floating gracefully down over the precipices. Max had him secure on the climbing rope, however, and so he was never in any danger.

It was almost impossible to obtain anything like a clear survey of the ground ahead, for the general steepness was certainly excessive, and numerous inconvenient bulges and overhangs hid far too much from view. After a short consultation, Max and I confessed to one another that neither liked the appearance of things in general, but as there were no eager volunteers for climbing back up the chimney that had just been roped down, it was decided that we should take the chances of carrying straight on. Steep chimney after steep chimney followed, and not only did we see no signs of previous descents or ascents, but the ground became increasingly difficult. Finally, when we had arrived at a point level with and slightly to the south of the enormous,

On the summit of the little Dru.

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slate-grey patch below the summit, which is so prominent a feature of the Dru when seen from the Montanvert, all possibility of further descent seemed precluded, and we were forced to realise that the outlook was somewhat critical. To our left we could see the ridge over which the correct line of descent must certainly have led, and we were, therefore, faced with the question of either gaining this ridge by a most unwholesome-looking traverse, or by retreating back to the summit. The latter alternative could only be regarded as a very forlorn hope, and not to be attempted unless the traverse should prove impracticable. The chief drawback of the traverse was the fact that we would be able to give each other little or no help or support until the worst was over. However, it was no good wasting time in indecision. I have forgotten many of the details of the traverse, but at first it led across almost vertical slabs by means of the minutest of cracks and ledges. The climbing was most difficult and, owing to almost complete lack of belays, somewhat risky. But our companion rose brilliantly to the occasion and tackled the difficult and exposed slabs in a steady, sure-footed style and with a complete absence of nervousness. Before gaining the ridge, the work became less serious. Comparatively broad and broken ledges separated one tier of slabs from another, and easy ground finally led round on to the ridge at a well-marked step or depression a short distance below a prominent *gendarme* which, I believe, is known in Chamonix as " le Poisson."

It was now about 4.30 p.m., and much valuable time had been lost through this somewhat sensational variation of the descent. It was still far from easy, even on the ridge, to survey the further line of descent for any distance ahead. I therefore took off the rope and went on to prospect, leaving the others to follow. Several times I got on to the wrong

track, but being alone and, therefore, climbing more rapidly, was able to rectify such errors before the other two arrived. Lower down, an *impasse* in the ridge, in the shape of a bold *gendarme* followed by a clean and almost vertical cliff, held me up until Max's arrival. The best means of circumventing the obstacle appeared to lie in the descent of a vertical chimney which bore a close resemblance to Mummery's crack on the Grépon. It led to a platform on the northern side of the ridge. We fixed a double rope, and I proceeded down. A large chock-stone was jammed in about half-way down the chimney, but as there was no real necessity for making use of it as a hold, and as it could be easily avoided, I did not attempt to dislodge it, preferring to let sleeping dogs lie. I sent up word to the other two, however, to leave it alone lest it should prove to be dangerously loose. On arriving on the platform, I let go the doubled rope and, while the second man was preparing to descend, cast round for further means of escape. The only available route led along a narrow, sloping ledge running towards the ridge from a point about four feet below the edge of the platform on which I stood. With the greatest care, most emphatically urged upon me by the sheerness and depth of the precipices below, I lowered myself on to the ledge, still retaining a grip in the numerous small cracks with which the platform was fissured. By taking a couple of steps and leaning well outwards, it was possible to see round and beyond an intervening corner of rock towards easy, though exposed, ground over which the ridge could be regained. Before climbing farther, I looked up towards Max to give him this information. Our companion was nearly half-way down the chimney and almost level with the chock-stone. I was just repeating my warning not to make use of this possibly insecure hold, when it came hurtling down through

space and, crashing on to the ledge, broke into two pieces. One of them, in bounding out over the precipice, narrowly missed my head, but the other was more perfect in its aim and dealt me a clean, knock-out blow on the chest. The shock caused me to lose hold with my left foot and hand. By means of the kind of effort that one is able to exert when it comes to making a bid for life, I was otherwise able to retain my balance. I struggled on to the platform and lay there absolutely winded, totally unable to answer any inquiries.

The rest of the route down the ridge promised to be less complicated. Our companion descended first, whilst I, still sorrowing over bruised ribs, was tied in the middle of the rope and tenderly nursed off the platform and round the ledge. Our original order of march was, however, *pour cause*, soon reverted to. But the day's troubles were nearly over. An opportunity of descending from the ridge towards the Charpoua Glacier revealed itself, and, scrambling over huge glacier-worn slabs broken up by numerous ledges and chimneys, we presently arrived at the point, a few feet above the ice, where the other party had left our axes.

Of the French climbers we could as yet see nothing, but surmised that they must by now be somewhere in the neighbourhood of the bergschrund at the head of the Charpoua Glacier. While we were speculating as to their exact whereabouts, a tremendous avalanche of stones plunged down from the direction of the Pic sans Nom, swept the rocks immediately above the bergschrund, and crashed over this and the upper slopes of the Charpoua Glacier towards the icefall below which we stood. So great was the volume and impetus of this avalanche, that for some moments we expected to see the stones fall even beyond our standpoint. Having the gravest fears as to the safety of the other party, we gave vent to a series of hefty yells, and were finally reassured by a faint reply

coming from the rocks just above those over which the avalanche had swept. In continuation of their good fortune, this party later on found that our axes and the stake of wood, that we had driven into the snow above the bergschrund, had not been touched by any of the falling stones, though several had gone very near.

The sun had set, and, as we were without a lantern, there was no time to be lost in crossing the glacier. The unfriendly, threatening aspect of the séracs, below which we threaded our way between numerous blocks of ice and crevasses, also urged the necessity for speed. Once on the far side of the glacier, the danger from falling ice was past, and a brief ascent over a diminutive bergschrund and gentle snow slope led on to the summit of the hump that separates the two tongues of the Charpoua Glacier, and upon which, somewhat lower down, stands the Charpoua hut. Shortly after 7 p.m., we entered the welcome refuge.

The other party rolled up soon after 8 p.m. Lured on towards the Montanvert by visions of civilised luxury and comfort, they hardly found time to gulp down the cups of tea we proffered. But the visions proved false, for the local knowledge and lanterns of the guides fizzled out in the midst of the maze of crevasses of the Mer de Glace, and it was not until daybreak that they entered the Montanvert.

We, on the other hand, slept soundly, and in the fresh hours of morning strolled over to the Montanvert, where we arrived in good time for lunch.

As a climb, the traverse of the Dru is magnificent. Unlike the Grépon or the Requin, the Aiguille du Dru is every inch a mountain. The rock varies from bad to good; to get to the rock, good ice-work is called for; and the route-finding is far from simple. Though essentially regarded only as a rock-climb, it is really an all-round, first-class expedition.

CHAPTER XIX

TOWARDS MOUNT EVEREST

"TO make a determined effort, with every available resource, to reach the summit" were the instructions with which the 1922 Mount Everest expedition left England. The personnel was as follows :—

Brigadier-General the Hon. C. G. Bruce, C.B., M.V.O., commander-in-chief ;

Lieut.-Colonel E. L. Strutt, D.S.O., second-in-command ;

Dr. T. G. Longstaff, M.D., chief medical officer and naturalist ;

Dr. A. W. Wakefield, medical officer ;

Captain J. G. Bruce, M.C. (a cousin of General Bruce), Mr. Crawford, I.C.S., and Captain Morris, } transport officers ; and

Captain J. B. Noel, official photographer and kinematographer.

The climbing party consisted of Mr. G. H. Leigh-Mallory, Major H. Morshead, Major E. F. Norton, who was also artist and naturalist, Mr. T. H. Somervell, also artist and medical officer, and myself, also in charge of the oxygen equipment and responsible for its use on the mountain. We had, in addition, four Ghurka non-commissioned officers, a Tibetan interpreter by name Karma Paul, and about fifty Nepalese porters and camp cooks.

The party assembled in Darjeeling, and two detachments

moved off towards the end of March to a *rendezvous* at Phari Dzong, the first considerable village on the line of march through Tibet proper. The third detachment, consisting of Crawford and myself, had to remain behind in Darjeeling to await the arrival of the belated oxygen cylinders. It was not until April 2, a week later, that the apparatus turned up, and we were able to proceed on our way.

Our route lay through the independent state of Sikkim, at first a country of sub-tropical, or even tropical climate and luxuriant jungle vegetation. Cool, shady, woodland streams and pools provided welcome interludes in the hot and often dusty journeys. From the day we left Darjeeling, I took photographs of scenes and happenings and did my developing at the end of each day's march. As I had to keep within a definite baggage allowance, my photographic outfit was of the simplest. It comprised a quarter-plate, roll-film camera fitted with a Zeiss Tessar lens, a vest-pocket Kodak, two Kodak daylight developing tanks with the requisite developer and fixing powders, and spools, sufficient for fifteen hundred exposures, sealed in air-tight tins. Simple though the equipment was, it meant my having to do without certain luxuries ; but I have always considered the sacrifice well worth the while, as the photographic results obtained were, on the whole, pleasing.

Already on the third march out from Darjeeling, an ominous rattling was heard coming from the boxes containing the oxygen cylinders. At the first opportunity, the mules were off-loaded and the boxes opened, a rather lengthy proceeding as we had no tools save our pocket-knives. An examination of the contents showed that, even in this short space of time, the rubbing of the cylinders against each other had caused an appreciable amount of wear and tear—a state of affairs that

called for immediate remedy. Otherwise, sooner or later, a cylinder would have been weakened to such an extent as to be able no longer to withstand the pressure of the gas it contained; and the resulting explosion, apart from the possibility of its leading to loss of, or injury to, personnel, would have completely discredited oxygen which was already by no means universally favoured by the members of the expedition. Fortunately, we were able to purchase a large supply of string and cloth which we wrapped round the cylinders. These were then repacked in their boxes in such a manner that metal could not come into contact with metal.

On April 8, in a snowstorm, we crossed the Jelep la, the lofty pass on the boundary between Sikkim and Tibet, and that evening arrived at the dâk bungalow at Yatung at the entrance to the Chumbi Valley, where we passed our first night in Tibet. At the bungalow, we met the late Sir Henry Hayden and his guide, César Cosson (who lost their lives on the Finsteraarhorn in the Bernese Oberland in August, 1923). Like ourselves, they were bound for the interior. Crawford and I continued our journey on the following day, anxious to push on and try to catch up the main body of the expedition; and, on arriving at Phari Dzong on the 10th, we learned that they were only three marches ahead. After three more days of hard marching across those vast, arid Tibetan plains, through intense cold and in the teeth of a wind that whipped up clouds of dust and sand into our faces, we rejoined our companions at Kampa Dzong. On the first night out from Phari we camped in the open. On the second, the nuns of the Buddhist convent of Ta-tsang afforded us hospitality. Crawford and I passed the night in the roofless temple chamber. Some of the nuns spread out my sleeping bag on the altar, and there I slept, awakened occasionally

by the cold. A brilliant moon shone down and lit up my weird abode. The dessicated remains of a magnificent billy-goat hanging above the altar grinned down at me, and prayer wheels surrounded me on every side. Next day, the 13th, we were in camp at Kampa Dzong. In view of our somewhat travel-stained appearance, the General decided to postpone the departure of the expedition until the 15th, and so afford us a much-needed rest. Since leaving Darjeeling, we had been marching hard without a single off-day.

From Kampa Dzong onwards, the yak replaced the mule as our transport animal, owing to the difficulty of providing suitable fodder for the latter. What the camel is to the desert, the yak is to Tibet—an animal indispensable for human life in the country. The yak's chief form of nourishment is a very coarse grass, which grows in the marshy bottoms of the valleys fed by the streams that flow down from the northern slopes of the Himalayas. He relishes and thrives on this fodder which apparently no other animal can palate. In appearance, the yak is a hefty, beefy animal, somewhat resembling the Indian buffalo ; but he has a coat of long, shaggy wool to protect him against the cold and wind. The Tibetans, who are forbidden by their religion to take the life of wild animals, are permitted to slaughter domestic animals for food. Thus the yak, in addition to being the national beast of burden, supplies the inhabitants of the country with milk, butter, cheese, meat, leather, wool and, last but not least, provides them, in the almost complete absence of trees, with their staple fuel, dried yak dung.

The pace of the mules was about four miles an hour, but that of the yak is a most moderate one of less than two. To hustle a yak serves no useful purpose ; he simply gets annoyed, and proceeds to throw off his load preparatory to running

amok; and anything a yak does is very thoroughly done. The proper way to drive yaks seems to be to let them open out into extended order, line abreast, with the drivers walking behind. While on the march, it is up to the drivers to whistle soft, lullaby airs. If for lack of moisture on the lips or for lack of breath, the whistling should cease for any length of time, the yak objects and there is usually trouble. When treated in conformity with his wishes, however, the yak proves a most reliable transport animal, capable of carrying heavy loads for as much as ten to twelve hours on end at his normal, steady pace, irrespective of the nature or difficulty of the ground. When he comes to a river, he does not wait to be off-loaded, but plunges in without hesitation and wades across as if in his element.

Owing to the difficulty of obtaining a sufficient supply of yaks for such a large caravan as ours, some of our baggage was carried by donkeys. These little animals were extraordinarily game and tough, but on one occasion, when our way lay across an extensive area of quicksands, the nature of the ground had them thoroughly beat. With their tiny hooves, the poor little donkeys would, at almost every step, sink deeply into the quagmire; sometimes so deeply that little more than nostrils, eyes, ears and tail remained above the slime. In such cases the customary procedure was as follows: first of all, the loads were removed, after which three drivers stationed themselves at all three corners of the donkey, one at each ear and the third at the tail. Then it was simply a case of heave-ho! until the animal emerged with a noise resembling that of the withdrawing of a cork from a bottle.

From the European point of view the Tibetans have one great failing which might well, considering the rigorous climatic conditions, be deemed both excusable and incurable.

If one ever wishes to talk with a Tibetan, it is advisable to stand on his windward side. A noble Tibetan informed me with great pride that he had had two baths, one on the day of his birth and the other on the day of his wedding. Having neglected to take the elementary precaution, I found it somewhat hard to credit his statement. In this matter of physical cleanliness, the Tibetan priests are even worse offenders than the laity ; doubtless because they do not marry. As two-fifths of the able-bodied population of the country follow a religious calling, it will be readily understood that the odour of sanctity is all-pervading. Only once did I see a Tibetan having a bath. It was at Shekar Dzong, on the return journey from Mount Everest. The day was bright and sunny and all but windless. Disporting himself in the waters of a pool, quite close to the village, was a Tibetan boy, stark naked. An interested crowd of his fellow-countrymen looked on. On closer investigation it transpired that the boy was the village idiot and, therefore, hardly responsible for his actions. I would, in fairness, add that during our sojourn in Tibet our own ablutions, when judged by western standards, were by no means too thorough. We usually limited ourselves to washing the head and the arms as far as the elbows. The tooth brush was, of course, plied regularly by all and sundry, and it was this operation and that of shaving that afforded most amusement to the Tibetan onlookers who invariably supervised our morning toilet.

Apart from their one rather penetrating drawback, the Tibetans are a most likeable people. Their love for and pride in their country, harsh though it is, is great and sincere. They are cheerful and good-humoured, keen and willing workers, honourable in carrying out their bargains and scrupulously honest. During our travels in Tibet, though

we did not bother to keep close guard over all our stores and belongings, we never lost so much as a single ration biscuit through theft. They are most kind to their children. Unlike so many Europeans, they do not make the mistake of talking down to them; but, from the time their children can speak, they are treated with much the same deference as is shown to grown-ups. The priests form the ruling class in the country and are also the educated class, the monasteries and similar priestly institutions being the seats of learning. The religion of Tibet is Buddhism.

We had the good fortune to meet with a Tibetan soldier, resplendent in a Ghurka hat and a bandolier of beautifully polished ammunition which actually fitted the obsolete pattern of British rifle he so proudly sported. Some of the cartridges were innocent of powder, and the condition of many of the percussion caps was such as to guarantee misfires. A fine, handsome figure of a man, he was, like all his fellow-countrymen, courteous and friendly. War, a great war, was being waged between Tibet and China, but he was now on his way home to look after his crops. The Chinaman also had crops to tend; but in the autumn, when the harvest had been safely gathered in, he and his enemy were to meet once more and continue the warfare. An ideal arrangement!

To the average layman, the oxygen apparatus with which we were supplied was perhaps slightly complicated. Being responsible both for the apparatus and for seeing that all the climbing members of the expedition were conversant with its use, I instituted a series of oxygen drills. These drills were deservedly popular, being held, as a rule, each evening at the end of a long day's march, when everybody was feeling particularly fit and vigorous.

On the 24th, we arrived at Shekar Dzong, the largest village we visited in Tibet. Indeed, one might almost dignify it by the name of " town," with its four thousand inhabitants living in the clusters of white-walled houses that cling to the steep sides of a rocky pinnacle rising out of the plain. Here, owing to the necessity for changing the transport animals, we were forced to rest for several days. It is not to be supposed that such rest meant idleness. The General was particularly busy interviewing the Jongpen, that is, governor, of Shekar Dzong, regarding transport arrangements for the next stage of the journey to the Base Camp at the foot of Everest. The transport officers were kept busy taking stock of kit and stores. After attending to the minor ills and ailments of the European and Indian members of the expedition, the medical officers, headed by Dr. Longstaff, busied themselves in strengthening the bonds of friendship between Tibet and Great Britain by ministering to the needs of sick Tibetans. Apart from the daily oxygen drill which never lasted very long, my time was practically my own and was spent for the most part on photography and sight-seeing.

We left Shekar Dzong on April 27, and two days later crossed the Pangla Pass, about 17,000 feet in height, whence we obtained a good view of Mount Everest and the neighbouring peaks. Everest towered head and shoulders above its surroundings, a dark, irregular, forbidding-looking rocky pyramid. I have never seen the mountain to better advantage. On the 30th we pitched camp in the Rongbuk Valley, at the head of which Everest stands. Hard by the camp was a large monastery presided over by a very venerable old abbot who received us in audience. He was of a lively and intelligent curiosity and asked many questions. Why were we so eager to get to the summit of Chomolungma,

Goddess Mother of Snows? For so the Tibetans beautifully name this highest of mountains. Why spend so much money, endure hardships, and face the dangers he was sure had to be faced, merely for the sake of standing on the top of this loftiest of great peaks? General Bruce, as usual, rose to the occasion and explained with quite undeniable logic that, as the summit of Everest is the highest point on earth, so is it the nearest point on earth to heaven; and was it not meet that we should desire to approach as closely as possible to heaven during our lifetime? This explanation, which contains much more than a germ of the truth, satisfied the reverend old gentleman completely. Henceforward he did everything within his very wide powers to further the interests of the expedition.

The next day's march was destined to be our last towards the Base Camp, the position of which was determined by its being the point beyond which we could make no further progress with animal transport. A short distance below the end of the Rongbuk Glacier which flows down from Mount Everest into the valley, our tents were pitched (May 1) on a little level patch of ground close under the steep slopes of a moraine. We had fondly hoped that this moraine would shelter our camp from the wind. But later, bitter experience was to teach us that the wind blows not only up and down and across the Rongbuk Valley, but in any and all other directions that perversity can make possible. I have always felt rather sorry for the General, who spent the next seven weeks of his existence at the Base Camp. He, indeed, knew something about wind by the time his stay had come to an end.

No time was to be lost on arriving at the Base Camp, for the East Rongbuk Glacier, over which the North Col, the real starting-point of the climb on Everest itself, was to be approached, had not yet been explored. On May 2, Colonel

Strutt, Norton and I went up into this valley and, quite close to the end of the glacier, selected a suitable site for a first advanced camp. This first brief reconnaissance was followed by a lengthier one carried out by Longstaff, Morshead and Norton under the leadership of Colonel Strutt. This party successfully explored the hitherto unknown regions of the East Rongbuk Glacier for a suitable way up into the great bay that lies at the head of the glacier and is enclosed by Mount Everest, the North Col and the North Peak. They also selected suitable sites for the more advanced camps. It was found necessary to pitch three such camps between the Base and the North Col. They were known as Camp I (17,500 ft.), Camp II (19,500 ft.), and Camp III (21,000 ft.), and soon the transport officers with the porters were busy establishing and provisioning them.

For the time being I remained at the Base. A mild form of dysentery, which had at one time or another claimed as its victims most of the other members of the expedition, now took hold of me, and I was some days in shaking off its effects. By May 10, the work on the advanced camps had progressed so well that Mallory and Somervell were able to leave the Base in order to establish a camp on the North Col, and to make an attempt to climb Everest without the use of oxygen.

It may be wondered why, in view of our instructions, oxygen was not to be employed. One body of scientific opinion was most emphatic in its view that without the assistance of a supply of oxygen carried by the climbers it would be impossible to reach the summit of Mount Everest. Scientists, however, do not always agree amongst themselves. An almost equally strong body of scientific opinion declared that the weight of any useful supply of oxygen carried by the climbers

would be so great as to counterbalance any advantages that might accrue from the oxygen itself, and that, therefore, oxygen would not only not be of assistance, but would actually be a grave hindrance to the climber. Perhaps I may anticipate here by stating that the second attempt on Everest in 1922 disproved beyond all shadow of doubt the tenets of the second body of opinion, and, what is more important, proved no less conclusively that Everest can positively be climbed by men carrying a suitable supply of oxygen. So far we have no like positive confirmation, either from climbing experience or scientific research, of the possibility of attaining the summit of Everest without oxygen. Personally I feel certain it never will be climbed without oxygen. But there existed another force of oxygen antagonists, largely unscientific, who were willing enough to admit that oxygen might, indeed, have its uses, but condemned it on the ground that its employment was unsporting and, therefore, un-British. The line of reasoning of these anti-oxygenists is somewhat hard to follow, and is inconsistent with their adoption of other scientific measures which render mountaineering less exacting to the human frame. For instance, they do not hesitate to conserve their animal heat by wearing specially warm clothing ; they do not deny the "legitimacy," from the mountaineering point of view, of the thermos flask ; they fear no adverse criticism when they doctor up their insides with special heat and energy-giving foods and stimulants ; from the sun's ultra-violet rays and the wind's bitter cold they do not scruple to protect their eyes by wearing Crookes' anti-glare glasses ; even the use of caffeïne to supply a little more "buck" to a worn-out body is not cavilled at. In fine, it may justly be supposed that if science could only provide oxygen in the form of tablets, the words "artificial," "illegitimate,"

"unsportsmanlike," or "un-British" would no longer be applicable to its use as an aid to climbing Everest. It was written on high authority, and I read a copy of the article in question at the Base Camp, that "this (the possible failure of the climbers to tolerate the restraint of the oxygen apparatus) would be a good thing, because it seems to us quite as important to discover how high a man can climb without oxygen as to get to a specified point, even the highest summit of the world, in conditions so artificial that they can never become 'legitimate' mountaineering." This sentence may be taken as indicative of the change in objective which was now becoming apparent amongst the members of the expedition. Instead of the aim being to climb Mount Everest with every resource at our disposal, the opponents of oxygen, of whom the writer of the above quotation presumably is, or was, one, had so successfully worked upon the minds of the members of the expedition as to induce them to entertain a fresh objective, namely to see how far they could climb without the aid of oxygen. It were pleasant to think that the writer who could thus acclaim possible failure and, in advocating a new objective, destroy the singleness of purpose of the expedition, was not a mountaineer. And so it came about that, by the time we reached the Base Camp, I found myself almost alone in my faith in oxygen. It is true that I had had the advantage of personal teaching from Professor Dreyer who had demonstrated, by experiments carried out upon myself, what a powerful weapon oxygen could be when rightly used. This faith in the lessons of my genial master was fully justified by later events. But "faith and unfaith can ne'er be equal powers"; in the mountains, the tragedy is that the odds are generally on the "unfaith." It has been suggested that a keen sense of rivalry

Mount Everest and the Base Camp.

Camp II.

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existed between the exponents of climbing with and without oxygen. As far as I am aware, this was not so. Despite conflicting ideas on this subject, complete harmony of feeling prevailed amongst us—too valuable a thing to be disturbed by the friction into which, under the circumstances, a sense of rivalry might well have degenerated.

However, it was arranged that, after Mallory and Somervell had made their attack, a second attempt should be carried out by Norton and myself. But a few days later, on May 14, Strutt, Morshead and Norton left to join up with Mallory and Somervell to make an onslaught in force, but without oxygen. Hitherto, I had been sanguine in the extreme about getting to the top, but when I saw the last mountaineers of the expedition leave the Base Camp, my hopes fell low. Any attempt I could now make upon Mount Everest would have to be carried out with untrained climbers as my companions; for I felt certain that, before they could be fit for another assault, the men of the first party would require, not merely a few days, but weeks, to recuperate from the effects of their initial effort.

CHAPTER XX

MOUNT EVEREST

DURING my stay at the Base Camp my time was not really wasted. A study of Everest and of its meteorological conditions, photography, overhauling of equipment and experiments with oxygen kept me fully occupied.

I wonder why it is that so many mountain travellers seem to lose all sense of proportion when they behold for the first time hitherto unknown ranges and peaks. Perhaps it is that they do not happen to possess the critical faculty of abiding by facts, and tend to describe what they expect rather than what they see. Whatever the reason, the ugliest, sometimes even the most insignificant of sights, provided it be but strange or novel, induces their pen to trail along in a pæon of praise, and the new mountain vision is elevated to all that is awe-inspiring, magnificent, beautiful, far excelling any mountain hitherto known to man. Thus we find that earlier explorers of Mount Everest have enhanced its wonders out of all proportion to the reality. It is as if its quality of height, the mere fact that Mount Everest is over 29,000 feet in altitude and the highest mountain in the world, has prejudiced their judgment of its other qualities. A closer analysis of this very question of height may prove edifying. A mountain has two heights, absolute and relative. The former represents its altitude above sea-level, the latter its height above the immediate surroundings, and is really the only altitude with which the eye can be concerned. It is only when mountains rise from the sea, as they do in Corsica,

that absolute and relative altitudes are one and the same thing. 29,002 feet is the accepted absolute altitude of Mount Everest; the relative altitude, that is, the actual height that presents itself to the eye of the beholder, is arrived at by deducting some 16,500 to 17,000 feet. The suggestion frequently made to me that the sight of Mount Everest must dwarf into insignificance anything I have ever seen in the Alps, has invariably met with my decided denial. When seen from the north—the only aspect of the mountain with which we of the recent expedition are acquainted—Mount Everest appears as an uncouth, well-nigh shapeless mass partially blocking the end of the Rongbuk Valley, itself surely one of the most formless and ugly of mountain valleys. The impression of the grand or the prodigious which the view of a mountain makes upon one depends largely on the height to which the summit rears itself above the lower limit of its glaciers or eternal snows. Mont Blanc is nearly 16,000 feet high, and its glaciers descend to within 4,000 feet of sea-level—a vertical zone of nearly 12,000 feet of perpetual ice and snow. On the north, Mount Everest rises to a height of 12,500 feet above the Base Camp, which was situated a little below the end of the Rongbuk Glacier—a vertical zone of 12,500 feet of perpetual ice and snow. From the point of view of extent to which it is glaciated, therefore, Mont Blanc suffers little when compared with Everest. But the distance between the observer and the object observed is a determining factor in the impression of size and grandeur which a mountain picture leaves on the mind. Mont Blanc can be seen in all its magnificence at a distance of some five to six miles. On its northern side, Mount Everest can most advantageously be seen from the Base Camp, eleven miles away. Thus, when no scale of absolute measurement is present, Mont Blanc

appears nearly twice as huge to the eye as Mount Everest. So much for "prodigiousness" or "grandeur." From the point of view of beauty, there can be no comparison between the two mountains. Mont Blanc, seen from the north, is a wonderful, glistening mass of snowy domes, piled one against the other in ever-increasing altitude to a beautifully-proportioned and well-balanced whole. No beauty or symmetry of form can be read out of the ponderous, ungainly, ill-proportioned lump whose horizontal stratification lines produce an appearance of almost comical squatness and which carries, as if by accident, on its western extremity a little carelessly truncated cone to serve as a summit. For such is Mount Everest as seen from the Base Camp. This infelicity of form is further forced upon the eye by the fact that it is far from being shared by all the other mountains surrounding the head of the Rongbuk Valley. One of these, indeed, though only about 21,000 feet in height, presented its snowy northern flank to the gaze of the observer at the Base Camp; and in the delicately moulded flutings and folds of its tremendously abrupt snow slopes was contained such beauty, such magnificence, and such dainty grace of symmetry and poise as I have seldom, if ever, seen in a mountain.

It goes without saying that the weather was a thing most anxiously inquired into by all members of the expedition. During my fifteen days at the Base, I lost no opportunity of studying its vagaries and attempting to assign meanings to the different portents. During the entire month of May, there were only two fine days, and those were separated from each other by a wide interval of time. Both succeeded heavy snowstorms which had whitened the rocks of Mount Everest. In applying the term "fine weather" in the case of these mountain regions, it is necessary to be somewhat more

critical than one would ordinarily be in the Alps, where cloudless sky almost invariably means favourable weather. In the case of Mount Everest, it is essential not only that the sky be more or less cloudless, but that the force of the wind be so small as to be insufficient to blow up and tear away streamers of snow dust from the ridges. These streamers betoken the presence of a wind of such strength that it cannot but seriously handicap the climber.

On the last stage of the journey, from Shekar Dzong to the Base Camp, the developing of the photographs I had taken *en route* had fallen into arrears, and I now endeavoured to make these good. In spite of the simple methods adopted, developing was not always an easy matter. During development of the films, the solutions contained in the tanks had to be maintained at the proper temperature. Often the only way to accomplish this was to retire into one's sleeping-bag with the tin or tins, as the case might be, as bed-fellows. The washing of the fixed and developed films was a simple matter. The Rongbuk stream ran close by. It is true that, in the biting winds which swept through the valley, frequent dipping of the hands into ice-cold water was far from pleasant. The most difficult part of the whole process of the production of the negative was the drying of the washed films. This had to be done at a temperature above the freezing-point of water, owing to the fact that, if the films once froze, frost marks formed in the emulsion. However, by the simple expedient of closing the tent as hermetically as possible, and remaining inside it with two or three candles burning during the drying process, the temperature could be kept above freezing.

At last the day came when I was able to think of advancing. Time there was none to lose. The weather outlook was by

no means improving. Indeed, there was every indication of the monsoon breaking sooner than we had expected. Although there were no more climbers left at the Base Camp, the whole climbing strength of the expedition, with the exception of myself, being in the first party, my choice of climbing companions was easy enough. First of all, there was Captain Geoffrey Bruce. Tall, of athletic build, strong, endowed with a great fund of mental energy—an invaluable asset on ventures of this kind—and cheerful in any situation, he was, in spite of the fact that he had never indulged in mountaineering, an ideal companion. Believing two to be too weak a party to carry out the cut-and-dried plan of campaign that I had already formulated at the back of my mind, a third member was selected in the person of Lance-Corporal Tejbir, the most promising of the Ghurka non-commissioned officers attached to the expedition. He was a splendid specimen of humanity, standing fully six feet in his stockings, broad-shouldered, deep-chested and altogether well-knit. Above all things, the slightest provocation brought a wide grin to Tejbir's pleasant face, even in the depths of adversity. Like Geoffrey Bruce, he had never climbed before; but I have noticed in the course of my experience that the man who grins most, is usually the one who goes farthest in the mountains—and perhaps also elsewhere. What porters we could, Geoffrey Bruce and I selected at the Base Camp. The remainder of those who were to assist in pitching and provisioning our highest camps were selected later, on the way up to and at Camp III.

I would like to place on record here that, whatever small measure of success Geoffrey Bruce, Tejbir and I eventually achieved, was almost entirely due to the loyal and gallant efforts with which these splendid little men backed us up on

every possible occasion. No praise can be too great for the exemplary and cheerful devotion they displayed towards us throughout. These porters came for the most part from Nepal, the native state lying to the south of Mount Everest. Being of Mongolian extraction, they have beardless faces. One of the greatest honours that one can confer upon them is to call them by some endearing nickname. One I called "Josephine-Anne-Marie," another "Dorothy" and yet another "Trudi"[1]; this last being suggested by his proper name, Tergio. Several of these men, Trudi and Dorothy among them, accomplished the extraordinary feat of climbing on three separate occasions to the tremendous altitude of 25,500 feet.

On May 16, we left the Base for Camp I. Wakefield was accompanying us as far as Camp III, in order to give us a clean bill of health from there onwards. The way up to this camp was wholly delightful, and led for the most part over the tremendous moraines flanking the right bank of the Rongbuk Glacier. Everest was always before us, and the nearer we approached the entrance of the East Rongbuk Valley, the more was our view extended over the mountains to the west, nearly all of which are far more satisfying to the eye than Mount Everest. The day was fine. The only clouds were of the peculiar type, with sharp-cut edges, which I had learnt to associate with more or less settled weather in this part of the world. Camp I was pitched just inside the entrance to the East Rongbuk Valley and quite close to the East Rongbuk Glacier. The following day was spent in attending to matters of equipment and also in ski-ing in the snow-filled bed of the East Rongbuk stream just below the camp. The porters were intensely keen on this amusement and, in spite of numerous tosses, were the aptest of pupils.

[1] Swiss abbreviation for "Gertrude."

Thanks to the careful reconnaissance carried out by Strutt's party, the way towards Camp II was a simple matter. For the most part we marched up over the stone-strewn surface of the East Rongbuk Glacier. Here and there the glacier was much broken up, but, by keeping to the moraines running down it, good headway was made. The views towards the peaks in that great chain which runs down from the North Peak towards the Base Camp were most striking. Point 22,580, in particular, is a most graceful mountain with a delightfully cornice-crested, aspiring summit. Clouds obscured Mount Everest, but for one brief spell they parted, and we saw, peeping down at us, the lofty summit, now looking far higher than it ever had before. Shortly before reaching Camp II, direct progress was barred by an enormous ice wall. The obstacle, however, was easily turned, and soon afterwards we arrived in camp.

The tents were pitched on a layer of stones lying upon the glacier, at an altitude of about 19,500 feet above sea-level. It was well sheltered from the wind, but unfortunately received very little sun ; a great disadvantage, because life in the shade was hardly bearable outside one's sleeping bag. A large, frozen-over pond of glacier water lay within a few yards of the camp, and beyond it, within easy reach, were some magnificent ice slopes. The sight of these gave me the idea that it would be a good plan to give Geoffrey Bruce, Tejbir and those of the porters, whom we had selected to join our party, their first lessons in the proper use of the ice-axe and climbing irons. A suitable slope was soon found. At its foot lay the frozen-over pool. In a very short time my enthusiastic pupils were hard at it, and within half an hour many of them were so good that one might have thought they had been used to this sort of work all their lives. Tejbir, however, on one occasion chose

" A suitable slope was soon found."

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to rely too much on his sure-footedness, with the result that he slipped, slithered down the slope, broke through the frozen surface of the water and got thoroughly ducked. With the instincts of the born mountaineer, he retained a grasp upon his ice-axe. We hauled him out at once, but as the external air temperature was well below zero, Tejbir soon discovered that he was encased in armour plate. We hustled him over to the camp and stripped him of his frozen clothing ; and for the next two hours all that was to be seen of Tejbir was a broad grin surrounded by many blankets as he sat under shelter and thought things over. The problem of drying his clothes, though it was far too cold for the ice in them to melt, was quite a simple affair. At this great altitude, the air is so dry and so rarefied that ice evaporates at least as readily as water does at sea-level on a fine summer's day—a phenomenon to which may be attributed the diminutive size of the mountain streams draining the extensive glaciers in this region of the earth. These streams are almost entirely supplied by water caused by the friction of the glaciers flowing over their rocky beds. Surface water due to melting of surface ice, the main source of supply of glacier streams in the Alps, does not exist on the northern slopes of Everest at this time of the year. Thus to dry Tejbir's frozen garments one had only to apply a little logic and scientific training. Take, for instance, his trousers. These were first of all hammered out flat and then placed in a vertical position against a little wall of stones. The moment they collapsed and fell to the ground, it was obvious that their stiffening of ice had disappeared and they were, therefore, dry. Who, after this brilliant example, would gainsay the uses of science ?

The original intention had been to give my party at least one day's rest at Camp II, with the object of assisting, as far

as possible, the important process of acclimatisation. But on our march up to the camp, everyone had felt so remarkably fit, and I myself had walked so freely and easily, that, as Camp II was by no means too comfortable, we thought it better to make for Camp III. At 8 a.m., therefore, on May 19 we set off. At first, by keeping to the moraine, we were able to avoid having to seek a way through the broken-up ice of the glacier. But all too soon the stones came to an end, and we had to take to the icefall. First appearances suggested the possibility of heavy step-cutting, but, as a matter of fact, things turned out extraordinarily well, and it was only very occasionally that we had to ply the axe. Here and there a frozen-over pool of water lying at the foot of some crevasse had to be circumvented. Although the ice was in most cases thick, it could not be relied upon to bear one's weight, as the water underneath had often ebbed away and was no longer in contact with the ice. A ducking could not be risked now; we were so far away from the comforts of a camp that the consequences might have proved more than unpleasant. It was sheer joy, this climbing up and down or walking along the troughs of crevasses, circumventing and occasionally scaling huge séracs of fantastic shapes and showing the most wonderful range of colours from clear, deep blue, through green to a pure, opaque white which in turn merged into a crystal-clear transparency. Unlike the séracs of European glaciers, there was nothing to be feared from these great giants. Séracs in Switzerland are formed by the flow of glaciers over some marked step or irregularity in their beds; but here, north of Mount Everest, other causes seemed to be at work. Perhaps side pressure caused by tributary glaciers flowing into the main glacier, perhaps wind currents and evaporation of ice are the deciding factors. In

Amid the séracs of the East Rongbuk Glacier.

Crossing a trough on the East Rongbuk Glacier.

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any case, the séracs of the East Rongbuk Glacier stood proudly upon firm, wide bases and showed no rottenness or decay to menace those marching amongst them. Eventually we emerged from the broken-up part of the glacier and found ourselves on the still snow-free but almost uncrevassed, gently-rising upper portion, over which progress developed into little more than a rather wearisome trudge. The North Peak was now to be seen at its best—a bold, heavily-built Colossus, above the eastern ridge of which appeared the summit of Everest. The mountains to the east were not attractive. We were now so close to them that it was evident that they are for the most part little more than glorified scree slopes rising from uninteresting-looking glaciers. The heat on this part of the day's march was considerable. There was little or no wind, but, contrary to the experiences related by many Himalayan explorers, few of us were overcome by that form of heat lassitude usually associated with such weather conditions in these high altitudes. Indeed, most of us, including the porters, who carried loads averaging some forty pounds each, plodded along at a good, steady pace, which was certainly no slower than it would have been in the Alps, say, on the Aletsch Glacier at noon under a summer sun. It may, perhaps, be worthy of mention that since leaving the Base Camp, perspiration had been unknown to us. No matter how hot the sun, how still the air, or how great the exertion, any perspiration exuded by the skin was, owing to the dryness and the reduced pressure of the atmosphere, evaporated before one became aware of its presence.

At an altitude of about 20,500 feet, some crevasses intersected the now no longer snow-free surface of the glacier, and we put on the rope. Soon after midday we rounded the end of the east ridge of the North Peak and hove in sight

of Camp III (21,000 ft.). Like Camp II, it was pitched on a layer of stones resting on the East Rongbuk Glacier. We found Strutt in residence, and he gave us the news. That morning Mallory, Morshead, Norton and Somervell had left for the North Col prior to their attempt on Mount Everest. High up on a terrace above the steep snow slopes immediately below the Col, we could see a cluster of tiny black dots—the tents of the North Col Camp. On the skyline, in the col itself, were seen more little black dots, but moving. Evidently the first party were out taking a constitutional.

For the next few days Camp III was to serve as my party's advance base camp. Here it was that we overhauled our stores and equipment, especially the oxygen outfit. With feelings akin to dismay, suspicions that I had already formed at Camp I were confirmed; not one of the ten oxygen apparatus was usable. They had suffered so severely in the course of our travels across Tibet that most of the soldered metal joints leaked; washers had become so dry that the other joints could no longer be made gastight, and several of the gauges were out of action. Then again, neither of the two types of masks with which we were supplied could be used. The first of these, the so-called "economiser" pattern, by means of an arrangement of valves, allowed oxygen flowing from the apparatus to mix with the air on inhalation, but stored it up and thus prevented waste on exhalation of the breath. It was found that, owing to the resistance imposed by these valves upon breathing, the mask could not be used, the strain thrown upon the lungs being too great. The second type of mask had really been supplied for use in the event of the "economiser" failing to give satisfactory service. It was wasteful of oxygen because the gas supply was continuous, no matter whether the climber were inhaling or exhaling;

thus during the periods of exhalation the oxygen issuing from the apparatus was wholly wasted. However, we found that this mask suffered from, amongst others, the same defect as the first; the resistance imposed upon the free passage of the breath was too much for the lungs. It must not be forgotten that the whole oxygen outfit—masks, apparatus, containers—was more or less experimental; the conditions under which it was to be utilised were practically unknown, and, in the circumstances, the design was the best that science could produce.

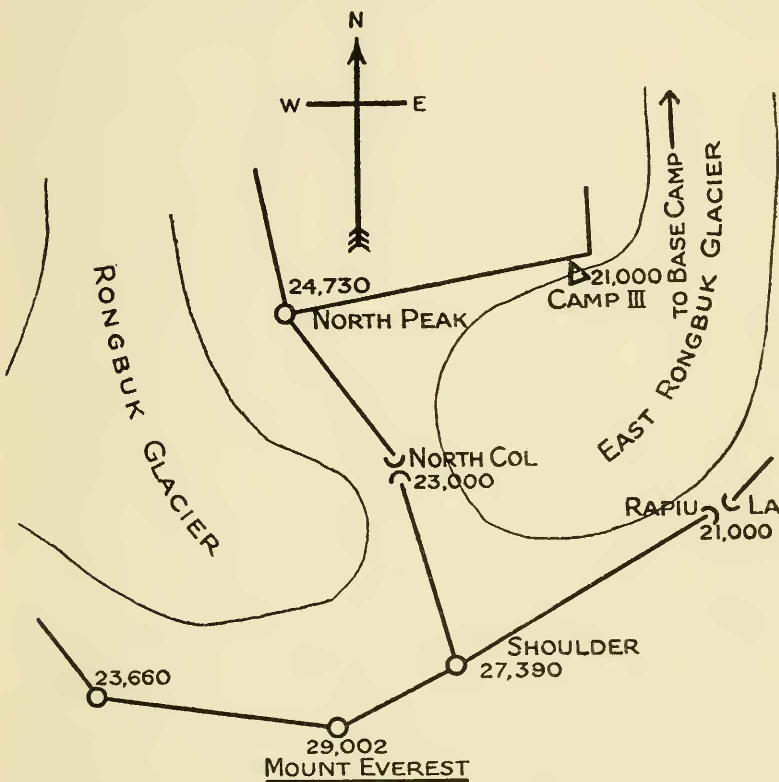
While waiting at Darjeeling for the arrival of the apparatus, I had turned the question of masks over in my mind and had formed the germ of an idea for another pattern which I intended to construct in the event of the others proving unsatisfactory. The wherewithal to make the new mask had been easily procured. A few toy football bladders and glass "T" tubes were all I needed. With these materials and odd bits of rubber tubing, I was able to construct a new mask, if indeed it could be so termed, by means of which oxygen could be mixed with the air inhaled by the climber without loss on exhalation and, at the same time, without any appreciable extra work being thrown upon the lungs. The new device, as so many useful devices are, was almost ridiculously simple. A rubber tube connected the oxygen delivery orifice of the apparatus with the mouth of the climber. Into this rubber tube was let a glass "T" tube, the third opening of which was connected to a football bladder. On inhaling, the oxygen flowed through the rubber tube into the mouth of the climber, there mixing with the indrawn air. On exhaling, the climber had to close the end of the tube in his mouth by biting on it, and thus prevent the flow and consequent waste of oxygen. During this latter operation

the oxygen, which was still flowing from the apparatus, was stored up in the expanding football bladder. On re-inhaling, the climber simply released the pressure of his teeth upon the tube, and the bladder, collapsing slowly, gently forced the oxygen into his mouth where it mixed with the inhaled air. The correct closing and opening of the rubber tube by alternately biting and releasing the pressure of the teeth upon it became, after a few minutes' practice, a perfectly automatic, subconscious process. The success of this simple mask pleased me greatly ; without it, no really effective use could have been made of our oxygen supplies. Oxygen would have been misjudged as useless, and the solution of the problem of climbing Mount Everest would have been as distant as ever.

Camp III soon became the scene of much activity. Examination of the oxygen cylinders revealed that their contents were still intact ; so we thereupon set to work with hacksaws, pliers, soldering iron and so forth to repair the damaged apparatus. Eventually two of these were made to function satisfactorily and, later on, two more. Owing to lack of accommodation, the work had to be carried out in the open, so that our hours of labour were limited to those of sunshine ; in the shade, the cold was so intense that the handling of metal with bare hands was impracticable. Once the work was interrupted by a snowstorm, and, while waiting for the fresh snow covering up workshop, instruments, apparatus and all to evaporate, Geoffrey Bruce and I put on skis and pottered around on the glacier—quite an exhilarating pastime at these altitudes. Curiously enough, it was only on snow lying in the sun that good running could be had. I found that in the shade the snow was so cold as to exert a sticky, dragging effect upon the skis, almost similar to that

which one might expect with sand. At nights the temperature occasionally fell very low; 62° F. of frost were recorded.

In order to test thoroughly the repaired apparatus, we went for a number of trial trips. One of these, over to the Rapiu la,



SKETCH MAP OF MOUNT EVEREST.
Approximate scale, 1 inch to a mile. All heights in feet.

a depression at the foot of the north-east ridge of Everest, was of particular interest to me. The valleys to the south of this pass were filled with great, rolling banks of cloud which almost wholly concealed the view. But the north-east ridge of Everest as far as the Shoulder was quite clear, and to my

amazement I at once saw that this ridge would probably afford an excellent, perhaps even the best, line of approach to the Shoulder. I remembered now that Mr. Harold Raeburn, the most experienced climber of the 1921 expedition, had already pronounced upon this ridge as affording a practicable route to the summit. We have only to compare its advantages and disadvantages with those of the North Col route up the north ridge to see how sound the judgment of this veteran pioneer was. Take first of all the latter line of ascent. To the observer from Camp III, it is obvious that the approach to the North Col, if a line of ascent which is to be safe under any conditions is to be taken, particularly after falls of fresh snow, must be a laborious one, calling for an experienced ice-man with a wide knowledge of snow conditions. On the north ridge as far as the Shoulder, it is equally clear to the observer, both from the base and from Camp III, that the climber must be continually exposed to the full blast of the prevailing west wind—more appropriately, perhaps, termed gale—which, combined with intense cold, must prove an even more formidable enemy than mere altitude or rarefaction of the atmosphere. On the north-east ridge, on the other hand, the way from the Rapiu la right up to the Shoulder is perfectly straightforward, no matter what the conditions of the snow may be. Immediately below the Shoulder are some prominent rocky teeth. They look rather terrible, but from the Rapiu la, even had I not already known that the stratification of the mountain dips towards the north, I could see that they might be turned without serious difficulty and the Shoulder gained. But the supreme advantage of this route lies in the fact that it is practically always free from wind. Largely owing to its direction, the wind on the north side of the mountain fails to sweep over the north-east ridge

as it does over the north, and, furthermore, it is more or less balanced by the up-draught from the south. In view of the facts, however, that the camp on the North Col had already been established, and that the first party had, as far as we knew, even established a camp much higher up on the north ridge, the recognition of Raeburn's great discovery had come too late.

Snow fell on the night of May 20–21, and ushered in one of the rare windless days of that season. Towards sunset, while scanning the north ridge of Everest for signs of the first climbing party, we made out four dark specks descending the great, broad snow slopes of the lower section of the north ridge. They were the four members of the first climbing party making their way back to the North Col after their attempt upon the mountain. It appeared to us that they were more or less exhausted, so on the morning of the 22nd, acting on orders by Colonel Strutt, who, as eldest man, had with utter unselfishness stood down from the first party, Geoffrey Bruce, Wakefield, Tejbir and I, together with eight porters, set out for the North Col with the triple object of rendering assistance to the first climbing party, of replenishing stores in the North Col Camp and of giving the oxygen apparatus a final, thorough try-out. A longish tramp across the gently-rising basin at the head of the East Rongbuk Glacier led to the foot of the steep snow and ice slopes up which one must mount to gain the col. The first climbing party were making their way down towards us, and we eventually met them a short distance above the foot of the final slopes. Most of them seemed practically at the end of their tether and were hardly able to speak coherently. Norton, weather-beaten and with obvious traces of having undergone immense strain, gave us a brief account of their climb. On

the night of the 20th they had camped at a height of 25,000 feet, and next morning, Morshead having already suffered too much from the effects of cold and altitude to be able to go farther, Norton, Mallory and Somervell had climbed on until, at 2.30 p.m. on the 21st, they had reached the enormous altitude of 26,800 feet above sea-level as then indicated by the aneroid they carried.[1]

There they had to confess themselves beaten, and return. Snow had fallen on the night of the 20th, but they had been blessed with a calm day for their climb. Retracing their steps, they had rejoined Morshead in their high camp, and all four had continued the descent to the North Col camp, where they had passed the night. Such, in brief, is the history of the first attempt on Mount Everest. We gave them food and drink, then, leaving Dr. Wakefield to see them safely down to Camp III, Geoffrey Bruce, Tejbir and I, together with our porters, went on towards the col. The slopes below the col were laden with fresh snow, probably most of it wind-borne and drifted. Not liking the conditions, and in order to make sure of running no risks of loosening snow-shields or avalanches, I avoided zig-zagging across doubtful slopes by working straight up, cutting steps where necessary. Thus we ascended in safety as far as the foot of the last, almost vertical ice cliff above which lay the camp. This cliff would hardly have yielded to a frontal attack, but I found that a safe traverse across a steep snow slope on the left could be made by keeping to the snow-buried, lower lip of a

[1] By means of theodolite observations made from a single point near the Base Camp, this height has worked out at 26,985 feet. According to Col. S. G. Burrard and H. H. Hayden, *A Sketch of the Geography and Geology of the Himalaya Mountains and Tibet*, Calcutta, 1907–1909, this height is exceeded by only eight mountain summits, all of which are in the Himalayas.

diminutive crack in the ice. Shortly before the crack came to an end, and with it the security against the risk of treading loose a snow-shield, it became possible to strike directly up towards the camp; not, however, without some slight indication of demur on the part of a few of the porters, who could not understand why, instead of choosing an obviously easy slope, I should deliberately choose a more difficult way up a much steeper one. But they followed cheerfully enough, and I think that some of them at least saw method in my madness. Three hours after setting out from Camp III, we arrived at the North Col Camp. Of this time forty-five minutes had fallen to halts, chiefly our meeting with the first party. The difference in height between the two camps is about 2,000 feet. We had, therefore, ascended at the rate of nearly one thousand feet an hour, quite a good average rate of progression even in the Alps. We had used oxygen. If such had been necessary, this were testimony enough of its advantages.

Arrived at the North Col, we dumped a supply of oxygen cylinders, food and other tackle and then sat down to look round and thoroughly enjoy things. The porters were amazed at the pace which we had been able to maintain, despite the fact that our loads were, on the whole, far heavier than theirs; and for the first time they began to take a lively interest in the oxygen apparatus. Geoffrey Bruce was called upon to explain its workings. He told them that I could climb well in the Alps because the "English air" about those mountains suited me. But Himalayan air disagreed with me, and I had, therefore, brought out a supply of the more vigorous air. Just to show them how strong "English air" is, I turned a stream of oxygen from my apparatus on to the glowing end of a cigarette, which

thereupon flared up and spluttered with a brilliant white light. A better audience for this perhaps most beautiful of all laboratory experiments, carried out at 23,000 feet above sea-level, could not have been desired.

The view from the col is magnificent. Everest shows up to far greater advantage from this point than from the Base Camp. It still lacks beauty, but, owing to its nearness, had gained enormously, almost overwhelmingly, in size. We could trace out almost every inch of the way we hoped soon to follow to the summit. As the North Col is the depression on the ridge connecting Everest and the North Peak, we had only to turn round to see the latter, less immense but of far more pleasing appearance than its massive neighbour. The most remarkable feature of the view, however, was the jumble of séracs and great ice cliffs perched just above the camp. The untrained observer would, doubtless, have thought these unstable and a menace to the existence of the little tents ; it need hardly be said that these would never have been pitched upon a terrace exposed to the dangers of falling ice ; mountaineers are not quite so foolish and foolhardy as many people are inclined to believe.

That afternoon we all returned to Camp III. On the journey home we halted frequently, taking in all two dozen photographs. And yet, in less than fifty minutes after leaving the col, we were back in Camp III. All possible doubts as to the great advantages of oxygen, even when administered by means of the rather experimental and bulky apparatus with which we were supplied, were now at an end.

On arriving in camp, we found the four members of the first party much restored in health. They had indeed performed a wonderful feat in reaching an altitude of nearly two thousand five hundred feet above the previous world's

The North Peak and the North Col Camp.

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record for high climbing, established by the Duke of the Abruzzi in 1909. But they had not escaped unscathed; all had suffered, to a greater or less extent, from frost-bite. Morshead's fingers and toes were in a woeful condition, blue-black and covered with immense blisters. On the 23rd all four, together with Colonel Strutt, left for the Base Camp, and succeeded in reaching their destination that evening.

In the meantime we completed our preparations, and on the 24th Geoffrey Bruce, Tejbir and I, accompanied by ten porters, went up to the North Col. With us was Captain Noel, whom we had rigged out with an oxygen apparatus—a new convert to the true faith. Apart from the question of altitude, the camp in the North Col was the most comfortable of all, being well sheltered from the wind. As soon as the sun set, however, the cold became intense, and after a somewhat early evening meal we crawled into our sleeping bags. In spite of the fact that the tents were pitched on snow, we passed a fair night.

Next morning we were up betimes; but not too early for the porters, who were as keen as ourselves on setting to work. At 8 a.m. they had breakfasted, loaded up, and started off towards the Shoulder of Everest. Knowing that with oxygen there would be no difficulty in overhauling them, we waited in camp until 9.30 a.m., busying ourselves the while in putting the finishing touches to our preparations and in making the best of breakfast. Both this and the preceding evening meal were rather meagre, the stock of provisions at the North Col being one permitting neither of waste nor over-consumption. Before gaining the long, broad snow ridge leading up towards the Shoulder, we had to make our way across a series of large crevasses intersecting the summit snows of the col. They gave no trouble, however, a number of different routes being

made possible by an abundance of good snow bridges. The suggestion of dragging a wooden ladder all the way from India up to this spot, in order to negotiate an impassable crevasse or ice cliff, has been seriously advocated. Surely the adoption of such a stratagem is justifiable only in the case of the novice, or one whose mountaineering training has taught him to seek out difficulties in the mountains, instead of circumventing them with a steady eye on the ultimate goal. Also, in view of the fact that there are still doubts as to the morality or otherwise of employing oxygen, it were better that the use of artificial aids such as ladders, poles and what-not be deprecated.

Just before gaining the foot of the snow ridge, we came upon one of the porters sitting on the floor of a snowed-up crevasse. His strength had failed him, but his comrades had divided up his load amongst themselves, and he had now settled down to await their return. He was quite comfortable and well sheltered from the wind. So with parting injunctions not to move off before the return of his comrades, we left him basking in the sun, and carried on. The lower section of the snow ridge is not steep, and, furthermore, by keeping a little to the right of the actual crest, we were able to make good headway over stones where the rock of the mountain joins the snow of the ridge. We drew level with the porters at an altitude of nearly 24,500 feet, but halted only for a few brief moments while I took some photographs. Further delay was inadvisable. One of those extraordinarily rapid changes in the weather, for which Mount Everest is now so notorious, could be seen approaching. With the porters following and doing their utmost to keep pace, we climbed on steadily. Shortly before coming to the end of the snow ridge, we had to cut steps up a steep snow slope. I made them large and close together in order that the porters could not only mount

easily but also descend in perfect safety. As a matter of fact, I might have contented myself with cutting the smallest of steps. Every single man in our party, sahib and porter alike, was working away as if he were a born mountaineer, showing splendid balance and self-confidence.

The weather had broken by the time the rocks above the snow ridge had been gained. We were at an altitude of about 25,000 feet. The wind was whirling snowflakes past us. We climbed on, however, because from Camp III I had detected, at a height of about 26,500 feet, a suitable site for our intended high camp. But by the time a height of 25,500 feet had been reached, the storm had become so threatening that all idea of further progress had, for the time being, to be renounced. To persist in going on in the face of this break in the weather would have meant running the porters, who had to make their way back to the North Col that afternoon, most unjustifiably into danger. This was not to be thought of ; for I was responsible for the safety of these smiling, willing men, who placed absolute confidence in the sahib whom they served so well.

It was anything but a cheerful spot in which to pitch camp. But though I climbed some two hundred feet higher, nothing more suitable was to be found. The leeside of the ridge was bare of any possible camping ground, and, as a wind is always felt more severely a little below and on the windward side of a ridge than on the crest of the ridge itself, I elected to camp right on the very backbone, on a little ledge overlooking the tremendous precipices falling away to the East Rongbuk and Rongbuk Glaciers, now over four thousand feet below. As soon as we had sent the porters scurrying down towards the safety of the North Col, Geoffrey Bruce, Tejbir and I looked to see that the guy-ropes holding down the tent were

quite secure, then gathered up our sleeping bags and provisions and crawled into the tent. After taking off our boots, all the undressing that was practicable, we crept into the sleeping bags. It was bitterly cold, and, as the exposure to wind and storm which we had already undergone had severely chilled us, we huddled up together as closely as possible for the sake of the preservation of mutual warmth. The storm without was now in full blast, and it was snowing hard. Although we did our best to block up all apertures in the tent walls, a thick, white pall of fine, powdery snow soon covered us. Much of it insinuated its way into sleeping bags and through our clothing on to our skin, there causing acute discomfort. Towards evening we set about preparing a meal. With the help of solidified spirit, snow was melted and tea brewed. It was far from being hot, for at this altitude water boils at such a low temperature that one can immerse the hand in it without fear of scalding ; but, such as it was, the drink imparted some small measure of comfort to our chilled bodies. After sunset, when we would fain have slept or at least rested, the storm rose to a veritable hurricane and kept us occupied for the next eighteen hours. During the whole of this period, we had to remain alert and vigilant. To sit down and meditate quietly over what our attempt on the mountain would bring forth was out of the question. Terrific gusts tore at the tent, and occasionally the wind would force its way underneath the sewn-in ground-sheet and lift it up at one side or the other. When this happened, our combined efforts were needed to hold the ground-sheet down, for we knew that, once the wind got a good hold upon it, the tent would belly out like a sail, and nothing would save it from stripping away from its moorings and being blown, with us inside, over the precipice on to the East Rongbuk Glacier. By one o'clock on the morning

of the 26th, the gale was at its height. The wild flapping of the canvas made a noise like that of machine-gun fire, and, what with this and the shrieking and howling of the gale round our tent, it was well-nigh impossible to converse with each other except by shouting, mouth to ear. Later on came interludes of comparative lull succeeded by outbursts even more furious than ever. Some of the guy-ropes had broken or had worked loose, and we had to take it in turns to go outside the tent and endeavour to straighten things up. To work in the open for more than three or four minutes at a stretch was impossible, so profound was the exhaustion induced by even this brief exposure to the fierce and bitterly cold wind.

A cheerless dawn broke. The snow had ceased falling, but the wind howled and hurried with unabated vigour. At eight o'clock, on the morning of May 26, it showed signs of subsiding. It was but the rousing of false hopes, for half an hour later it had returned with greater energy than ever. With almost incredible fury it tore at our tent, and once again we had to take it in turns to go outside and tighten up guy-ropes. These little excursions showed, beyond all possible doubt, that until the storm had diminished there could be no question either of advance or retreat to the North Col Camp. No human being could survive more than a few minutes' exposure to a gale of such fury coupled with so intense a cold. To add to our discomfort, a great hole was cut in the windward panel of the tent by a stone, and the flaps of the door were stripped of their fastenings. Fortunately, however, everybody was remarkably cheerful.

At one o'clock in the afternoon of the 26th, just as we were beginning to feel rather irritated at the rough treatment which Everest had hitherto so generously doled out to us, respite

came. The blustering gale dropped to nothing more than a stiff breeze—the sort of thing against which one can walk comfortably if one only leans sufficiently far forward into it. This was our first opportunity to return to the North Col; but we decided to stay where we were for the rest of the day and the ensuing night, and on the following morning make an early start and climb the mountain.

The one fly in the ointment was that our provisions were practically at an end. Reasons for this shortage in food supplies are soon given. For one thing, we had never intended to spend more than one night in the high camp and had, therefore brought provisions for only one night, and even these had been measured out on an extremely niggardly scale. The majority of Himalayan experts had assured us time and again that it would (1) be absolutely impossible for a human being to survive a night spent at an altitude such as we had now attained (25,500 ft.), and that (2) at such an altitude one would be totally unable to eat owing to absolute lack of appetite. On the other hand, sound, scientific opinion emanating from Professor Dreyer had not only not prophesied either of these contingencies, but had, indeed, definitely warned me that oxygen would increase the appetite, irrespective of altitude. I was now bitterly to regret that Professor Dreyer's warning had been swamped from my memory by the flood of the other assurances set out above. I well remember how, on that second night in our high camp, I fervently wished that one or two of those who had voiced such heresies had been available; we were ravenously hungry, even, I think, to the point of cannibalism! However, thanks to the fact that there still remained to us some cigarettes, the time passed well enough. Apart from its comforting influence, cigarette smoking incidentally exerts a most beneficial effect upon respiration at high altitudes. I

noticed in a very marked fashion that unless I kept my mind on the question of breathing and made of it a voluntary process instead of the involuntary one it normally is, I suffered from lack of air and consequent feeling of suffocation. To recover from this feeling, it was necessary to force the lungs to work more quickly than they would of their own accord. There is a physiological explanation of this phenomenon. The amount of carbon dioxide normally present in the blood is, at high altitudes, largely removed from the system owing to the enormous volume of air which it is necessary to inhale in order to obtain a sufficient supply of atmospheric oxygen for the re-oxidation of the venous blood. Carbon dioxide serves to stimulate the nerve centre controlling the process of involuntary breathing. Lack of carbon dioxide results in this nerve centre being no longer stimulated, and, if suffocation is to be avoided, involuntary breathing has to be replaced by voluntary breathing, a process which in time throws such strain upon the mind and powers of concentration as to preclude all possibility of sleep. Both Geoffrey Bruce and Tejbir had likewise observed the annoying necessity of having to concentrate continuously on breathing. But after the first few deep inhalations of cigarette smoke, we discovered that it was possible to resort once more to normal involuntary breathing. Evidently something in the smoke took the place of the carbon dioxide in which the blood was deficient, and acted as a nerve stimulant. The beneficial effect of a cigarette lasted for as much as three hours. As luck would have it, we had with us a fair supply which lasted well into the afternoon of the 26th.

We were quite a merry little party that afternoon as we gathered round a scanty meal cooked with the last of our fuel, and then prepared to settle down for another night. Towards

6 p.m. I heard voices outside the tent, but thought I must be dreaming. When Geoffrey Bruce, however, started up at the sounds, I knew that someone must be without. Six porters, headed by that indomitable little fellow Tergio, clustered round the door. They brought thermos flasks of warm tea provided by the thoughtful Noel. These splendid men had, of their own accord, left the North Col that afternoon as soon as the storm had abated, and made the tremendous journey up to our camp just to assure themselves of our well-being. This is but one example of the many acts of brave, unselfish devotion performed by the porters of the 1922 expedition. Tergio, whose light-hearted gaiety, ready laughter and merrily twinkling eyes, whose high courage, boundless energy and perseverance had especially endeared him to me, now lies buried in the cold snows of the North Col. He will never be forgotten; I should like to climb with him again. The porters expected us to return with them, and needed no little persuasion before leaving us.

The second night in the high camp did not begin well. We were exhausted from our previous experiences and lack of food. Provoked, perhaps, by my labours outside the tent, a dead, numbing cold was creeping up my limbs; a sensation that I had only once before felt, and to the seriousness of which I was fully aware. Inquiry elicited the information that my companions were undergoing the same unpleasant experiences. Like a heaven-sent inspiration came the idea of trying the effect of oxygen. Previously we had used oxygen only while actually climbing, and, on arriving at our high camp, had dumped the apparatus outside the tent. Now hauling in one apparatus together with a supply of cylinders, we took doses all round, giving the action the air of a joke. Tejbir took his medicine without much interest; but as he

inhaled, I saw with relief that his face brightened up. The effect of the oxygen on Geoffrey Bruce was particularly visible in his rapid change of expression ; the hitherto drawn, anxious look on his face gave place to a more normal one. The result on myself was no less marvellous ; almost at once I felt the painful, prickling, tingling sensation, due to the returning circulation of the blood, as the lost warmth slowly came back to my limbs. We connected up the apparatus so that all could breathe a small quantity throughout the night. There is no doubt whatsoever that oxygen saved our lives that night ; without it, in our well-nigh exhausted and famished condition, we would have succumbed to the cold.

Before daybreak we were stirring. It was necessary to dress, that is, put on our boots—a much lengthier operation than it sounds. By taking mine to bed with me, I had contrived to keep them fairly soft and supple, so that a quarter of an hour's striving and tugging sufficed to get them on. But the others had neglected to nurse theirs, with the result that the uppers were hard-frozen and completely out of shape. It took us an hour to soften and remould them by holding them over lighted candles. Shortly after six o'clock, we assembled outside. No time had been wasted over breakfast ; there was none. The first rays of the sun had just touched our tent when we shouldered our loads and set off. What with oxygen apparatus, cameras and other necessary odds and ends, Bruce and I each carried more than forty pounds. Tejbir, with two extra cylinders of oxygen, shouldered a burden of about fifty pounds. My scheme was that Tejbir should accompany us as far as the Shoulder, where we would relieve him of his load and send him back. The weather was clear, and the only clouds in the sky, though undoubtedly of the wrong type, seemed too far off to presage evil. A fresh wind cut across the ridge, and

the cold was, as usual, intense. Keeping to the ridge, and making straight for the Shoulder, we mounted rapidly. But very soon the cold began to have its effect on Tejbir's sturdy constitution, already weakened by starvation and hardship. At an altitude of 26,000 feet above sea-level he collapsed. It took some little time to restore him to his senses, only to see that he had given of his best and could go no farther. We unburdened him, leaving him his apparatus and sufficient oxygen to see him safely back to the high camp. The ground over which we had just come was easy and, as the tent was in full view below, there was no chance of losing the way; so, as soon as he was sufficiently recovered,[1] we sent Tejbir back.

After seeing him well on his way, we shared Tejbir's load between us. In view of the straightforward nature of the climbing, I chose to dispense with the rope in order to be able to progress more quickly. Climbing by no means steep and quite easy rocks, and passing two almost level places affording ample room for some future high camp, we arrived at an altitude of 26,500 feet. By this time, the wind, which had been steadily rising, had acquired such force that I realised that, were we to remain fully exposed to it much longer, we would both succumb to the cold as Tejbir had done. We were, however, not out to see how far we could go, but bent on getting to the top of Everest. So we changed tactics. Instead of gaining the summit by ridges exposed to the full blast of the gale, we would have to follow a more sheltered way. The only thing to do was to leave the ridge and strike out across the vast north face of the mountain. This

[1] My action in sending Tejbir back alone has, I believe, been criticised. There is no need to labour the point. I was the responsible person and the sole judge of circumstances, and I acted for what then appeared to me, and subsequently proved to be, the best.

alternative route had its disadvantages. The rocks up which we had come were wind-swept free from snow, and foot- and handholds were good and plentiful, and, so far as could be seen, this state of affairs continued for quite a long way beyond the Shoulder. The moment we left the ridge, however, we felt the disadvantages of the fact that the stratification of the rock dips towards the north. The ground over which we now had to make a way was slabby, with much new snow to hamper us. Caution was necessary throughout. My companion was sure-footed, careful and unlikely to slip; nevertheless, being responsible for his safety, I moderated my pace and never allowed more than a few feet to separate us. Thus, keeping close together, we worked away steadily, gaining but little in altitude, but getting ever so much nearer to the summit. The climbing steadily became more and more difficult. Sometimes the slabs gave place to snow; treacherous, powdery stuff with a thin, wind-formed crust that gave a false appearance of compactness. Little reliance could be placed upon it. At length, when about half-way across the face and at an altitude of about 27,000 feet, we decided once again to change our route and strike straight upwards in the direction of the summit ridge.

We had climbed some three hundred feet higher, and I had just reached a ledge at the top of a steep slab about thirty feet in height, when I heard Geoffrey Bruce give a startled cry: "I 'm getting no oxygen!" Turning round immediately, I saw him struggling ineffectually to climb up towards me. Quickly descending the few intervening feet, I was just in time to grasp his right shoulder with my left hand as he was on the point of falling backwards over the precipice. I dragged him face forwards against the rock, and, after a supreme effort on the part of both, we gained

the ledge where I swung him round into a sitting position against the slope above. Thus placed, with the weight of his apparatus taken off his back, he again told me, this time in a gasp, that he was no longer receiving oxygen. I gave him my tube and, still standing, with the full weight of my own apparatus and other impedimenta on my back, endeavoured to locate the fault. Systematically I traced the connections from the cylinder in use down to the pressure gauge and flow-meter and found both in action, the latter recording a flow of 2·4 litres per minute. By this time, however, what with the weight of my load and being deprived of oxygen, I was not feeling any too well, and, believing the defect to lie in a breakage of the flow-meter exit tube (an apparatus had previously failed through developing this flaw which was consistent with the results of the present hasty examination), in my desperation I tried to prize off the flow-meter with my ice-axe in order to be able to connect the rubber tube leading to Geoffrey Bruce on to the exit tube of the reducing valve. (The emergency by-pass valve was useless in dealing with this type of breakdown.) Before I had proceeded far with my efforts, however, I found it necessary to recover my tube from Geoffrey and take a series of deep gulps of oxygen, turning on the gas to a maximum rate of delivery and, in addition, increasing its flow by making use of the by-pass valve on my own apparatus. This restored me, and, so that both could breathe oxygen simultaneously from my apparatus, I connected a reserve "T" piece and rubber tubing, which I had fortunately brought with me, on to the delivery tube. Resuming the diagnosis, I this time traced connections back from the mouthpiece and at once discovered that a glass connecting piece, which had been used in the construction of

the improvised mask, was broken. The thick rubber which had originally covered the tubing had been partially dragged off, and the glass, thus unprotected, had probably been fractured against rock while climbing. As I had a spare glass connection in my possession, the repair was speedily effected, and Geoffrey Bruce was once more inhaling oxygen from his own apparatus.[1]

We rested for a few minutes before going on. Those few minutes decided the issue of the day. So far, I had not had the leisure to consider my companion's condition. His climbing was all I had had eyes for. How was he getting on? Was he all right without the rope? Was he keeping up? But now I saw that Geoffrey Bruce, like Tejbir, had driven his body almost to the uttermost. A little more would spell breakdown. The realisation came like a blow. My emotions are eternally my own, and I will not put on paper a cold-blooded, psychological analysis of the cataclysmic change they underwent, but will merely indicate the initial and final mental positions. Reasoned determination, confidence, faith in the possibility of achievement, hope—all had acquired cumulative force as we made our way higher and higher; the two nights' struggle at our high camp had not dimmed our enthusiasm, nor had the collapse of Tejbir, rude shock and source of grave anxiety though it undoubtedly was. Never for a moment did I think we would fail; progress was steady, the summit was there before us; a little longer, and we should be on the top. And then—suddenly, unexpectedly, the vision was gone. . . I thought

[1] In my previous accounts of the climb, I practically ignored this incident. Recently, however, Dr. Longstaff published in the *Alpine Journal* an article in which he describes the happening at some length. I believe that the story was related to him by Captain Geoffrey Bruce.

quickly. I could have gone on, the time having long passed since I possessed no confidence in my own factor of safety or needed a rope. But to have done so would have been unfair to Geoffrey Bruce who with his fewer years was not so inured to hardship as I was. We did, however, proceed for a few yards. This made my only possible course of action even more obvious.[1] As evidence of my companion's indomitable spirit I would add that, when my decision to return was announced, he clearly voiced his chagrin.

According to the aneroid barometer I carried, we had reached an altitude of at least 27,300 feet.[2] The point we had gained may be easily recognised. We were standing inside the bend of a conspicuous inverted " V " of snow, immediately

[1] To those who attribute our retreat to the fear of a possible second failure of the oxygen apparatus, I say that such a prospect cost me not one moment of apprehension ; I knew I was equal to such an emergency. Neither were our actions influenced by discouragement or indifference —we cared terribly about reaching our goal. The fact that we took cameras, but omitted to use them, has been construed as evidence of forgetfulness and change in mental attitude induced by the height. Before leaving our high camp, Geoffrey Bruce and I had carefully made our plans. We realised that we would have little time to spare, and that the cold would be too intense to permit of reloading the cameras. Therefore, in camp, we had loaded each of the cameras with one spool and jealously saved all the exposures for the summit views. Neither the summit nor the pictures materialised for us.

[2] By means of theodolite observations made from a single point near the Base Camp, this height has worked out at 27,235 feet. This latter height is calculated on the assumption that the altitude of Mount Everest is 29,002 feet. It may be of interest to note, however, that the mean of numerous observations made by the Survey of India from twelve different stations places the height of Everest at 29,141 feet. This figure has not yet been finally corrected for deviation of gravity. When due allowance for this has been made the height of Mount Everest will probably be found to be about 29,200 feet. In the same way the point reached by Geoffrey Bruce and myself works out at (27,235 + 198) = 27,433 feet ; a height that is exceeded, as far as I know, by four mountains, all in the Himalayas ; namely, Mount Everest, K2 (28,250 ft.), Kanchenjunga (28,150 ft.) and Makalu (27,790 ft.).

below the great belt of reddish-yellow granite which cleaves almost horizontally through the greenish, grey-black rock of which the summit and north face of Mount Everest are composed. With the exception of the summit of Everest, nowhere could we see a single mountain-top as high as our own lofty perch. The highest mountain visible was Cho Uyo, which is just short of 27,000 feet. We were well above it, and could look across it into the dense clouds beyond. The great West Peak of Everest, one of the most beautiful objects to be seen from down in the Rongbuk Valley, was hidden, but we knew that our standpoint was nearly two thousand feet above it. We could look across into clouds which lay at some undefined distance behind the Shoulder, a clear indication that we were only a little, if anything, below its level. Pumori, an imposing, ice-bound pyramid, some 23,000 feet high, I sought at first in vain. So far were we above it that it had sunk into an insignificant little ice-hump by the side of the Rongbuk Glacier. Most of the other landmarks were blotted out by masses of ominous, yellow-hued clouds, swept from the west in the wake of an angry storm-wind. Though 1,700 feet below, we were well within half a mile of the summit, so close, indeed, that we could distinguish individual stones on a little patch of scree lying just below the highest point.

But it was useless to think of continuing. It was too plain that, if we were to persist in climbing on, even if only for another five hundred feet, we should not both get back alive. The decision to retreat once taken, no time was lost, and, fearing lest another accidental interruption in the oxygen supply might lead to a slip on the part of either of us, we roped together. It was midday. At first we returned in our tracks, but later aimed at striking the ridge between the

Shoulder and the North Col, at a point above where we had left it in the morning. This enabled us to find level going where the order of advance was of little importance, and I could go ahead, keeping my companion on a short, taut rope. The clear weather was gone. Once back on the ridge, we plunged down the easy, broken rocks through thick mists, driven past us from the west by a violent wind. For one small mercy we were thankful—no snow fell.

On regaining our high camp, we looked inside the tent and found Tejbir snugly wrapped up in all three sleeping bags, sleeping the deep sleep of exhaustion. Hearing the voices of porters on their way up to meet us, we woke him up, telling him to await their arrival and to go down with them. Bruce and I then proceeded on our way, met the ascending porters and passed on, greatly cheered by their bright welcomes and encouraging smiles. But the long descent, coming as it did on the top of a hard day's work, soon began to find out our weakness. We were deplorably tired and could no longer move ahead with our accustomed vigour. Knees did not always bend and unbend as required. At times they gave way altogether and forced us, staggering, to sit down. But eventually we reached the broken snows of the North Col, and at 4 p.m. arrived in the camp, where we found Crawford and Wakefield who, with very natural curiosity, had come up to have a look at the col and spend the night there. Noel had already been three days up here on rather short rations, and the fuel and food supplies were consequently much depleted. In the circumstances, though we would fain have passed the night in the North Col Camp, as did the four climbers after the first attempt, we were compelled to face a further descent that afternoon to Camp III. A craving for food and rest, to the lack of

which our weakness was mainly due, was all that animated us; and, before continuing the descent, this craving had to be satisfied, even if only to a small extent. A cup of hot tea and a small tin of spaghetti were forthcoming, and even this little nourishment so refreshed and renewed our strength that three-quarters of an hour later we were ready to set off for Camp III.

From the North Col to Camp III, we had in Captain Noel an invaluable addition to our party. He formed our rear-guard and nursed us safely down the steep snow and ice slopes on to the almost level basin of the glacier below. Within forty minutes after leaving the Col, we arrived in Camp III. Since midday, from our highest point we had descended over six thousand feet, but we were quite finished. The brightest memory that remains with me of that night is dinner. Four quails truffled in *pâté de foie gras*, followed by nine sausages, only left me asking for more. With the remains of a tin of toffee tucked away in the crook of my elbow, I fell asleep in the depths of my warm sleeping bag.

Next morning an inspection by Somervell, who had returned to Camp III during our attempt on Everest, showed that Geoffrey Bruce's feet were sorely frost-bitten. I had well-nigh escaped, though four small patches of frost-bite, due to the cold which had penetrated the half-inch thick soles of my boots and three pairs of woollen socks, made walking unpleasant. I was also weak. The result was that both of us were piled on to a sledge and dragged by willing porters down over the glacier until its surface became too rough. I then discovered that I could walk quite well; presumably I had been lazy in the morning. But Geoffrey Bruce fared less well, and had to be assisted back to Camp II. And so from camp to camp the weary return journey dragged on. The sense of failure

was with us. We had set out with one resolve—to get to the summit. The realisation that we had at least established the record for high climbing had not yet dawned upon us, and when it did, it afforded but scant consolation. With fine weather and but one night at our high camp, with Geoffrey Bruce, whose stout-heartedness made good to a great extent his inexperience of mountaineering and consequent uneconomic use of his strength, Mount Everest would in all probability have been climbed. I shall always be grateful to Geoffrey Bruce, not only for the confidence he placed in me, but also for the backing he gave me throughout our climb—and afterwards.

The descent from Camp I to the Base was perhaps the roughest and most trying march of all. Great was the rivalry amongst the porters as to who should have the honour of carrying Geoffrey Bruce, the condition of whose feet would not permit of his walking down those almost interminable moraines with their harassing stones. Even the worst journey must come to an end, however, and at last, on the afternoon of May 29, we were being accorded the warmest of welcomes by the General and the other members of the expedition at the Base Camp.

The next few days were spent in resting. But I underwent the same experience as the members of the first climbing party; instead of recovering strength rapidly during the first three or four days, if anything, a further decline took place. However, as the immediate weather prospects seemed good, although it was obvious that the monsoon must shortly break, it was decided to make a third attempt upon the mountain.

Somervell was, by now, undoubtedly the fittest of the climbing members of the expedition, with Mallory a good

On the return journey to the Base Camp.

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second. Both had enjoyed some ten days' rest since their first assault upon Mount Everest and had, therefore, had some chance of recovering from the abnormal strain to which they had been subjected. Medical opinion as to my condition after so brief a respite of only four days was somewhat divided; but in the end I was allowed to join in the third attempt.

On June 3, we left the Base Camp. The party consisted of Wakefield as medical officer, Crawford and, later, Morris as transport officers, with Mallory, Somervell and myself as climbers. Oxygen was to be used, and I was placed in command. It was a great struggle for me to get to Camp I, and I had to realise that the few days' rest at the Base Camp had been quite inadequate to allow of my recuperation, and that no useful object would be served by my proceeding farther. Snow fell during the night. Next morning, after giving Somervell final detailed instructions regarding the oxygen apparatus, I returned once more to the Base Camp. As Strutt and Longstaff were leaving on the following day to escort the badly frost-bitten Morshead to Darjeeling, I was given, and availed myself of, the opportunity of accompanying them.

The next news I heard of the third attempt upon Mount Everest was gleaned from the columns of a Sunday newspaper, shortly after landing in Dover some six weeks later. I read that an avalanche had destroyed seven of our gallant mountain comrades, the Nepalese porters. This disastrous accident had terminated the third attempt on Mount Everest before even the North Col had been gained.

Mount Everest, the Goddess Mother of the Snows, with all her formidable array of natural defences, had conquered. But the value of reasoned determination, unwavering

confidence, really warm and wind-proof clothing and, last but not least, the proven worth of oxygen—weapons to break down the innermost defences of even the highest mountain in the world—are now, perhaps, better understood.

CHAPTER XXI

MOUNTAINEERING PHOTOGRAPHY

NOT the least of the rewards of mountaineering are the memories of mountain comrades and adventures which cheer those of the true faith through the humdrum existence of ordinary life. The camera enables us to retain a faithful picture of the many striking incidents, the wonderful surroundings and the fellow-actors who have played with us in the great game ; so that photography, like a keen and accurately observant sixth sense, helps to keep our mountain memories fresh and true for all time. Given no other, this, by itself, were sufficient reason why a camera should accompany us on our travels.

A distinction should be drawn between photography of mountains and mountaineering photography. The former is a pursuit indulged in by those who are, for the most part, content to take photographs of mountain scenery from valleys, railways, roads, paths or other easily accessible points of view. In such cases, photography is the chief object ; any mountaineering that may be done is, as a rule, of the simplest kind and undertaken chiefly for the sake of photography. By " mountaineering photography," on the other hand, I would designate the use to which the mountaineer puts the camera ; to him, climbing is the main object, and photography merely an incidental side issue. To the photographer, the weight and bulk of his photographic apparatus is of minor importance ; but the *bona-fide* climber

must cut down the weight of his photographic equipment to a minimum, and any photography he may indulge in must interfere as little as possible with the pursuit of the ruling passion. His camera must be so simple that pictures can be taken quickly and without waste of time. The scenes most worthy of record frequently give little warning of their approach and are of short duration; and, unless the camera is one which can be quickly manipulated, the opportunity will be gone before the record can be secured. The mountaineer is, therefore, confined to the use of a simple, light camera of small and convenient dimensions. The opinion is widely expressed in books on mountain photography that good results are only obtainable with stand cameras and glass plates—the heaviest and most inconvenient type of photographic equipment. To-day, this is no longer the case. Lenses, folding cameras sufficiently small and compact to fit into one's pocket, and the celluloid film negative have been brought to such a state of perfection that, with their aid, the climber can secure photographs which not only compete successfully from the point of view of quality with the results obtained with far more elaborate apparatus, but also far excel the latter in quantity.

The choice of camera is governed, in the first place, by the size of the negative required. In contact copies, from the smaller sizes of negatives, details, often of value, are too readily overlooked and usually appear to proper advantage only on enlargement. Particularly so is this the case with regard to pictorial effect. Enlargements to more than six or seven diameters show up faulty definition to an exaggerated degree, and the grain of the emulsion often becomes disturbingly evident. The smallest size of negative which may be regarded as sufficiently free from these drawbacks is $2\frac{1}{2} \times 3\frac{1}{2}$

In a mountain hut.

A portrait study.

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inches, a size which permits of satisfactory enlargement up to the pleasing dimensions of 12×15 or even 15×20 inches. As, however, a quarter-plate size ($3\frac{1}{4} \times 4\frac{1}{4}$ inches) camera is procurable which is handy, simple to use, and is neither too bulky nor too heavy, the mountaineer would do best to be on the safe side and adopt this as his standard. There is no need to peer into or use a magnifying glass when looking at a quarter-plate size contact print. Its pictorial value can be easily judged, the proportions of the shape are pleasing, and it enlarges well.

Having chosen the size of the camera, it is necessary to decide whether plates, flat films, pack films, or roll films are to be employed. For the mountaineer, plates are out of the question ; they are too heavy, too easily damaged and too slow to bring into use. Owing, however, to the standard of excellence attained in the manufacture of various types of films, there can nowadays be no advantage in preferring plates, even if weight were not a consideration. Also, in the matter of expense, there is little difference between the cost of plates and that of films. As far as the climber is concerned, flat-films ("cut films") suffer from the same defect as plates, in that they take too much time to use. Pack-films are free from this disadvantage, but the packages in which they are contained will not stand rough usage ; they are somewhat readily damaged, with the result that light may be admitted. The roll-film is the negative material *par excellence* for the mountaineer. In a suitably designed camera, the best makes lie perfectly flat. Their bulk and weight are less than those of any other type of negative. Easily packed in air- and waterproof packages which can be sealed with adhesive plaster, they are practically unbreakable and will withstand extraordinarily rough handling. They are quickly changed

in broad daylight, free from halation effects, and twelve exposures can be developed together, with little more trouble than attends the developing of a single plate or flat-film negative. These are but a few of the great advantages of roll-films from the mountaineer's point of view. Hence the ideal camera for the climber is a quarter-plate size, roll-film, folding model.

In choosing such a camera, attention should be paid to the following points. The camera should be light, yet strong. It should be as simple as possible and provided only with such mechanism as is essential to the taking of good photographs. All superfluous accessories should be dispensed with. The essential features of a camera are these :—

The back must fit light-tight on to the body. The film-winding mechanism contained in the body should be such that the film is held flat and not scratched on winding. The bellows should be strong and light-tight and should be periodically examined for pin-holes when the camera is in use. Pin-holes, when they occur, are easily repaired by sticking over them a piece of adhesive plaster which can then be blackened with ink or charcoal. The side-struts should lock the base-board firmly when the camera is opened. The front-grip should slide smoothly in the runners and yet fit well, so that when the camera is opened the front standard is held rigid. The shutter is an item of great importance ; its timing should be calibrated, and its mechanism be of such a design that the opening and closing movements are as rapid as possible, thus enabling the passing of the maximum amount of light during the time of exposure. The two most important speeds of the shutter are the 1/50 of a second and a high speed such as 1/250 or 1/300 of a second. It is difficult to hold a camera sufficiently steady to ensure accurate definition with a lesser

The Aiguille du Géant.

Clearing mists.

The Sella Pass.

Approaching thunderstorm.

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speed than 1/50 of a second, and this, in the vast majority or cases, will be the standard shutter speed employed. Occasionally, when photographing a rapidly-moving object, such as an avalanche, or a climber jumping a crevasse, the fastest available shutter speed should be used. Integral with the shutter mechanism is the stop, preferably an iris diaphragm. The quantity of light allowed to fall upon the negative should be controlled as far as possible by means of the stop alone, the shutter speed being kept always at 1/50 of a second save in exceptional circumstances. The lens is one of the chief keys to successful photography. From personal experience of many different makes of lenses, I can unhesitatingly recommend the following: Kodak Anastigmats f : 6.3 and f : 4.5, Goerz Dagor or Dogmar f : 4.5 and Zeiss Tessar f : 4.5. These four give excellent definition, and the last is particularly suitable for taking photographs for map-making purposes. For a quarter-plate camera, the focal length should, as a rule, be 4 to 5 inches, rather nearer the former than the latter. The lens, when fitted and the camera opened, must be truly centred with the axis at right angles to the plane of the negative. The view-finder should include no more and no less of the object to be photographed than is actually projected by the lens on to the negative. The focussing scale must be accurately graduated for the lens with which the camera is fitted, and should be provided with an automatic infinity stop which is free from backlash. Both focussing scale and infinity stop, but particularly the latter, must be set with the greatest possible accuracy. This will nearly always be the case in a camera of reputable make secured from the makers themselves. A short cable release is an advantage; it enables one to hold the camera more steady when an exposure is being made. It goes without saying that the camera should

be of the best material and workmanship throughout. One of the best makes of cameras procurable and suitable for the mountaineer is the Folding Pocket Kodak Number 3.

The estimation of correct exposure is a difficult matter for many beginners in mountaineering photography. The following may serve as a rough guide. In the summer months between the hours of 9 a.m. and 5 p.m., when above the snow line, snow scenes require 1/50 of a second and about stop f : 20 ; rock scenes 1/50 of a second, stop f : 10. Distant snow scenes and distant mountain ranges need 1/50 of a second, stop f : 30. I do not recommend exposure meters, chiefly because their use takes up too much time. For development, I advocate the use of Kodak daylight developing tanks with the special developers prepared by that firm. The negative of almost every photograph used in the illustration of the present book was developed in the Kodak daylight developing tank.

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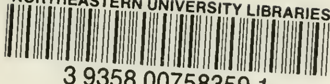
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