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THE EXPLORATION OF
THE CAUCASUS
VOLUME II



TETON FROM THE NORTH

THE EXPLORATION
OF
THE CAUCASUS

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VOLUME II

SECOND EDITION

LONDON
EDWARD ARNOLD
1902

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82227
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EDINBURGH : PRINTED BY T. AND A. CONSTABLE

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CHAPTER XIII

THE ZANNER PASS AND UKIU

'Nihil hic auribus molestum esse potest, nihil importunum, nulli tumultus aut strepitus urbani, nullae hominum rixae. Hic in profundo et religioso quodam silentio ex præcæltis montium jugis ipsam ferè caelestium, si quae est, orbium harmoniam exaudire tibi videberis.'
—C. GESNER, A.D. 1555.



FOUND our second night under the boulder beside the Nageb Glacier less comfortable than the first. The uncertainty as to the morrow and the whereabouts of our comrades, perhaps, interfered somewhat with my slumbers;

but there was also a physical cause—a cold breeze which poured down from the frozen heights, and found its way into the cranny where we were lodged. In place of star-gazing overnight I ought to have insisted on the guides building a low wall to windward.

We breakfasted sparingly, for we felt bound to husband our provisions, and at about 5 A.M. we set off. There was an hour's descent to the junction of the two glaciers. All the water running on the surface of the ice had frozen hard in the night. To keep a footing on the slippery surface we found almost impossible. One after the other we were on our backs, and our stiffness from the long snow-tramp of the day before was soon supplemented by various bruises. However, we were none of us much the worse for our tumbles when we reached the rank herbage on the right bank of the Zanner ice-fall. There was no

trace of a path among the steep screes and bushes. But it was not many minutes before François's keen eye detected footmarks. Our doubts were thus happily set at rest. M. de Déchy and the Cossack had succeeded in starting with the troop of porters, and the caravan must be ahead of us somewhere on the upper glacier. Dévouassoud, who up to this time had had serious misgivings as to our baggage-train being really on the road, was now content, and sagaciously suggested that we need not hurry to overtake it, as we had well deserved to have our steps made for us across the snow-fields. The Chamoniards were all heavily laden, and even at home guides called on to act as porters across the Col du Géant the day after climbing Mont Blanc might be excused for feeling somewhat slack. François, it must be remembered, was no longer young, and his brother Michel was beginning to suffer—though he stoically concealed his wounds till the following night—from a frost-bitten foot.

It was an hour's steep climb beside the ice-fall up to the brow overlooking the *Eismeer* of the Lower Zanner Glacier. Here, at 8500 feet, on a patch of level ground, we found the relics of M. de Déchy's camp. A large boulder had accidentally masked the fire from our view. A few downward steps placed us on the ice we were not to leave for so many hours. But for the moment we were very much inspirited. The morning sunshine danced through the delicate mountain air. On either hand the pyramids of Tetonul and Gestola crowned a noble avenue of snowy heights. Mr. Donkin's camera has recorded the fleeting vision of the northern face of Tetonul he gained on reaching the shoulder of Gestola. This aspect was now before us, foreshortened at first, but displaying as we advanced its full seven thousand feet of icy armour. Hardly any rocks appeared, and what could be seen were plastered over with the debris of ice-avalanches. Here the glistening slopes swelled into an overhanging boss of *névé*; there smooth, riven sheets of snow clung to the wonderfully steep face of the mountain. It was a peak to be proud of.

The glacier, which flowed at first towards us with a south-

westerly direction, turned in its upper course more due east and west. Far ahead, a broad high ice-fall poured down on the left from an upper basin, over which, as we knew, both by the position of Gestola and the view from Tetnuld, our pass must lie. For an hour or more I thoroughly enjoyed one of those bits of easy glacier walking, which are as amusing to the mountaineer as a cross-country burst is to the fox-hunter. Each takes his own line; now the guide in the hollow gets the lead, then he is stopped by some ice-ditches, and his comrade on the moraine forges ahead. One can practise small jumps and gymnastics, or, successful in some 'speculation'—as François disapprovingly calls my short cuts—sit down comfortably on a glacier-table and rejoice in the splendour of the shining landscape until the guides, made more cautious by their loads, come up.

On reaching the foot of the second ice-fall, we cut a few steps in its lower portion, and then took to the rocks on its right (western) bank. There was no way up them except by crossing slopes of very steep and hard scree, where it was not expedient to slip. Near the top, solid crags offered a welcome scramble. There were as yet no traces whatever of our caravan's passage, and I was beginning to feel perplexed when a shout from Joseph, who was ahead, told the good news that it was sighted. In a minute I was beside him looking across a vast, smooth glacier basin. Not a mile off a large company were gathered in a circle on the white snow. They were thirteen in number—M. de Déchy, the Kabardan Cossack, and eleven Suanetians. Seen through field-glasses, the group bore a singular resemblance to one of the old prints of De Saussure's ascent of Mont Blanc. They returned our hail, and resumed their march. We set off in pursuit, and on this occasion a stern chase did not prove a very long one. The ice was already snow-covered, but not sufficiently so as to hinder us materially. In about an hour, at 11 A.M., we caught up the caravan. They had climbed the rocks on the farther side of the ice-fall, which, with the exception of one 'mauvais pas,' they had found quite easy. The Suanetians were all heavily laden, and there was no spare man, as I had hoped, to relieve the guides.

We joined greedily in an excellent meal, and then let our troop lead on up the broken slopes of *névé*, but half-transformed into ice, which hid from us a still higher level of these 'shining tablelands.' The Caucasians are as clever as chamois at choosing their line of march, and show a great deal of prudence in sounding in uncertain places. We were soon able to take advantage of some snowy rocks between two branches of the *séracs*. The snow on them was thick and loose, and made the work exceedingly slow and laborious for those in front. In our happy ignorance we thought this labour was to be our last.

A very fine peak, of over 15,000 feet, higher than anything between itself and the Ushba group, rose behind us at the north-west angle of the Upper Zanner Glacier. We afterwards learnt to know and respect it as Tiktengen, the great mountain of the people of Chegem, which keeps watch over the Tuiber Pass. A passage may probably be found over the low rock-wall east of it from the Upper Zanner to the Shaurtu and the eastern branch of the Chegem valley. From the top of the rocks we saw in front, to the south and east, endless snowy undulations. Far, far off, at the foot of the long rocky screen that girds in the *névé* on the north, a piece of bright blue sky was framed by clear, sharp-curving snows. I took its bearings, and hastily noted as best I could the accidents of the intervening ground. For the afternoon vapours were closing in fast, and it was not long before they surrounded us.

The snow was now knee-deep where it was best, and thigh-deep where it was worst. The overladen men could make only the slowest progress. They advanced for five minutes, and then sat down for ten. Presently the leader swerved very sharply to the right. Through the double interpretation of M. de Déchy and the Cossack I remonstrated, and we resumed our former direction. Whether this interference of mine was well-timed I had afterwards reason to doubt. The snowfields undulated, the leader seemed to lose his bearings; instead of keeping a level we occasionally descended. The halts became more frequent, the pace slower, the mists thickened, half hours and hours slipped by, the sun was sinking,

and still we seemed no nearer the pass. I proposed to the guides that they should take the lead, but they declined the labour on the ground of their heavy loads. As I was carrying nothing I went myself, unroped, to the front for a time, for the crevasses were too thoroughly choked to form any real danger. Suddenly I became aware that I was alone. Our train was lost to view in the white fog. The next moment strange sounds echoed through the misty air. I retraced a few steps, and found the whole motley troop squatting on a bank of snow, and praying at the top of their voices. It was a fantastic scene. The Suanetians, in order to avoid sore eyes and sunburn, had blacked and greased their faces, which gave them an appearance suggesting anything but devotional associations. They were, however, very much in earnest, and absolutely declined to shorten their service. They seemed, indeed, to have a Form of Common Prayer suitable for the occasion. The Tibetans, we are told, have a special thanksgiving on reaching the summit of a pass. But to what quarter were these prayers addressed—to the Powers of Nature or to some Christian Saint? All I could get, through double interpretation, was that our men were calling on the sun. They were as persistent as the priests of Baal, but with better success. The mists lightened; blue sky shone above our heads; the rocky screen on the left, which had been my landmark, loomed close at hand. The white gap was seen, still some distance in front. Then the long chant turned into a hymn, or rather howls of triumph—howls not apparently without some such form and order as are found in the ejaculations that make part of a Greek chorus.

We waded and wallowed on across slopes of icy avalanche debris, through snowy corridors. Once more we lost our bearings, and one of my Chamoniards distinguished himself by being the first to recognise the true direction. The last ascent now lay before us, a gently rising snowy dale, enclosed between rocks on one hand and high frozen banks on the other. A breeze suddenly sprang up and lifted the mists. Through the gap in front shone once more the purest blue sky.

It was 6 P.M. : we had been fully thirteen hours among the ice

and snow-fields before we stood on the crest of the Caucasus, at a height of over 13,000 feet, and looked down on the Bezingi Glacier and across to the great peaks that encircle it. I shall never forget, and I do not think my companions will, the scene that burst on our eyes, weary and aching with the long monotony of snow and mist, as we made the last step on to the frozen and overhanging wave that crowned the ridge.

Particular mountain views seldom come up to the day-dreams imagination, aided by memory, can conjure up for most of us. There is frequently in Nature something crude or out of keeping in line or colour; the picture is imperfect in composition, or wanting in the romance and mystery of space. The view we enjoyed from the Upper Zanner Pass, however, formed an exception to the rule: it exceeded all my visions, whether waking or sleeping. Not only the scene, but the moment, was dramatic and magical. In its white noontide magnificence the landscape might have seemed too cold and monotonous. Evening added colour, variety, expression, sentiment, to its strange sublimity. When we reached the crest, the granite crags and snows were lit by the rays of the setting sun, cold blue shadows already lay over the belated mists that half hid the vast glaciers in the deep hollows far beneath us; while we lingered the highest peaks flung back the last beams, flushed red for a few moments, turned pale, and then glowed again in response to the afterglow in the western sky, before they finally faded into phantoms at the touch of the grey finger of advancing Night.

Immediately opposite, the magnificent rock-peak of Dykhtau, slashed with glaciers and raised on two massive shoulders, lifted to a height of over 17,000 feet, or 4000 feet above our heads, its keen, wedge-like crest. Round its base, 5000 feet below us, flowed an enormous glacier. We looked up a long corridor of ice till our eyes rested on a snowy *cirque*, at the foot of the pile of precipices and buttressed ridges, which form the five-crested Shkara, another mountain of more than 17,000 feet. From Shkara there stretched towards us a line of summits—the three-topped Janga, Katuintau, shaped like a Tartar saddle, the blunt cone of Gestola—all loftier

than Mont Blanc. No valley, no pasture, no habitable ground was anywhere in sight.

I may help some of my Alpine readers to realise our relation to our surroundings by suggesting to them the following comparison. Let them imagine themselves near the Hörnli. The Bezingi Glacier will take the place of the Gorner Glacier, Shkara of Monte Rosa, Janga of the Lyskamm, Katuintau of the Breithorn, Gestola



THE SOURCES OF THE BEZINGI GLACIER

of the Little Matterhorn. In order to complete the comparison, the Matterhorn must be transferred to the Gornergrat to play Dykhtau, and the Gorner Glacier elongated to Randa. The parallel breaks down, it will be seen, in detail, and a map, after all, is the best key to the arrangement of the landscape. Neither map nor comparison, however, will render the impression of the gigantic wall of snowy precipices which forms the southern limit of the Bezingi Glacier. It is unrivalled in the Alps and unique in the Caucasus—a sight never to be forgotten by any of the few Englishmen

who have set their feet on the threshold of this mountain sanctuary.

But the hour and the occasion did not allow us to indulge in any lengthened absorption in the wonders that were being displayed for us alone. It was a time for action, and prompt action. The shades of night were gathering fast, and we were on the Caucasian watershed, far from shelter of any sort. We had been, as I have said, no less than thirteen hours from our bivouac; we had wandered seven hours over those interminable snowfields since catching up M. de Déchy.¹

The farther side of the pass was barred by a corniced wall, with an icy moat at the foot of it. We might have got down the wall, but our porters and their burdens would certainly have tumbled into the moat. A more practicable way could have been thrashed and hewn out with ice-axes, but it would have taken time, and our Suanetians were understood to swear unanimously a mighty oath that nothing should induce them to go down alive into such a pit. By mounting a few hundred paces to the left we saw we should reach a point where there was no cornice, and whence a rib of rock ran down for full two-thirds of the distance towards the *Bergschrund*. It was much of the character of the once notorious Strableck Wall—that is, very easy for any one with nailed boots and not a novice in mountaineering.

Our Suanetians were all making a great hubbub, praying or swearing—we were not sure which—on the cornice. One after another peeped over the edge, and, drawing back with horror, expressed his feelings in a brief solo, which was followed by a chorus from the whole strength of the company.

We thought example might be better than precept, so, charging the Kabardan Cossack, who by the courtesy of the Russian Government accompanied us, to explain to them what was to be done next, we started down the rib of rocks. It was steep but perfectly easy, and in ten minutes we were across the *Bergschrund*. But

¹ In other seasons the pass has been and will be crossed in less than half the time. It is not characteristic of the Caucasus that *névés* should be soft. In 1868 and 1889 I often found them all day in excellent condition.

even our example failed to cheer the Suanetians, or to induce them to follow. They jabbered, they screamed, they gesticulated; they seemed, as is the wont with excited barbarians, on the verge of assaulting one another. They did, in short, everything but what we wanted them to do—come on. At last we were rudely warned that a great resolve had been made by receiving one of the tents, which was sent bowling down on us through the soft snow in a perfectly reckless manner. Other baggage, including instruments, followed, and then three of the most daring spirits tied themselves to the Cossack. This spontaneous use of the rope showed that they were not altogether beyond the reach of new ideas. They came down the rocks with the utmost nervousness, clumsily yet safely. But on the steep snow below one of the four missed his footing. A few seconds of headlong descent, some bold bounds in air, in one of which the half-open *Bergschrund* was safely cleared, and the quartette were lying, a panting heap, at our feet.

‘Voilà donc notre gros, comme il a la mort dans le visage,’ said François. A huge Suanetian had blacked his face to save himself from snow-blindness, his skin underneath had turned deadly pale with fright, his yellow hair and beard were plastered with the snow, in which he was more than half buried. A good shake, however, showed that no damage was done, and the loss reduced itself to our Cossack’s dagger, which had flown out of its sheath and found a lodging in the *Bergschrund*. Fifty years hence, possibly, it will be disgorged by the glacier, and exhibited as a relic in the reading-room of the Grand Hôtel d’Angleterre at the Missess Kosh.

The eight who were still on high were naturally not fortified by the sight of their companions’ misadventure. But the sunset wind was doubtless getting extremely cold on the ridge, and placed between the Scylla of freezing and the Charybdis of the *Bergschrund*, they at last found courage to follow—how slowly and how noisily no one but those who watched them can imagine.

The descent of the snow-wall took more than an hour. All the time that this screaming farce was being played by our

black-faced troop, Nature, on her part, had been presenting a most solemn spectacle. Snow and sky had been alternately flushing and fading, as they caught or lost the hues of the sunset or the afterglow. The combination was incongruous in the highest degree. It seemed a sad waste to have two such exceptional performances, appealing to such different moods for appreciation, going on at the same moment. One does not ask for a



THE ZANNER PASSES

pantomime in St. Mark's Square, and Christy Minstrels mix very badly with Beethoven on the staircases of St. James's Hall.

We hurried across the ice—or rather *névé*—of a small glacier plateau, towards some rocks on its farther or left bank. How came it that we were not descending the large tributary of the Bezingi Glacier, which runs under Gestola? The map will show that we had not crossed the col at its head (the Zanner Pass), but another pass of about the same height farther north, and at the head of a small glacier flowing into that last mentioned, the lower end of which Dent and Donkin traversed on the way to their peak. The two passes are very well shown on Mr.

Donkin's photograph. The question, of course, arises, When our porters swerved to the right on the ascent, was their leader, who had crossed more than twenty years before, following his recollections and making for this alternative pass? It would seem probable that he was. But, on the other hand, the route we had taken is the more direct; the difficulty of the snow-wall is just such as might be created by the shrinkage of the glaciers which, in the Caucasus as in the Alps, has marked the last quarter of a century. Thus the abandonment of the pass would be accounted for. And on the rocks we were approaching a group of ruinous stone-men and a low wall, signs of ancient camps, were visible. This discovery appears to be conclusive evidence that the pass we crossed was at one time occasionally traversed by natives.¹

It was dark when we reached the rocks, though we had been only about half an hour crossing the glacier. We proposed to camp at once, but an icy blast was now whistling behind us, and the Suanetians—very judiciously, as it proved—insisted on going down farther. Providence had arranged that the dark slope on which we found ourselves should consist, not of granite cliffs and boulders, but of pulverised schist and snowbeds, in either of which it was equally easy to let oneself slide. In seventeen minutes we went down some 1700 feet, and holloing and waving lights so as not to lose one another in the darkness, we all collected on the first patch of tolerably level ground. Lanterns were soon set up, tents unfurled and pitched, soups boiled, *pâtés* opened, and last, but not least, a bottle of Crimean port (purchased at Vladikavkaz) uncorked. I can strongly recommend the Vladikavkaz wine-merchant.

The Suanetians' spirits recovered now that they were safe across

¹ There can be no doubt whatever that the pass across the chain up the ice-fall of the Adish Glacier has no existence outside the five-verst map. But I think the surveyors were led to insert it by traditions at Adish of people of that village having traversed the snows without descending to Mujal. In the old days, when the Zanner Pass was used, a party from Adish might have crossed without much difficulty the ridge behind the village and descended by the Nageb Glacier to join the Zanner. When the countryside was in arms, village against village, such circuits may have been frequently expedient.

the chain. They chanted a ballad with a refrain of 'Thamara, Thamara,' in honour of their queen of six hundred years ago. So long do the echoes of far-off events resound in these remote fastnesses. Then they borrowed our ice-axes, dug themselves holes, and wrapping their *bouwkas* round them, fell fast asleep.

I felt happy and a little vainglorious in our tent. The success of the two preceding days was an encouragement to further undertakings. I planned with M. de Déchy how next morning we might descend to Dent's camp. Mutton was at hand, bread and letters might be sent for from Bezingi.¹ The upper glacier should be photographed; the pass to the Dykhsu explored; even Dykhtau might possibly be climbed. I looked out from our tent after the moon had risen: there was not a cloud in the sky. Dykhtau towered grandly in shadow opposite; the white cliffs of Janga caught the light. Our camp was silent, and there was no sound but the distant murmur of waters, or the rattle of stones disturbed by the mountain goats.

Dis aliter visum. When I next opened the tent-door at 6 A.M. an ominous scarf of mist lay low in the hollow under Shkara. I remembered that I had left my aneroid on the rocks near the stone-men. I strolled up the fifty minutes' ascent to recover it. I was determined to lose no moment of the strange scenery, and I had hopes, too, of seeing a wild goat, for the soft soil was everywhere marked by their tracks. Alas! clouds gathered quickly, and sleet had begun to fall when I returned to camp. By 8 A.M. the day was already hopeless. Grey wicked mists were creeping stealthily up below us along the great trench of the Bezingi Glacier. The rain had begun to fall in torrents, and there was nothing for it but to make valleywards.

A steep descent of fully 1500 feet brought us to the edge of the moraine, where we found the pastures dotted with white sheep and the black *bouwkas* of their shepherds. For several hours we had a laborious and depressing walk over a geological

¹ Naltshik is a post and telegraph station. We owed it to the courtesy of the commandant there that our letters were forwarded by special messenger to Bezingi.

muscum of specimens from all the ridges surrounding the great trench of the Bezingi Glacier. They were mostly varieties of granite, gneiss, and crystalline schists. That night we pitched our tent an hour's march below the end of the ice. Our evening was far from cheerful. Misfortunes crowded on us. Our Cossack was almost snow-blind and in great pain. Michel Dévouassoud confessed to having been badly frost-bitten on Tetnuld, and



VIEW FROM CAMP LOOKING UP BEZINGI GLAZIER

exhibited a very ill-looking foot. He had forgotten my instructions to bring well-seasoned boots, and had consequently suffered from a badly-made pair when no one else had been seriously inconvenienced by the cold. It is very difficult to make Alpine guides understand that in a distant journey success must often hang on care and forethought in minute details. François himself showed some signs of having exhausted his energy, and my companion talked of a trip to Basardjusi. Our crowning misery was that it was too wet to light a fire.

Next morning we were in a fog, but by 8 A.M. it was clear enough for me to take a long solitary walk up to the middle region of the Mishirgi Glacier—a glorious sanctuary no traveller's eyes had ever seen.¹ The ice has its origin in a far recess under Koshtantau, and flows in a noble curve under the tremendous northern cliffs of Mishirgitau and Dykhtau down to within a



THE CHIEF OF BEZINGI AND HIS FRIENDS

few hundred yards of the end of the Bezingi Glacier. I shall have more to say of it in describing my wanderings two years later.

Later in the day we rode down to Bezingi, where we installed ourselves in the dark, damp, and dirty hovel which serves as a guest-house. The village chieftain is a well-known figure to all

¹ M. de Déchy had, some years previously, photographed the range of Dykhtau from the lower part of the glacier.

Caucasian travellers, owing to his great height—about 6 feet 3 inches. His hospitality was scanty and expensive, but we forgave him for the sake of the bundle of English letters he produced from the interior of his dirty sheepskin coat, and a box of our provisions which had come up from Naltshik made us independent as to meals.

My next and last excursion with M. de Déchy before he left me was up the grassy glen, called Dumala on the five-verst map, which opens into the main valley above Bezingi, and leads up to the northern glaciers of Koshtantau. By one or the other of these glaciers I hoped to find a way to that summit. One more great peak I had set my heart on climbing. The scenery of the northern glens between the two branches of the Cherek is extraordinarily monotonous, considering their situation at the base of a mighty snowy range. They lie much higher than the Bezingi Valley, and are reached by a steep ascent. Where the torrent from the Ukiu glen falls in, a sharp snow-peak is seen for a moment. The horse-path up the main Dumala Valley passes several shepherds' Koshes. There are more cattle in this glen than I saw anywhere else in the Caucasus. The pasturages are divided by low stone walls, and each belongs, as far as I could learn, to a separate group of households. A track from a pass to Balkar falls in on the left where the valley, still a grassy trench between bare hills, bends sharply to the south and snows are seen at its head. About four hours' ride from Bezingi the end of a large glacier comes into view, flowing gently in its lower portion under the base of a fine wall-like range. Its source and Koshtantau are still round a corner and out of sight.

We encamped on a flowery plain a few hundred yards from the ice.¹ Next morning we climbed a high moraine, and reached the lower level of the glacier. A steep ice-fall descended from an upper platform surrounded by a horseshoe of cliffs; into this basin ice poured from two recesses, shut in between the eastern and northern ridges and a short north-eastern buttress of Koshtantau.

¹ This spot, subsequently the scene of Fox and Donkin's last camp, is now known as 'the English Kosh' to the natives.

As is frequently the case in the Caucasus, the difficulty appeared to be not so much on the final ridges, as in reaching them. Certain corners were not visible, but there was no practicable route—at any rate, no fairly easy route—recognisable. I had hopes that there might be a better way to the lower end of the northern ridge from the second, or Ukiu, glen, the mouth of which we had passed. Accordingly we rode back to it. After mounting the steep bank at its entrance we saw a sharp peak, with a blunt ice-crest on its left: I fancied the sharp peak might be part of Koslitantau foreshortened.

Whatever it might be, I made up my mind to climb the peak. M. de Déchy did not care to join me and rode back to Bezingi, while Dévouassoud, his nephew, and I, shouldered the light tent and what food there was remaining. We left a horse with the shepherds, trusting to pantomime for our future communications with them, and hastened on to the head of the Ukiu glen. A very steep, short ascent among beautiful mauve primulas, which elsewhere had been past blossom, brought us to a flowery brow, most tempting for a camp. We pushed on, however, half an hour farther, to a little plain, where the streams from two glaciers met at the base of steep rocks, the northern spur of our peak. The height of our camp was at least 9000 feet. Our rugs had been forgotten, and the cold consequently prevented me from sleeping; otherwise we were well off.

About two, as soon as the moon had risen, we started. The ascent of the wall of rocks in the shadow was awkward, but Dévouassoud hit off the right place with singular skill. On their top we emerged into moonlight. We were on a shelf laden with the most gigantic boulders I have ever scrambled amongst. These were succeeded by steep, hard snow-slopes, where Dévouassoud tested my skill in walking on the edge of my boots. We managed, however, to do without step-cutting, and climbed rapidly to the level of the basin of the western glacier we had seen from below. Under the bright orange sky of a strange dawn we found ourselves on a snow-plain, as level as a table, surrounded on three sides by high banks of ice and *névé*. On our left there was a

steep but easy way to the northern ridge of our peak—Ukiu. We cut steps up the frozen slopes, passing between some superb icicle-hung grottoes. Once on the ridge, we were already high enough to see Elbruz and Kasbek in opposite directions over the intervening mountains. No Koshtantau was in sight; for a few moments I still hugged my delusion that we were on his shoulder. A large glacier, which sends its stream to the glen we had camped in, was below us on the east; on its farther side rose a broad, steep snowy mountain—Ulluauz Bashi, conquered in the following year by Signor Sella. The ridge was easy for some way; then it was broken by a great rock-tower. We took to the left hand to turn it. When nearly round we were stopped by a big boulder, which blocked the obvious gully. I, as the lightest, proposed to get on a guide's shoulders and then haul up the others. My offer was scornfully rejected. However, our leader's attempt failed—at least, he found the rocks difficult enough to make me prefer to look elsewhere. I accordingly unroped and scrambled on my own account a dozen paces to the left. There lay our true road. It was not so much a ledge, as a great wedge projecting from the face of the cliff. It was possible with perfect safety to crawl along above this wedge for the few necessary yards and thus regain the crest above the tower.

We found ourselves in a gap, beyond which rose the final peak, steep, but not difficult, snow on one side, rock on the other, the ridge that faced us being snow-laden. The snow was in shocking condition and most unsafe; so we crossed at once on to the crags on the eastern face. Dévouassoud was out of spirits: he had hardly recovered from the two successive stiff days of Tetnuld and the Zanner, and preferred to wait on the sunny crags. He did not gain much, for he failed to find a perch broad enough to doze on in safety. His nephew and I scrambled on as fast as we could up the peak. There was nothing to stop us, though in the places where fresh snow lay some little care was necessary. The last rocks were the steepest; and then, sooner than we desired—for the broad summit across the glacier still overtopped us—we could go no higher. The ground fell fast and far in every direction. We

were hopelessly cut off from Koshtantau, as much so as a climber on the Gabelhorn is from the Weisshorn. The still maiden snows of the great peak smiled on us over the top of the broad snow-screen of Malatau in perfect safety from any attempts we could make.

I was very angry with myself for having made a topographical blunder, fatal to my ambition; but it was impossible to be out of temper long, the distractions and delights of the view were so many and so marvellous. Our peak, it was clear now, was one of those seen from the foot of the Mishirgi Glacier, for that ice-field lay beneath us, and beyond rose a prodigious crescent of cliffs, rising from east to west till they culminated in the castellated crest of Dykhtau. The northern face of that peak is one of the most superb precipices of ice even the Caucasus can show. The only view of a great mountain in the Alps I know worthy to be compared with this aspect of Dykhtau is that of Mont Blanc from a little peak too seldom visited, the Tour Ronde at the head of the Glacier du Géant.

We saw Gestola, Tetnuld, and across the chain Ushba, and of course the gigantic bulk of Elbruz. The long Urubashi spur between Chegem and the Baksan was admirably displayed: three great glaciers streamed from broad *nécés* lying at the base of moderate peaks, which I have since learnt from General Shdanov are respectively 14,673 feet, 14,868 feet, and 14,497 feet in height. To the east much of the main chain was hidden by the glacier group north of the Urukli. The peak I sketched in 1868,¹ Giulchi, was conspicuous. Far away, Kasbek stood up between two supporters, Gimarai Khokh and another.

The view was interesting also in its glimpses of lowlands and valleys. Bezingi itself, with the gorge leading to it, was in sight. Beyond the northern limestone screen, a broken line of long castellated heights, I recognised clearly the far-off hills of Piatigorsk, rising island-like above the rolling steppe.² Away to the east the

¹ *Central Caucasus*, p. 411.

² Ukiu is shown between Dykhtau and Koshtantau in my sketch from Piatigorsk, made in 1868. See *Central Caucasus*, p. 381. The Koshtantau of the upper sketch on the same page is Shkara.

fertile plain round Vladikavkaz shone in sunshine. Suddenly a white cloud rose from the great precipices opposite, and a prolonged roar broke the silence of the upper air. An ice-cliff was falling in a thousand fragments on to the Mishirgi Glacier from the precipices of Dykhtau.

At the southern end of the snow-crest that crowned the peak there were some loose rocks, to which my companion retired to build a stone-man. I lingered long over the view: the sunlit snows were so beautiful, the mountain forms so sublime, that it was hard to leave them. Far beneath the rivers sprang from their icy cradles, flashed in the depths of their forest-fringed ravines, or shone thin lines of silver, as they wandered out beyond the green foot-hills into the luminous distances of the northern steppe. Close at hand, and far as the eye could reach, the great peaks of the Caucasus rose like 'whiter islands' out of the untraversed sea of air. Before me, in its austere and stately splendour and perfect purity, was spread one of those great mountain landscapes in which the primitive powers of nature that were ages before, and shall be ages after, the race of men, seem to assert their independence of our brief consciousness, and at the same time to vindicate the permanence that underlies mutability. One felt for the moment uplifted: brought, as it were, spiritually, as well as materially, to the verge of some strange Promethean prospect. As in a starry night on a desert plain, but more forcibly from the utter strangeness of the spectacle, the mind at such seasons is carried away from the accidents of human life, and set face to face with the order of the Universe. It grows conscious of the throbbings of an imperfect sense or faculty by which it recognises a spirit kindred to its own underlying Nature. The vision, it is true, soon fails; the veil loses its momentary semi-transparency. But the memory of the sensation remains distinct when much else is forgotten. How far are such experiences insight? how far idle phantasy? That is a matter in which philosophers must be left to differ, and poets to feel.

But 'feet, feelings, must descend the hill,' even though the fall be from the palaces of nature to the hovels of 'cold, insipid, smouchy Tartars.' After a long revel in light and space and

splendour I remembered the probable impatience of François and the certain distance of Bezingi.

Where loose snow lay we had again to look carefully to our foothold. But the peak was safe enough for climbers who knew how to pick their way. We soon rejoined my old comrade, circumvented the tower with the proverbial contempt of familiarity, and then varied our descent by a 'new route' down a steep face of snow and rocks to the eastern glacier. Here and there I found flowers at a height of at least 13,000 feet. The specimens I preserved were unluckily lost out of a pocket-book. The scenery of the glacier was very fine: Ukin and the broad mass of Malatau and Ulluanz Bashi towered grandly on either side. The ice ended in a horrid wilderness of moraines and rocks and torrents, beyond which our tiny tent seemed like home. We spent but little time in packing it up and shouldering our belongings, and an hour later reached the Koshi, whence without difficulty we started a shepherd boy to capture our horse. In due time the animal was caught and laden, and I grieve to have to confess that I added myself at intervals to its load. We pursued steadily the long but easy descent to Bezingi, which we entered at 7 P.M. The chief's son was waiting for us at the guest-house. I succeeded in expressing, in some intelligible form, an intention to start early on the horses M. de Déchy had ordered for us. Next morning, at 4 A.M., I repeated my scanty phrases, and, strange to say, by 6 A.M. we were actually on the road.

Mr. Donkin, owing to the rain which persecuted him, was not able to say enough of the charms of the little pass over the shoulders of the hills to Naltshik. From its broad grassy crest there is a singularly beautiful view of the snows, framed in the cleft of the limestone gorge, which forms a gateway to the mountains, and the leagues of rolling foot-hills—one vast forest—into the recesses of which the path soon plunges, present a landscape novel, if less attractive, to the eyes of a mountaineer. A more characteristic passage to or from the highlands of the Caucasus can hardly be chosen.

CHAPTER XIV

MOUNTAINEERING IN 1888

DYKHTAU AND KATUINTAU, BY H. W. HOLDER

The joy of life in steepness overcome
And victories of ascent, and looking down
On all that has looked down on us, and joy
In breathing nearer heaven.

TENNYSON.



At the close of the season in 1887 the attack on the Central Group of the Caucasus had only been opened. Some minor successes had been won, some of the outposts of the great fortress had surrendered, Gestola and Tetsuld, two summits loftier than Mont Blanc, Ukiu, a crest of over 14,200 feet, had been trodden by human feet. But the three citadels all held out, Shkara, Dykhtau, Koshtantau, and half a dozen peaks higher than any that had yet fallen in this part of the chain remained unvanquished.

The climbs already accomplished had, however, pointed the way to further victories. The separate individuality of Shkara and its two great neighbours had been made clear; they were definitely put in their proper places on the map. The approaches to them had been proved to be practicable. Consequently, in 1888 the great peaks of the Caucasus were assaulted seriously,

and with one exception they were conquered. Before the snows of winter fell, Dykhtau, Shkara, Janga, Katuintau, Mishirgitau, Salynan Bashi, and, outside the Central Group, one of the peaks of Ushba and Dongusorun had felt the dint of English ice-axes. On Koshtantau Mr. Donkin and Mr. Fox had disappeared and left no tidings of their fate.

The first ascent of the southern face of Dykhtau by Mr. Mummery was one of the most brilliant rock-climbs ever effected, and it has not yet been repeated. That Mr. Mummery's life should have been cut short by an accident on a Himalayan slope, which was probably in no sense difficult, is one of the lamentable ironies of life. Lamentable in one sense indeed, yet there may be some satisfaction in the knowledge that it was in no attempt of desperate daring, through no impatience of the common rules of the craft, that the great climber lost his life.

Eighty-eight was the *annus mirabilis* of the Caucasus. The story of all its 'victories of ascent' would be too long to tell in detail. Are they not written, more or less at length, in the *Journal* of the Alpine Club? Mr. Mummery has given independently a vivid account of his Caucasian experiences. In these volumes, the first object of which is not to accumulate adventures, but to furnish varied and faithful pictures of a new country, I must limit myself to a selection from matter new to the general public. Mr. Holder's climbs of Katuintau, and of Dykhtau by its northern ridge, Mr. Cockin's ascents of Shkara, Janga, and Ushba, seem to me expeditions typical of the hard-won successes of Caucasian travellers. Their kindness enables me to vary these pages by putting before my readers the spirited accounts of their adventures and life in the mountains, originally given by them to the Alpine Club. The narrative that fills the rest of this chapter I owe to Mr. Holder.¹

In the summer of 1888 I was induced to organise an expedition

¹ The following pages are extracted and condensed from Mr. Holder's paper in the *Alpine Journal*, vol. xiv. No. 103.

to the Caucasus by the discovery that there was a young Armenian studying at Owens College, Manchester, who gave me to understand that he spoke Russian, Turkish, and several Georgian dialects, and would rejoice to serve as interpreter to an English party. When the time came my Armenian friend found himself unable to accompany us. I had, however, secured the companionship of my friends Mr. H. Woolley and Mr. J. G. Cockin, as well as of the Swiss guides, Ulrich Almer and Christian Roth. An interpreter—Rehfeldt by name—was ultimately picked up at Taganrog.

On August 11th, 1888, the train from Rostov brought to Kotlarevski this party of three English and two Swiss climbers. Our experiences, after leaving the railway, were very similar to those described by other travellers in this region. We drove in three telegas (rude four-wheeled carts without springs) across the flat uninteresting steppe, almost smothered by the most dense clouds of dust that I have ever seen. It was after dark when we arrived at Naltshik, where we obtained admission to the house of a certain Michael Sergevich Michaelov. A couple of good rooms were placed at our disposal, but there was only one small bed, so that most of the party were compelled to spread out their blankets and sleep upon the floor.

In the course of the next day we called on the *Nachalnik*—an act of civility on no account to be omitted by visitors—and repacked our goods in saddle-bags and bundles for conveyance to Bezingi. We engaged as guide a Tartar named Mohammed Abajevoh, and, having agreed with him for the provision of horses for the next day's march, strolled about the little Russian town, enjoying the views of the distant snow-clad mountains, which now sparkled in brilliant sunshine.

The next morning we found the need of that 'infinite patience' which Mr. Donkin has pointed out as the 'greatest requisite of all' for visitors to the Caucasus. We had ordered ten horses, and they had been promised for 4 A.M. At four punctually Abajevoh appeared. I was sleeping soundly, and when aroused expressed my doubts about the punctual fulfilment of the contract. Woolley

upbraided me as a laggard whose faithlessness was inspired by sloth. 'The horses are there,' said he, 'tethered to the railings.' I looked through the window, and in the dim light saw that his assertion was not without some foundation. We all got up, gulped down our coffee, hurriedly finished our packing, and prepared to start. Then we discovered how shamefully we had been deceived. There were only four out of the ten horses promised. After a little while two or three more appeared; a mule followed. After our tale of horses was complete there were the usual interminable discussions concerning the apportioning of the loads—the natives quarrelling amongst themselves and urging upon us the necessity of additional horses—so that it was 8.30 before we had fairly started.

The journey to Bezingi was not pleasant. The saddles were far from comfortable; the stirrups were strapped up at shorter lengths than we found convenient, and the buckles were so stiff that the evil could not be remedied. Cockin soon decided to abandon his horse and walk. There were frequent halts, ostensibly for the purpose of rearranging the loads. But we were suspicious of other motives, and considered it prudent to be always present when such rearrangements were carried out. We most of us walked and rode alternate stages. Our interpreter had a sorry time. He was unaccustomed to walking and ill provided with boots, so that when he walked he was soon footsore and weary. He was equally unaccustomed to riding, and when he rode the results were not of a more satisfactory nature. A heavy thunderstorm came on just as we were at the steepest part of an ascent through a dense wood. When the storm was at its worst the horse carrying the tent fell, and its burden rolled off. There were growls and mutterings besides those of the thunder.

About 6 p.m., however, we arrived at the picturesque glen of the Karasu, charmingly situated at a point where that stream joins the Cherek, and here we decided, or rather it was decided for us by the inability of the horses to proceed farther, to spend the night. There is a cowherd's Kosh or shelter at Karasu, where

we got buttermilk, fresh milk, and a bed of hay. The proprietor of this Kosh desires us to recommend it to our English friends. Well, the milk is good, the charges are not high, and the shelter is quite as well constructed as, say, the old hut on the Weisshorn. By all means, if you get benighted at Karasu, stay there: for there is nowhere else to stay.

The next morning there was the same delay in getting off—



THE BEZINGI DEFILE

the same need of infinite patience. The natives will chatter. 'I see,' said Ulrich, 'these men always talk two hours before they walk.' But they can go, when once you get them started. We did get off at last, and after innumerable halts for the readjustment of the loads, and for the purpose of giving Rehfeldt (who was by this time in a most unhappy frame of mind) frequent rests, arrived at Bezingi about noon—the tedium of the journey having been relieved by the grand character of the ravine through which our way led us for a considerable distance, and by fine views of Katuintau, the 'Saddle Peak,' in the distance.

Civilisation is beginning to exercise its influence on this remote village. The spirit of competition has crept in. The tall Starshina expected to entertain us, and waited, with his retainers, to receive us on our entrance to the village. But we were beguiled to the house of another important man (Doulet-Kari-Sujunshef), whose son, a youth of seventeen or eighteen years of age, had accompanied us from Naltshik. His house boasted a wooden floor and an iron roof, and the accommodation provided was certainly of a more satisfactory character than that obtainable from the Starshina. All arrangements had been made for our reception, young Sujunshef having ridden on home the previous night. Carpets were laid upon the floor; cushions and mattresses were brought into requisition. There was a profuse display of the art treasures of Bezingi, and every appearance of comfort. We were hospitably entertained, though, as we regaled ourselves on the verandah with the buttermilk, tea, cakes, butter, and cheese, and later in the evening with the mutton which had been specially provided for us, we discovered that the natural vigour of the curiosity of the people of Bezingi had not abated.

In the afternoon we called on the Starshina, who had donned his robes of state—his ordinary dress is a very dirty old sheepskin frockcoat—and was evidently expecting visitors. At our request he sent for the hunter who had been engaged by Mr. Mummery a little earlier in the season. Then, having arranged for porters and horses for the continuation of our journey on the morrow, we turned in for the night. I will not enter into details concerning our experiences, but will merely suggest to all who propose to visit Bezingi that it is of the utmost importance that they should carry with them something more effective than the best insect powder obtainable in England.

At eight o'clock on the morning of August 15 we started for the glacier, having settled, as we understood, that we should be conducted to Dent and Donkin's upper camp. We followed the left side of the stream till we reached the snout of the Bezingi Glacier. Then the loads were transferred from the horses, which had been able to get to this point without difficulty, to the

porters. A mule and a donkey, however, crossed the glacier with their loads, and went with us as far as the porters were willing to go.

Following the moraine on the right of the glacier, we arrived about four in the afternoon, in a thick mist, at a cave or Kosh, called by the natives the 'Missess Kosh,' which we were assured was our destination. Had the afternoon been clear, we should



THE MISSESS KOSH

probably have insisted on being conducted to a much higher position, and we frequently regretted afterwards that our headquarters were so low down. The Kosh was about 8400 feet above the level of the sea, and some 500 feet below (and on the opposite side of the glacier to) the camp of Dent and Donkin two years before. We pitched our tent, and after our first evening meal in our new quarters I proposed that, as we intended to follow Dent and Donkin's route, and consequently need not waste time

in reconnoitring, we should sleep out the next night and try Dykhtau. The proposal was greeted with enthusiasm and unanimously adopted. For we were all keen to attack this peak, in which our interest had been aroused by the descriptions of previous travellers. We thought it a virgin peak. And I am sure my readers will not be surprised if I confess we experienced some disappointment when we learnt from the hunter—so far as we could understand him—that Mr. Mummery had been there not many days before, ‘had slept out one night and had climbed Dykhtau; had slept out two nights and had climbed Kosh-tantau; and had slept out again one night and had climbed Gestola.’¹ The hunter’s assertion seemed to derive some confirmation from the discovery, the next morning, of a label bearing Mr. Mummery’s name. This, however, did not deter us from the execution of our project, and so, at 2 P.M. on the 16th August, we started as had been arranged.

We moved somewhat slowly over the level glacier, leaping the few crevasses which came in our way, drinking in new and wonderful impressions from the indescribably majestic mountain scenery, and experiencing more and more as we rose higher and higher the exhilarating influences of the magnificent climate. About 4 P.M. we passed Dent and Donkin’s camp. Then we took to the ‘long and level’ moraine on the glacier’s right, and soon got a view of the whole range of mountains from Shkara to Gestola. We pushed on past a slight shelter on the moraine which the hunter assured us had been Mr. Mummery’s sleeping-place, and, taking to the right moraine of a tributary glacier, and ascending its scree, came at 6 P.M. upon a place of rest very little above the fall at the junction of the ice-streams. There was not much shelter. But a huge boulder afforded some protection from the wind. And by the erection of a low stone wall we secured a fairly comfortable place in which to spend the night.

The next morning we made a good start, getting off at 3.30 A.M.

¹ The foundation for this story was that Mr. Mummery had climbed the south-west spur of Dykhtau, the peak itself, and crossed the Zanner Pass.

We proposed, as I have intimated, to follow the route taken by Dent and Donkin. We had accomplished the 'easy bit of rock climbing,' and got 'out of the range of the *séracs* of the small hanging glacier,' to which reference is made by Mr. Donkin,¹ by 5.15; but we made no halt till we reached, half an hour later, some rocks which lie a little below the *Schrund*.

From this point we met with no serious difficulty till we came to the belt of 'ochry-red' rocks. But here our troubles began. For some little distance we worked steadily up the south-western ridge. Then a rock-tower, covered with ice, blocked our way. We successfully turned this, but another came into view. There was a suspicion of more towers beyond. Ulrich unroped and reconnoitred, to save the whole party a fruitless climb. Shortly he returned with the gloomy intelligence that further progress in that direction was impossible. We moved towards the right on to the south face of this south-western ridge, and ascended again. The white granite rocks lying immediately above the ochry-red layer were good for a short distance, but soon large smooth slabs covered with ice compelled us to descend. Another ascent, and another check of the same kind. Then we attempted a traverse, though from the character of the rocks and the size of our party it was a dangerous experiment. But all was of no avail. There was no help for it but to descend several hundred feet and try a longer circuit to the right. We probably lost at least two hours in these fruitless efforts. At last, however, after bearing some distance farther to the east, we hit upon a promising line of ascent. A small *couloir* helped us for a time, though as it was full of ice we could not spare the time to cut our way up it. We kept to the rocks on its true right as much as possible; these were generally very loose, and sometimes difficult. Still we had hopes of reaching the summit.

But our work did not seem to tell on the great peak above us. Gradually our pace grew slower. The day wore on, and we began to wonder whether, after all, we should be successful. We

¹ *Alpine Journal*, vol. xiii. p. 247.

crossed to the left of the *coulouir*, and soon reached a ridge west of the peak, and nearly, at the point at which we stood, on a level with the summit of Gestola (about 16,000 feet). We looked up and saw at least 1000 feet of rock above us, whilst a difficult traverse had to be effected before we could make a fair start, and the true top might, moreover, be some hundred feet behind the highest point in view. 'Can we do it?' I asked. 'It will take us at least three hours,' said Ulrich, leaving us to draw the inference. It was 1.30 P.M. We had been hard at work for ten hours, and, this being our first climb, we all showed indications of fatigue. Although the weather was fine there were clouds floating about, and we remembered the experience of our predecessors as they descended the same mountain. Three more hours! It would then be 4.30. And even then there might be stiff climbing to be done. It would be dark by 7. Evidently, if we reached the top, we could descend but a very short distance before nightfall. And suppose those clouds meant mischief? I do not know who was bold enough to be the first to say, 'I think we had better return,' but we all recognised the wisdom of the suggestion, and determined to retrace our steps. Slowly and sadly we descended, the loose stones, which it was impossible to avoid dislodging, making progress dangerous. We reached our sleeping-place at 9.30 P.M., and now became the victims of a misplaced confidence. When we started in the morning we thought the splendid rocks of the face towards us would 'go' anywhere. 'We can make the summit in seven hours,' was Ulrich's prophecy. So we had sent the hunter back to the tent with our sleeping-bags and cooking utensils, feeling certain that we should get back to Missess Kosh before nightfall.

Here we were, with night upon us, at a height of about 11,000 feet, without bags or rugs, and with very little food. There was no help for it, however. We lay down, huddled together, under the shelter of our boulder and wall, and for three or four hours slept peacefully and soundly. Then, at earliest dawn, we started somewhat disconsolately for our tent. What had we gained? We had learnt, what Donkin had tried to teach, but what only such

an experience could make us realise, how great were the distances and how deceptive the appearances among these huge mountains of the Central Caucasus. We had learnt something of the character of the work before us. We had discovered that mountaineering in the Caucasus, at least under existing conditions, is a very different thing from mountaineering in the Alps.

But we were not to be daunted by one failure. We did not, however, like the 'fag' round to the southern side of the mountain, and had therefore all been on the look-out for a more satisfactory route. It was suggested that the northern ridge might be feasible. Consequently, on the morning of the 19th, Almer, Woolley, and I crossed the glacier to reconnoitre. We came to the conclusion that though here and there we might meet with serious difficulties, yet these difficulties would probably not be insurmountable, if only the real top were not cut off from the northern ridge. And this could only be tested by making the attempt.

So at 2.30 in the afternoon we started. Following the moraine on which our camp stood, we soon came upon the Missess Glacier, and at once struck up the middle of it, finding the ascent steep but easy. At 5.25 we had arrived at a ledge of rocks on the right of the glacier, which seemed to be a convenient place at which to spend the night. I may perhaps state here that this ledge can be more easily and more quickly reached by ascending a *couloir* which is passed before the glacier is struck. Only, in a wind, the *couloir* is raked with stones. We descended by this route, and did not enjoy the experience. Our sleeping-place was, as registered by the aneroid, 500 feet higher than our sleeping-place in our previous attempt. This was so far in our favour. As we were by this time getting accustomed to the luxury of a hard bed, we spent a better night, and in consequence were somewhat late in getting away on the following morning, not leaving till 4.45. We crossed the glacier to our right, and arrived quickly at some scree and rocks, which lay immediately under the depressions in the ridge which we hoped to gain. We worked straight up these, having now and then a short bit of really good rock climbing, and then, to avoid the *séraes*, which did not look

promising, kept close to the rocks which bound the ice-fall on its right. We were really in a sort of cleft, with ice on the right hand and rocks on the left. This was the most disagreeable part of the whole climb. Step-cutting was frequently necessary. Though early in the day, water came trickling down, causing us considerable annoyance. Occasionally the steps gave way as the second or third man set foot on the rotten ice. Ultimately, however, all difficulties were surmounted, and we gained the snow-slope above the ice-fall. The slope was very steep, and steps had to be cut the whole way up to the depression in the ridge. We reached this gap at eight, and stopped for breakfast. Below us was the Mishirgi Glacier. To the right rose the precipitous north face of Dykhtau, and the 'extraordinarily steep range connecting it with Koshtantau.' Directly opposite to us was Koshtantau itself, half hidden by mists, which prevented our forming any opinion as to its accessibility on this side: to the left of Koshtantau rose Ullauz Bashi and Ukiu.

After breakfast we commenced our attack on the ridge. First we ascended a snow-slope to the right of the actual crest. On the lower part of the slope, where the gradient was slight, we experienced no difficulty, as the snow was hard and easily traversed. Then, as the gradient became steeper, steps had to be cut. As we neared the crest again the snow became light and powdery, and climbing was difficult and tiring. Clouds collected and concealed all the summits, and a cold wind began to blow. Cockin's hat had been carried away on the Missess Glacier, and before we gained the ridge Woolley's had also taken flight. The crest was reached at 9.35. We worked steadily up the ridge for nearly $1\frac{1}{2}$ hours, and then halted at the foot of a snow-slope for a short rest. Here the guides left the sacks, and we began to plough up the loose snow. At the top of the slope a bit of rock presented itself, which was smooth, steep, and really difficult, but fortunately free from snow and ice. There was only about one hundred feet, but we all treated it with the greatest respect. Above this the crags of the crest were half-covered with snow, and needed care the whole way. A little after one o'clock

we sighted a snow-peak, which we at first thought must be the summit. We pressed on until we stood on it. Then we discovered that the true top was still in front, and separated from us by a depression of from fifty to one hundred feet. This was composed of jagged dark rocks, almost free from snow on the side turned towards us, and surmounting the highest crag was a slender cairn. The hunter was right, then—Mr. Mummery had been the first to climb Dykhtau. We hurried on, scrambled up the rocks, and at 2.5 P.M. stood upon the top of this noble peak.

We did not stay long. The wind was bitterly cold. The clouds looked more and more ominous. For a moment the top of Koshtantau was visible, and by the clinometer was seen to be somewhat lower than the height on which we stood. We hastily gathered a few stones, scribbled on our cards an intimation that on August 20, 1888, we had climbed the mountain by the northern ridge, deposited them in a sardine-box, and then began rapidly to descend. By 6 P.M. we had arrived, without special incident, at the place of our morning's halt. We rested for a short time, and then started down the snow-slopes. But how were we to get over the ice-fall? Our morning's route was certainly impracticable so late in the day. Our best course, probably, would have been to have descended by one of the *coulloirs* to our sleeping-place. But certain garments and other articles had been left on the glacier at the foot of the cleft, and this fact led us, in an evil moment, to decide on venturing down the rocks to the north of the cleft. It was possible these rocks would prove practicable, and in that case they would serve our purpose admirably. For a short distance all went well. Then, as the darkness deepened, our difficulties and our dangers increased. The character of the rocks was, of course, unknown, and we had nothing to guide us as to the best line in which to move. We were compelled to use the utmost caution. The rocks proved loose, and huge stones, dislodged by members of the party, frequently went crashing down hundreds of feet. Twice it was necessary to bring into requisition a smaller cord to steady us over steep faces of rock on which sufficient hold

could not be found. It would, doubtless, have been bad enough in daylight, but in the dark the peril was extreme. More than once it seemed doubtful whether we should not be compelled to halt, resting on some narrow ledge, and wait for dawn. We did, however, steadily continue to descend. By-and-by we reached a chimney filled with snow. There were indications that, while in it, we should be by no means safe from falling stones. But we lost no time, and, without accident, reached our sleeping-place at 10.45 P.M. and turned in for the night. Our camp was regained by the lower *couloir* to which I have previously referred at 10.30 on the following morning.

At the tent we found Sujunshéf, our Bezingi host, and another native of unprepossessing appearance, who had brought in a couple of chamois. These they skinned and ate, and though they unhesitatingly made use of our cooking utensils we were not invited to share in the feast. In the afternoon the wind dropped, but a thunderstorm with heavy rain came on, which lasted all the evening, and we experienced certain disadvantages of life in tents and Koshes.

At 2.25 A.M. on the 24th we started for Katuintau. The moon shone brightly, and we had no difficulty in making our way along the glacier. In two hours we were at the foot of the rocky north-east face, up which we had decided to try to force our way. For ten minutes we mounted a slope of avalanche snow which fills a bay in the cliffs at the head of the very centre of the Bezingi Glacier, then turned an easy corner, and took a short jump on to good firm rocks on the left. We went straight up these crags, which for a short distance afforded fair climbing, then over loose stones and up a short steep snow-slope to more firm rocks, where, at 5.45, we breakfasted at a height of 11,800 feet by the aneroid. The weather was still cloudy and unpromising, and we had no great hopes of success. However, after a short halt we struck up the rocks, and for $1\frac{3}{4}$ hours were working alternately up steep snow-slopes, where steps had to be cut, and safe rock. Then after forty minutes along a snow-crest and over a little moraine, we came upon our first serious obstacle in the shape of a big

crevasse, which was overhung by masses of ice, broken as usual into fantastic *séracs*. At this point five chamois and a goat, which had retreated before us up the rocks, circumvented us by scampering down the avalanche debris on the slopes to the left, and so regained the rocks up which we had climbed. The crevasse gave us a little trouble. But Roth cleverly conquered all its difficulties. A few steps up a steep wall of ice landed each member of the party successfully in a kind of ice grotto. At the entrance to this grotto there stood a strong column of ice supporting huge bosses above, and by holding firmly on to this column with one arm and swinging forward the first step on to the upper lip of the *Schrund* could be reached. It was then only a question of two or three steps round an awkward corner to a place of safety. It needed caution and showed skill and enterprise on the part of the leader, but by 9.20 the last man was over; and, after another twenty minutes' step-cutting over hard snow, we halted again for about half an hour.

From this point we worked straight up, step-cutting being necessary the whole way, by a succession of snow-slopes, under arches and between *séracs* of rotten glacier; Almer, who was now leading, preferring this shorter and more interesting, though more difficult route, to a long detour to the right, over what seemed to be only a monotonous snow-slope.

At 12.25 we had reached the top of the first plateau, and saw before us snow-slopes gently ascending to the south-east and south towards the summit of the Saddle Peak; whilst to our right they first sloped downwards, and then ascended towards the cone of Gestola. We turned to the left, and got well on to the second plateau at 1.10 P.M. Cockin, who was unwell, remained on this plateau till our return. From this point the snow was deep, and very soft and powdery, and our progress was slow and wearisome. For three-quarters of an hour we toiled up the western face of the ridge; finally, we got on to the crest, where we found the rocks generally covered with the same kind of snow; and in half an hour more, at 2.25 P.M., we reached the summit. It was very cold, and there was no view beyond occasional glimpses of the Adish Glacier,

the southern ridges of Janga, and Gestola. Tetnuld and all the other peaks were entirely hidden by the mist. We only stopped long enough to build a cairn and take some food, and at 3.5 were on our way down again. Comparing the summit with that of Gestola, we estimated that the height must probably be about 16,500 feet (16,296, Russian Survey). We varied our route but little on the return journey, except that we kept as much as possible to the snow, which was now in admirable condition for the descent. We reached the Bezingi Glacier at 6.45, and, with the aid of a lantern, arrived at camp at 10.10, having had some trouble with the *sérvacs* near our tent. I cannot be certain about the local name for the Saddle Peak. Young Sujunshef, our most intelligent informant, called it Kartantau, or perhaps Katuin Tau, a name which appears in Koch's map of the Caucasian Isthmus. But he, with all the other natives, had previously referred to the whole of the range from Gestola to Shkara as Janga.

On Saturday (25th), we received the following letter from Mr. Donkin—probably the last, alas! that he ever wrote:—

‘ BEZINGI, Friday, August 24.

‘DEAR SIR,—Having arrived here this afternoon from Chegem, and hearing from your interpreter that you are in camp on the glacier, and that some one is going up to you to-morrow, I send a line to say how much interested I am to hear that you have had some success, and I hope that the weather may mend and that you may be able to do all you wish. I am here with Mr. Fox only; Mr. Dent was unfortunately obliged to leave us at Betsho, not being very well, and is returning home *via* Moscow. We have climbed Dongusorun, and traversed a new and splendid pass from Urusbich to Chegem—both in perfect weather. We are bound for Balkar and Gebi, and thence home by Batum, hoping to see something of the Dykhsu Glacier on the way. If we cross the pass on to the head of the Bezingi Glacier, we may perhaps meet; but probably you may not stay so long. Our guides are Kaspar Streich and J. Fischer, of Meiringen. We leave this to-morrow. With kind regards, I am, dear sir, yours faithfully,

‘ W. F. DONKIN.

‘At Betsho we had two good tries at Ushba; the first time we were

driven back from the great *couloir* by avalanches; the second time we reached the vertical cliff by the south *arête*. We could see no way up without more artificial aid than we had; indeed, I never saw a more forbidding precipice. Under good conditions the north peak should be accessible by the *couloir*.

‘W. F. D.’

‘H. W. HOLDER, Esq., Bezingi Glacier.’

CHAPTER XV

MOUNTAINEERING IN 1888: *Continued*

SHIKARA, JANGA, AND USHBA. BY J. G. COCKIN

ΕΡΜ. Ἴδοῦ δὴ, ἐπάνειμι αὖθις· εὖ ἔχει· πάντα ὄρω· ἀνάβαινε ἤδη καὶ σύ.

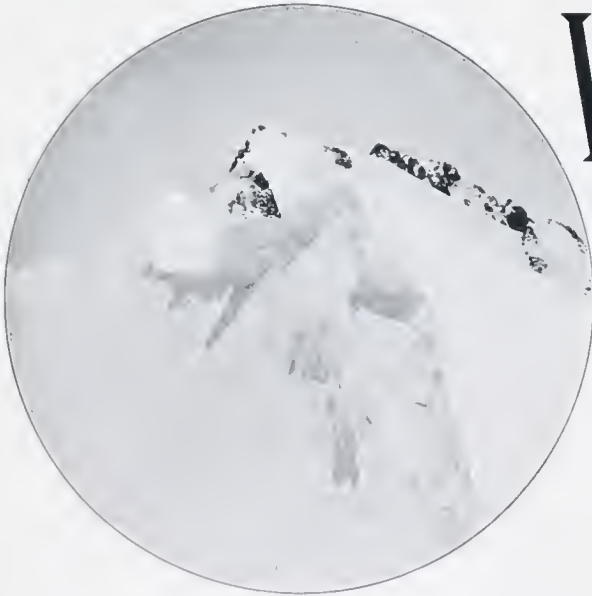
ΧΑΡ. Ὅρεξον, ὦ Ἑρμῆ, τὴν χεῖρα· οὐ γὰρ ἐπὶ μικράν με ταύτην τὴν μηχανὴν ἀναβιβάζεις.

ΕΡΜ. Εἶγε καὶ ἰδεῖν ἐθέλεις, ὦ Χάρων, ἅπαντα· οὐκ ἔνι δὲ ἄμφω καὶ ἀσφαλῆ καὶ φιλοθέαμονα εἶναι· Ἄλλ' ἔχου μου τῆς δεξιᾶς, καὶ φείδου μὴ κατὰ τοῦ ὀλισθηροῦ πατεῖν· Εἶγε, ἀνελήλυθας καὶ σύ, καὶ ἐπεὶ περ δικόρνυμβος ὁ Παρνασσός ἐστι μίαν ἑκάτερος ἄκραν ἐπιλαβόμενοι καθεζόμεθα. Σὺ δέ μοι ἤδη ἐν κύκλῳ περιβλέπων ἐπισκόπει ἅπαντα.

ΧΑΡ. Ὅρω γῆν πολλήν, καὶ λίμνην τινὰ μεγάλην περιῤῥέουσαν, καὶ ὄρη, καὶ ποταμούς τοῦ Κωκυτοῦ καὶ τοῦ Πυριφλεγέθοντος μείζοντας, καὶ ἀνθρώπους πᾶντο μικρούς, καὶ τινὰς φωλεοὺς αἰτῶν.

ΕΡΜ. Πόλεις ἐκεῖναί εἰσιν, οὓς φωλεοὺς εἶναι νομίζεις.

LUCIAN.



WHEN Woolley and Holder were obliged to return to England, I decided to stay behind with the guides for further climbs.¹ Early on September 5 my friends, with Rehfeldt, their interpreter, rode away from the village of Bezingi, escorted by the chief's son, whom Rehfeldt declared to be the only honest man in Bezingi. I stood

watching them until they were hidden by a bend in the path.

¹ The following pages are reprinted from Mr. Cockin's article in the *Alpine Journal*, vol. xvi. No. 122, with a few alterations.

Then I turned up the valley in an unwontedly sentimental mood, feeling half sad at losing my companions, half Crusoe-like, 'monarch of all I surveyed,' in that I had the Caucasus all to myself for climbing.

I decided to keep the tent where it had originally been pitched, close to the Missess Kosh. The situation had disadvantages. There was no pure water, the nearest spring, ten minutes off, having failed, so that we had to use the glacier water, and that was muddy. Then there was a long walk to the foot of the climbs I wished to attempt. Higher up, however, we should not have been sure of a full and constant supply of firewood, and there would have been, too, no shelter against wind and rain for the guides when cooking. It became increasingly cold in September, and the worst fault of our camp was that Missesstau kept off the morning sun till late.

On the 6th my guides, Almer and Roth, and I, all well laden, walked slowly for four hours and a quarter up the glacier to a sleeping-place for Shkara we had marked when Holder and I, with Almer, came back from the Dykhsu Pass. The valley mist that rose on most afternoons followed us, black and wall-like, as far as the fork of the glacier, and in the eastern arm snow floated thinly in the air. The one cheering event of a gloomy and unpromising afternoon was our discovery of a plot of fresh and delicate flowers where a few days before snow had covered the moraine. Our sleeping-place was on a ledge at the foot of the rocks at the end of the ridge which descends from the rock-peak east of Dykhtau, now known as Mishirgitau.

The highest point of Shkara is supported by a great buttress conspicuous in photographs. From the east end of the mountain a ridge, the base of which rests on the Dykhsu Pass, curves to the north-east or north, and encloses between itself and the buttress a nearly level field of *névé*, the source of a considerable lateral glacier which falls into the Bezingi Glacier over a steep slope having a deeply rent ice-fall on its right side. Our object, as our route was planned by Almer, was to mount by this glacier to the crest of the ridge between the Dykhsu and Bezingi basins,

and follow it to the top, the more direct way by the buttress being out of the question, as its rocks were covered with ice.

Just as we were creeping into our sleeping-bags a horrible noise arose on the rocks, as of mixed screaming and the grinding of a cart with the brake on. I thought it was made by birds who had spied out our provisions. Roth murmured of brigands, while Almer said it was a marten; and as we afterwards found, in descending from Janga, tracks on the snow which the guides declared to be those of a marten, Almer was probably right.¹

We had rooted out every stone bigger than a nut from our rock-bed, which was, in consequence, so comfortable that we overslept ourselves, and did not make a start the next morning until 4.55. However, that Swiss sage Almer comforted me and vindicated himself with, 'Let me tell you, Mr. Cockin, that it is better to start fresh after a long sleep than tired after a short sleep.'

The morning was clear and cold, and as we walked sharply across the Bezingi Glacier the sun's rays shot up above the Dykhsu Pass, flushing with pink the top we aimed for. We took to the left of the side glacier, as less crevassed than the right, and made good progress, Almer having occasion every now and then to chip steps, until we reached the upper ice-fall. The ice-waves here were the highest I ever saw. After cutting up the face of one wave only to find we must come down again, we discovered a way through by winding about in the troughs until, close to the buttress, the rocks of which were sheeted with black, transparent ice, we gained the even surface of the upper glacier.

Under a fallen block of ice, as big as a cottage, we breakfasted. Many similar blocks lay on the snow. We crossed the glacier to our left to the foot of a snow-slope leading up to the desired ridge. As far as the breakfast place the motion had kept us from suffering from cold. But the sun had not risen high enough to shine on us in our snow-valley, and, as Roth steadily cut steps up the slope for two hours, the temperature was felt very keenly.

¹ The Mountain Jews believe that the spirit who protects travellers appears in the form of a white marten to those he takes under his protection. See Hahn's *Aus dem Kaukasus*.—D.W. F.

I was counting the minutes to run before we reached the warm sunshine that was slowly stealing down the slope, when there came a puff of wind, and we were powdered over with fine snow, some of which melted as it found its way down my back. It was unpleasant, but a very few minutes later we reached the crest of the ridge and basked in the sunshine.

When I had warmed myself sufficiently I looked about and found the view very fine. The nearest and grandest object was the rock mass of Dykhtau and Mishirgitau. The latter looked a very hard nut to crack; but early in the season the middle gully of the three that seam its front may be filled with good snow and make an easy ladder to near the top. To the east we saw the upper part of Koshtantau, all snow on the side in sight. To the south-east in the far distance was a fine sharp peak which we could not identify. Across the Dykhsu Glacier Ailama looked most imposing, its slope within our view hung with tier upon tier of glacier, like the north side of the Lyskamm, but in heavier masses. To the north-west Elbruz rose vast, resembling an immense white tent-shaped cloud. Salynan Bashi stood out nobly, making up in figure what it lacked in comparative height.

After a rest of forty-seven minutes we moved on at 11.12, leaving the sacks. Soon after clouds covered us and a cold wind blew. We came at once upon the rock bit of the climb, and found it short and, from its iced state, not over easy. Beyond this the ridge was sharp in several places for some distance, and Almer cut steps a few feet below the edge on whichever side was easiest. Both sides of these sharp lengths were exceedingly steep, and I was much struck with their perfect regularity and evenness, the slope rising at the same angle, and the edge, no wider than the thickness of my fore-finger laid on it, being flat and not wreathed up in any fashion. Of course there must have been only a covering of snow on rock until near the edge; but how the winds could work the top part into so even and regular a form on both sides puzzled me. Between the sharp lengths the ridge was a good deal hummocked; on the level we moved at a pace as near a run as the soft, powdery snow allowed,

for it was bitterly cold. Up and down the hummocks Almer cut steps. If the wind had been a little stronger I think we should have had to turn back for cold. At 2.20 P.M. we came to the end of the ridge, where it joins the main mass of the mountain at the foot of the final slope.

Here we halted a few minutes to let Almer, whose turn at leading had been mostly step-cutting, have a drink of cold tea, of all inferior liquors the most inferior, just as hot tea is the best, when one can get it, on a climb. While resting we had a glimpse of the rock-wall between Shkara and Ailama.¹

The final slope was an even ascent, on which we kept near to the Bezingi edge, occasionally looking over to make sure that the snow did not overhang farther on. Roth, leading, had less step-cutting than Almer had had below, and we ascended pretty fast, the cold acting as a sharp spur. At last we came to a short stretch of nearly level snow, and a few yards higher to two snow-humps, cut sharp down on the Bezingi side; the farther of these, which we reached at 3.42, was the top. It was ill luck at so high a point to see so little: we were in the clouds. From the summit a snowfield slopes down, covering the upper part of the great buttress. All about us was snow, some rocks barely showing a few feet down on the Suanetian side. I asked Almer if we should look for a place to build a cairn, but he said it was too cold. The cold withered us, and after a minute's stay we had turned to find shelter from the wind, when the cloud lightened enough to show us the ridge falling for a long distance, but not enough to let me be sure I saw the full length of Shkara, and that we were on its highest point. Some days afterwards, however, from the point of Janga nearest to Shkara we had a cloudless view of the Bezingi ridge, and the head of the great buttress appeared to be the highest point of Shkara and of the whole Bezingi ridge.

¹ Woolley and I went up in 1893 from the Nuamkuam Glacier, on the south side of the range, to a point near the lowest part of the ridge at the head of that glacier. Below us we found a branch of the Dykhsu Glacier, gently rising to only about 200 feet beneath us. In 1895 Woolley gained a point considerably to the west on the same ridge from the Dykhsu Glacier. The pass is a long and difficult one. See *Alpine Journal*, vol. xvi. p. 525, and vol. xvii. p. 593.

It must be understood that Shkara and Janga are not absolutely independent peaks, but are names of two portions of a continuous crest. They are divided by a rather deep depression, east of which Shkara, rising sharply higher than Janga, runs for about a mile to its highest point. In 1893 this gap appeared dangerous of approach from the south side. The ridge between the depression and the Saddle Peak may be two miles or more long, and is called Janga; it has three points a little distinguished above the rest, of which I ascended, on September 12, the eastern point nearest to Shkara. From above the Zanner Pass, 12,859 feet, the ridge runs roughly east for about eight miles to the eastern end of Shkara, something over 17,000 feet, whence it falls rapidly to the Dykhsu Glacier. From Gestola to the east end of Shkara, some six miles, the height of the ridge above the Bezingi Glacier varies from 5000 feet to 7000 feet. It is a most magnificent, wonderful wall.

I may describe here the view which we had from Janga on September 12, as in many respects it must be much the same as that from Shkara. The most surprising thing from Janga was the seeming narrowness of the snows. Although the breadth of permanent snow, where we stood, may be twenty miles, I had a feeling that the Caucasus was a kind of snow tight-rope, the cause of this being, I think, that on both sides we saw far beyond the snows. Just below us, to the south, the glaciers were all but entirely hid from us by their own steepness, and the eye plunged directly on green grass and vegetation, beyond which stretched ridge upon ridge of blue hills so far below us and so fused by distance that their undulations seemed hardly more marked than those of waves on the surface of the sea. Northward, through the gap of the Bezingi Glacier, we looked beyond the snows over high bare hills and lower detached summits far into the steppe, where the eye seemed capable by searching of ever widening its ken. The feeling of great height and remote distance was deepened by a solitary white bird poised high above us. To the north we saw no sign of man, but to the south Almer's quick eye caught sight of a church, and behind it some white objects,

which we guessed to be the whitewashed towers of a Suanetian village. After the bare Bezingi slopes it was a great pleasure to the eye to rest on the thick foliage of the endless Suanetian woods shining in the sun. Our point of Janga was a little lower—Almer in his disappointment said ten feet, but at any rate it was distinctly lower—than the western summit.¹ The Saddle Peak looked much more sharply marked off from the rest of the ridge than when seen from the Bezingi Glacier. But the one peak on the Bezingi ridge, from Shkara to above the Zanner Pass, that most clearly, as seen from the north side, has a separate existence, and deserves a separate name, is the beautiful cone of Gestola, which springs up so sharply as constantly to serve as a standard of measurement: even as far away as the neck of Ushba I guessed our height by the base of Gestola.

To return to our ascent of Shkara. After about five minutes, as the cloud became no lighter, we ran down to the level place, where we were a little sheltered from the wind. While here the cloud cleared, so as to show us the upper belt of ruddy rocks, and the top of Dykhtau backed by blue sky—a beautiful vision from our cloud of gloom and cold. I felt like a man, half starved, looking through a window at a warm fire. The cloud soon closed in thicker than ever, and we began the descent, going as hard as we could in order to clear the snow-slope below the ridge before dark. The short rock-bit with its ice gave us more trouble than in the ascent, especially a single step where one had to tuck in one's abdomen and throw the left leg round a corner. Just beyond this we picked up the wraps left in the ascent, and I was glad to have their additional warmth.

On the slope below the ridge it became dark, so that although I could see Almer above me I could only tell where Roth was below by the darkness seeming a shade thicker, or, when he had turned, by his voice. The slope was too steep to allow of carrying the lantern. Our morning steps were filled up with blown snow,

¹ M. Jukoff gives it as 42 feet lower (*Proceedings of the Royal Geographical Society*, February 1892, p. 111, and Survey maps).—D. W. F.

and although Roth was very quick in recovering them we had a wearisome time groping and kicking for the steps before we crossed the lower of the two *Schrunds*. It is easy to follow straight steps in the dark, but not so easy when they turn; and Roth's 'The step is there,' uttered in a crescendo of virtuous surprise, made one chuckle, but was hardly directing. All things come to an end. At length we cleared the slope, and after lighting our lantern swallowed some biscuits and cold tea. Sitting or standing about the lower lip of the *Schrund*, three feebly illuminated figures of Father Christmas, we felt that a bowl of steaming toddy to complete the picture would not have been amiss. We easily followed our morning tracks by lantern light—there was something strangely impressive in the high walls and deep troughs of the ice-fall by the feeble glimmer—until we came near home, where the hard snow showed no tracks. Almer and I waited in patient weariness until a shout from Roth told us he had found our ledge, and we followed. It was about a quarter to ten. Home, sweet home! It had been a hard, cold climb. How we did enjoy the hot soup! I blessed the man who first thought of self-cooking soup-tins.

Owing to the shortness of September days, climbing in the dark or by lantern light was one of the most disagreeable incidents of our climbs. In eight out of thirteen expeditions I took part in we had more or less night work.

I thought more of Shkara, considered simply as a climb, than of Janga or Ushba. Janga, when once we had reached the sunshine, was a right pleasant climb, full of interest, with a fair amount of work, and crowned with a sublime view; but there was no strain about it. Ushba, on the successful attempt, was turned by a fall of fresh snow into an easy and reasonably safe, though fatiguing, snow walk as far as the neck. Shkara was a hard strain nearly all the time, between the cold and the labour. The guides had at least five, probably six, hours' step-cutting. It was the coldest climb I ever made. I was quit with both thumb-ends and the right finger-ends frost-bitten. The guides were all right then, but I believe our cold day on Shkara had a good deal to do with their

subsequent ailments. It was curious that the cold took away at the time all sense of fatigue; but we were tired enough afterwards.

Of the ways of reaching the crest of the Bezingi ridge I thought our route up Janga the best: it lay by the rocks to the right, in ascending, of the steep, narrow glacier, which falls from the depression between Janga and Shkara. There were some short bits of hard rock-climbing, but these, we found afterwards, can all be turned. We crossed the mouth of a ghyll, the high pitch at the back of which was crowned by glacier, from which ice-blocks may fall at times. From the depression between Shkara and Janga it would be well worth trying the ascent of the former. The first part of Shkara rises so sharply that Almer thought the direct ridge-climb might be impossible, and we could not see how the Suanetian slope lay: but if this point is once climbed or turned the rest of the way did not seem difficult. The depression seemed to indicate a pass into Suanetia, but I could not see what was the nature of the southern slope.¹

I had no trouble worth speaking of with the Bezingi natives. They are, no doubt, given to petty pilfering; but when I remember how the tent was on our expeditions left unguarded, and what value they attach to knives, nails, matches, and other things, to us the commonest articles, I must give them credit for a fair amount of honesty that they did not strip us of everything.

On the morning after we had been up Janga I found Roth very unwell with pains all over, especially in the chest. Towards evening, however, he was smoking—a sure sign of recovery; but in the night Almer was taken ill. He was worse than Roth, hardly able to speak or move, and remained little better all the next day. On the 15th September Roth was well and Almer recovering; but a wind-storm began in the mountains, and its fearful cold kept us that day and the next, by day as well as by night, in our sleep-

¹I have since shared in three attempts on Janga from the south side—in 1890, when Almer led my friend Holder and myself, and twice in 1893, in the company of Messrs. Woolley, Newmarch, and Solly. We found in the latter year that the pass between Shkara and Janga was too dangerous on the south side from *séracs*. Indeed, most ascents on the south side—except Tetnuld—are much more difficult and dangerous than the northern climbs.—J. H. C.

ing-bags in the tent. The cold developed an eager appetite for fat, and I felt in training for the candles, if need were. On the morning of the 17th the wind had fallen much, and we set off with six porters for Betsho. Fierce gusts that searched one's marrow blew at intervals as long as we were on the Bezingi side of the Zanner Pass, but once over we found all still, bright and warm. Everything on the Suanetian side seemed of a richer and pleasanter nature. The woods, clad in the most gorgeous of autumn



LOOKING DOWN THE BEZINGI GLACIER

colours, were inexpressibly pleasant to our eyes, which, for more than a month, had hardly seen trees except in the form of firewood. The wild crab-apples we found nearly ripe and sweet—a great treat. The two Mulakh men I engaged in place of the Bezingi porters were of a gentler and more obliging nature than the Bezingians. Food was more varied. We replenished our stock of salt; besides mutton and bread, we obtained readily eggs and cheese, and even some vodka; and never Irishman was better pleased than I with the taste of a potato.

We reached Betsho on the morning of the 19th, and found

the officer in charge very civil. He assigned us in the Cancellaria a good room with a fireplace. Chairs and a table and sofa were demoralising Capuan luxuries; and, worn and jaded as we felt, we stayed in the rest of the day, sending out Kosta, a Mulakh man whom I had retained, to forage.

While at Betsho I was amused by the people who came in to sell provisions. An old woman brought a very sickly-looking sheep; several women and girls each brought a single cheese; two men had each a bottle of native vodka. There are no stores. Each family has its own stock of provisions, and naturally will not sell so as to leave itself bare; so that it is a slow business on first entering a village to collect food from cottage to cottage. Afterwards, when the people realise that the traveller is willing to pay, they bring voluntarily what each can spare. Doubtless I had the benefit of the confidence inspired by previous climbers.

Next day we set out to look for a camp, and, following the path, found ourselves above the lower part of the Gul Glacier, which descends under the east slope of Ushba, and opposite to the gap between its two towers. We could see nothing for mist, but, listening for a long time, I heard no fall of stones or snow, and was satisfied that we need not fear the avalanches which Donkin in his letter to Holder had mentioned as turning his party back. We knew nothing of their unhappy fate, and when we came on a shallow trench and found bits of a Meiringen paper indicating where they had camped, we felt pleased as with a sense of companionship, and I was glad to see that the guides looked cheered and livelier. The water supply—glacier water trickling down a rock—had failed, and we judged that, in the more advanced and colder season we had now reached, we must camp lower.

On the 21st September, leaving part of the baggage at Betsho, we pitched the tent on a tongue of land, above the little valley on the lower side of which are the last trees, and distant about an hour's walk from Donkin and Fox's camp.

Next to the Matterhorn, Ushba is the most imposing mountain I have seen. There is a strong suggestion of likeness between

the south peak and the Matterhorn, and, though the latter is the more symmetrical, Ushba is much the greater. It is nearly a thousand feet higher above the level of the sea; and whilst the Matterhorn is not much over 9000 feet above Zermatt, Ushba towers 11,000 feet above Betsho. Its mass is double that of the Matterhorn. The upper rocks of the south peak to be climbed must be nearly 6000 feet, against little more than 4000 feet on the Matterhorn.

The two peaks of Ushba are joined some 700 feet, as near as I can guess, below their tops, by a saddle or neck of rock covered with snow. Their crags on the east side of the neck are divided by a snow-slope of equal breadth for a distance which took us two hours twenty-five minutes in soft snow to ascend; then the cliffs of the north peak break off towards the north at nearly right angles to their former line, the rocks of the south peak still running down straight as above. From the neck to where the rocks retire, the slope, gradually becoming less steep, has no crevasses, but at the latter point an ice-fall begins, which keeps its original width, that of the gap, for a space which, climbing at a fair pace, we were two hours in ascending; whilst from the foot of the cliffs of the north peak descends for the same depth an ice-slope, towards which, where it touches the north side of the ice-fall, the latter presents a wall fringed with icicles and set in places with ice-caverns, which rises from 20 to 50 feet above the level of the ice-slope. A long *Schrund* runs across the foot of the ice-fall and ice-slope, and below it the glacier gradually sweeps round the base of the south peak. The illustration opposite will, I trust, make these details more intelligible to the reader.

On the 22nd we made our first attempt on Ushba, but after four hours' climbing Roth's illness obliged us to return. I found he had been unwell the day before, but had not told me, on the chance of recovering. Now he was writhing on the snow with pain, and plainly unable to proceed. Thankful that his pluck had not led him to hold out longer and until we were on the ice-slope, we slowly returned to the tent, where he was made as warm and comfortable as our poor resources permitted. His pains were in

the chest and legs, accompanied with a difficulty in breathing, and as these were much the same as those he had quickly recovered from at Bezingi, I thought that he would soon be well. On Sunday, however, though free in the chest, he was plainly in for a bout of rheumatism. This was a great disappointment, for Roth is a first-rate step-cutter, and I had seen that, in the icy state of the mountain, the neck between the two towers could only be reached by almost continuous cutting from the long *Schrund*. On speaking to Almer he agreed to try alone with me. I thought it very spirited in him not to be discouraged by his companion's illness, or by the certainty of an excessive amount of labour in step-cutting, to say nothing of the generally imposing and formidable look of Ushiba. We arranged that Almer and I should try again next morning, and that if Roth felt no better, he should go down with Kosta, when the latter brought provisions, to Betsho, where he would at least be warm.

Almer and I left our tent at 3.35 on the morning of the 24th, and ascended on the left side of the glacier by easy rock and snow slopes, at first in a northerly direction, towards Mr. Freshfield's Gulba, and then west, until, after passing under a wall of rock, which seemed from the stones near its base to be sometimes dangerous, we came, at 7.37, to the long crevasse, where we breakfasted. The glacier below the crevasse was sprinkled freely with boulders, large and small. The ice-slope is exposed to the fall of stones, and also of great icicles from the cliffs of the northern peak. We found it all bare, roughened and pitted with previous meltings, and every stroke of the axe cut into real ice. It was much wasted, so that in places large smooth polished sheets of sloping rock were exposed. Altogether it was more formidable in appearance than any ice-wall I had seen, and Almer said the same. No doubt, earlier in the season, before the mountain has been cleared by frequent avalanches, this slope is very unsafe.

At 8.5 we found a way over the crevasse, and Almer cut our way slowly until, after an hour and a half, we had turned a sheet of smooth rock, and were able to approach the ice-fall. Its icicles seemed so small by comparison with the giant ones on the

wall of the north peak, that we did not fear them; but, to be more secure, I proposed that we should go on the ice-fall at an easy place. Almer agreed that it would be safer and better, but was afraid that we might be stopped by a crevasse. Unfortunately, I had persuaded myself that the crevasse could be turned by the rocks of the south peak, and so we went upon the ice-fall, and Almer had at first easier step-cutting in hard snow; then followed ice, and last, a short bit of soft snow. Finally, we found the crevasse could not be turned. I knew there was no chance now for that day, but wished to reach the top of the ice-fall in order to gain a clear view of the neck. Descending the soft snow, Almer had step-cutting again to a point where we could go down to the slope, which was ice, as below, except the last part, where it was lying in steep ribs with alternate channels. Here we were startled by the crash of an icicle from the north peak shivering upon the slope, as if all the windows in Regent Street had fallen on to the pavement. It was not too near, but near enough to make me appreciate Almer's remark: 'If that had struck us it would have hurt us very much.' Soon afterwards we were within a few feet of the base of the north peak, and at about 1.45 had gained the foot of the last snow-slope below the gap. Some stones whizzed from the north peak at the same time, so high that they could not have struck the ice-slope until near the long crevasse.

The lower part of the gap, where the slope is gentle, was soft snow, but above all was glittering ice with, just below the neck, some ribs of rock. We could climb, we saw, on to the north peak from the neck, but reckoned that with the best luck we could not expect to reach the top before dark, and passing the night there was more than we were prepared to endure.

We contented ourselves, perforce, with lurching and looking about us. The view was magnificent and startling. All the great central peaks served as a white background to the forests of Suanetia, the autumn colours of which were like fire in the sunlight.

On returning to the tent I found that Roth had gone down to Betsbo. As Almer was very anxious and vaguely afraid that

Roth's illness might be something worse than rheumatism, I sent him down next day to say that I would start at once for Batum if Roth wished it and was able to travel; but that if he had nothing worse than rheumatism the best thing for him was to stay at Betsho, where he could be warm before a good fire within stone walls, whilst Almer and I again tried Ushba. I felt bound to make the offer to start at once, for although Kosta was very kind and attentive, it was no joke for Roth to be ill amongst strangers; but I prayed heartily that he might not accept it. I had a hard struggle for my dinner that evening; heavy rain was falling and a strong wind blowing, so that after much ado to light the fire there was worse trouble to keep it lit. In the night, waking and sitting up, my face touched something clammy, and I found the front of the tent had fallen in, the wet having put an extra strain on the stay-rope. On going out to set things right, I met the rain coming down in torrents, but its violence was reassuring, as it showed that snow must be falling above in such quantities that some must stick on the ice-slopes.

Next day Almer came back with the good news that Roth would stay at Betsho as the best place for him. Rain fell most of that day and up to eight of the following morning, when the sun shone out warm and welcome, and a fine day following we resolved to try again.

Almer and I left the tent at 3.8 A.M. on the 28th with small hope of success, for the sky looked anything but favourable, long filaments of cloud being drawn across it, and the only good sign was that the clouds never came low enough to quite touch the Laila range. The first step in snow told us that we were in for a heavy grind, but encouraged us to hope for good foothold. We toiled up the lower slope of rock and snow in the direction of Gulba, and then, passing under the rock-wall, came upon an immense mass of avalanche-snow, the upper part of the fresh snow lately fallen upon the ice-slope. We were now sure of a fine day, and took cheerfully the toil of walking on the avalanche, one moment standing on a frozen block and the next sinking up to our knees. We found the long crevasse choked up by the

avalanche, and passed it without halt at 8.3, having breakfasted below. We were satisfied from our former experience that little was to be feared from the icicles pendent from the ice-fall, and agreed that our best way was to keep close to the latter, so that if stones or icicles fell from the north peak we should have a chance of protection under the wall of the ice-fall.¹ Save for a few steps just above the crevasse and the clearing out of some of the old steps on the ribs of hard snow near the north peak there no was need for step-cutting, the avalanche having left plenty of snow well fastened on the ice-slope and covered up the sheets of smooth rock. Much encouraged by the shorter time we took to pass remembered points, we reached the top of the ice-fall at 10.5, having ascended the slope in little more than a third of the time we had taken when nearly everything was ice. We halted here forty minutes.

The following two hours and twenty-five minutes up to the neck were intensely fatiguing. I could have sworn in the ascent that the snow grew deeper as we ascended, but when descending the slight pain from the pressure against the knee-cap of the then frozen rim of the steps showed the depth to be up to the knees, and uniform nearly all the way. We laboured on almost unremittingly up the increasingly steep slope, turning near the neck to our left to reach a rib of rock, and then by a few steps in the ice on the rock, or by the rock, came at last to the saddle, the snow edge of which Almer broke through at 1.10, greatly to my pleasure, for there was to be a change in the character of our labour. We were near to the south peak, and both looked at its ridge rising from the neck; then Almer said that he was not going on that, and we at once turned to our right for the north peak. The south peak ridge rose steeply, straight as an arrow, and was coated over with hard snow and in places ice, the general evenness of the coating seeming to indicate that there were few

¹ The party of 1893 found, in confirmation of Mr. Woolley's experience of 1889, that it is safest to ascend the slope below the north peak in a line much more to the right and running up nearly to the outermost edge of the rocks of the north peak. The ice and snow in the Caucasus change much, far more than in the Alps, and Ushba is often very dangerous.—J. H. C.

breaks in the ridge. As we found it, I was no more minded to try it than Almer; but we were both inclined to think that when clear of snow and ice it can be climbed.

In order to reach the north peak Almer crossed the crest to its west side, where he had to clear away the snow and cut steps in the ice beneath it. While waiting in the steps on the east side I looked over and saw Elbruz half in mist, and nearer us, a fine snow-mountain, which I supposed to be Dongusorun. The rocks of the two peaks narrowed the view. On the east side there was a fine view of the mountains of the Central Group and of the valley and forest-clad slopes beyond Mestia. The woods were glowing red in the sun, and with their snow background were very beautiful. Over all was that look of peace peculiar to the great mountains, heightened, no doubt, in my case, by contrast with the personal sense of strain and effort. The west side of the neck was not at all a place to take views from; it was an ice-slope, broken with jags of rock, steeper than anything but the last bit on the other side. We crawled under a jutting crag so low that, although Almer wriggled through easily, it was a tight fit for me, and would have been a stout man's misery; then came more step-cutting, and at length we reached the rocks of the north peak after having taken about an hour to traverse the ridge.

We ascended, keeping below the rock-ridge leading up to the north peak, and at first had some delightfully easy walking. Then we came to a place which Almer said might do, if there was not a better. We tried first a spot I had marked as offering a way to the ridge; but Almer, after climbing up a few feet, reported smooth rocks, which, as we were no longer fresh, we had better not try. Returning, therefore, to Almer's route we found a rock-traverse with a nearly perpendicular fall below, the foothold being a narrow ledge, but good, except at one point, where it failed, necessitating a short leap just where the handhold was next to nothing. On the ascent we crossed without trouble. We soon came to an easy side-ridge, of not very sound rocks, leading up to the main ridge at a point a few yards below the top.

These few yards were snow, and the actual top was a snow-cornice hanging over the western side and rising not more than a couple of feet above the highest point we dared tread on. We reached the top at 3.45. We were in mist and saw little. The south peak was altogether invisible, and all that we saw to the north was an occasional glimpse of a snow-ridge, curving slightly as it fell to the north-west. All the upper part of this ridge was an easy walk; below it swelled out into a huge tower-like form, which rose from the glacier on the side we saw in ice-coated cliffs that looked impracticable.

We went down to the junction of the side ridge with the main one, and sitting down, tired but happy, cooked two Silver souptins, and opened for Almer's special delectation our last sardine-box, which he had reserved for Ushba and twice regretfully carried back unopened. We stayed till 4.22, the mist lasting all the time. Then, having put up a stone-man and deposited in it the sardine-box holding my card with our two names, we began the descent.

A stone which fell without any excuse came with a heavy jerk on the rope between us, and held it down until Almer could descend and release it. We came soon after to the rock-traverse. As the ledge sloped slightly downwards the bad step was a little longer, and it had also to be taken with the worse leg foremost. Not quite easily I worked myself into a position where I was sure of the step, and passed over. Almer then came, more neatly, but also with care. Probably the difficulty we found here was owing more to our being wearied by the steep slough of snow below than to the nature of the passage itself. We quickly came to the neck, and went as fast as we could down the soft snow in the gap, but were caught by darkness on the ice-slope. This did not matter much, for though the snow was now freezing, it was still soft enough to take the foot with the heel driven in, and we got along famously until we came to just above the long crevasse, where a dozen or so of steps had been cut in the morning. Here we turned our faces to the slope, and partly by the steps, partly by anchoring with the axe and stubbing in

the toes, had descended the worst bit, when, as I was vigorously kicking away, I became aware that my right boot was coming off. When on the neck I had noticed that the lace had been cut and had worked itself loose, but as I was anxious to go as low down as possible before dark, and my frost-bitten fingers made me very slow in tying anything, I neglected to fasten the lace. The boot could not be attended to when I had my face to the hard slope, and finally, not driving the toe in, I slipped a foot before I could stop myself, the boot dragged off and fell away into the darkness. I groaned at my folly in not fastening the lace, but when Almer too began to blame himself for not having noticed that it was loose, I was forced to laugh at the notion of a boot that two men could not keep on. Then he came below me, and cutting a few steps, we reached softer snow again, where, cutting me a seat and holes for my feet, he unroped and went to look for the boot, crossing the crevasse, which turned out to be a very few feet below, and lighting his lantern. At first I felt very vexed, till it came into my mind that at any rate the climb was not bootless! Soothed by a chuckle over this comforting pun, I patiently waited. All was very quiet, the stillness broken only by the faint crunch of Almer's feet in the snow, and now and then by the fall of some small fragment of icicle from the wall of the ice-fall, making me look sharply round lest worse should follow. Some thousands of feet below on the opposite slope a couple of fires were lit, and a torch brandished, as if some woodman had caught sight of Almer's lantern and was signalling. After a time I called Almer back, who reported that as the boot would not have much way on before reaching the crevasse, it had probably fallen into the big hole not filled up by the avalanche at the corner of the ice-fall. I crossed the crevasse, and the good fellow then took off his leggings and fastened them round my foot. The deep foot-holes made in the soft snow of the morning enabled me to walk without slipping, and we travelled nearly as fast as if I had both boots on, until we reached the grass. Most of the stones here were as flat as I now felt myself, but a few woke me up sharply. We reached the tent at 11.20 p.m.

It will be seen from what I have said that Ushba, as we found it, was in the main a snow grind, fatiguing and requiring steadiness, and, I fancy, not free from danger; but on our successful ascent not difficult. On our second attempt the amount of step-cutting was in excess of anything I have known in the Alps, at least five hours'; and three hours' more cutting would have been needed to reach the neck. I have been asked if there are any rock-climbs in the Caucasus. Well, it is true that up to the present Mr. Mummery's way up Dykhtau is the only ascent effected that is all rock; but there are many others to be found. It seems to me that our natural instinct is to attempt first the highest or most conspicuous peaks, just as men did in the Alps, whether they are snow- or rock-climbs. The snow-climbs in the Caucasus are greater than those in the Alps; and there is plenty of call for the best ice-craft: they have, too, rock bits on some of them equal to any like lengths on the ordinary ways up any of the Zermatt peaks. Mishirgitau is a rock-peak, and though dwarfed by Dykhtau, is over 16,400 feet. Tiktengen is a rock-peak of over 15,000 feet. Several of the rock-peaks on the north side of the Bezingi Glacier must approach 14,000 feet, and there is one nearly level with Salynan Bashi. I saw many other rock-peaks—easy or difficult has to be found out. Whoever climbs the south peak of Ushba will not be dissatisfied with his prize. Caucasian rocks are much more freely coated with snow and ice than Alpine.

As to the natives, my impression is that travelling in the Caucasus is safe to any man who pays his way and treats the people civilly, but that it is only safe because of Russian rule. Petty pilfering is to be looked for from the Bezingi men. In a dispute between two parties of Suanetians at Kala there was a show of drawing knives, and a gun, most likely empty, was aimed, but the only violence was the shying of a stone that grazed a man's shin. Thereupon the two parties abused each other freely, and after a time retired, each side bursting into laughter as if it had done a clever thing.

The autumn colours of the Suanetian forests are the most

wonderful I ever saw, and I have been in Pennsylvania in October and November. The birch is plentiful and very beautiful; its leaves glitter in September like a shower of golden sparks, and at my entry into Betsbo furnished the main colour. But during the week I was camped under Ushba red became the prevailing hue, chiefly from the mountain ash and wild cherry. Single trees of red foliage were not nearly so beautiful as the birch, but the massed effect of the red in the sunshine was wonderful, especially at sunset, and it set off the snows more strikingly.

The Skenis Skali Valley between Cholur and Lentekhi, the most beautiful combination of rock, wood, and water that could be dreamed of, is in danger of being despoiled of its trees, several clearings having been made by fire. When I passed last, great beeches were lying still smouldering, charred and black, an ugly sight.

CHAPTER XVI

SEARCH AND TRAVEL IN 1889

And first the Vale of Search ; an endless maze
Branching into innumerable ways,
All courting entrance ; but one right, and this
Beset with pitfall, gulf, and precipice :
The only word is ' Forward !'

FITZGERALD.



THE result of the summer's work of 1888, as known in England by the middle of September of that year, was that the great peaks of the Central Group had been climbed, with one exception.

That exception was the keen snow-crest, lifted high against the sky on a broad rock-pedestal, which is seen foremost of the Central Group by travellers on the railway between the Caucasian Baths and Vladikavkaz. It is now named Koshtantau and given 16,880 feet, but all official and general maps previous to 1889 had referred to it as Dykhtau, and assigned it a height of 16,923 feet.

Mr. Clinton Dent had been obliged by temporary ill-health to return to England, but his companions, Donkin and Fox, with two Oberland guides, were still in the Caucasus, and known to be bent on attempting the ascent of this noble peak. One day, at the end of the month, Dent brought me in London a telegram from Naltshik, to the effect that Rieger, the German serving as dragoman to the mountaineers, had come down from Balkar to

report that he had not heard or seen anything of his employers for three weeks. The inference that a fatal accident had happened was only too clear to both of us.

The first question to arise was, 'Should we go out at once?' It was decided reluctantly that so late in the year it would be useless, since, by the middle of October, the region where search would, in all probability, have to be made, would be closed for such a purpose. What could be done below the snow-line, moreover, was being done by the Russian officials and an Englishman, Mr. Phillipps-Wolley, who knew the country and the officials well, and had generously given up his own sporting-tour in order to lend what help he could in the search.

Native evidence showed that the two mountaineers, with their Swiss guides, Kaspar Streich and Johann Fischer of Meiringen, had, in the last days of August, started from a camp at the head of a side-glen of the Bezingi Valley, known as Dumala, to ascend the Ulluaux Glacier, which falls from the northern slopes of Koshtantau. Fox had written thence to their interpreter Rieger, who with the luggage had been sent to Balkar, to expect them in two or three days at Karaul, a pasturage at the head of the Cherek Valley, south-east of Koshtantau, in a position, relatively to the mountains, which may be shortly explained to those familiar with the Pennine Alps by comparing it to Mattmark in the Saas Valley—Koshtantau taking the place of the Dom, Balkar of Saas, the Bezingi Valley answering to that of St. Niklaus, and Dumala to the glen leading to the Täsch Alp.

The autumn search, though carried out with all the energy and perseverance possible for men who were themselves without mountaineering knowledge, and had none but native hunters to help them, was unsuccessful. A further search, made, in consequence of a personal order of the Tsar, by a levy of the native population, was equally fruitless. The snows fell—had fallen, indeed, before the first search could be undertaken—and the climbers' fate remained involved in doubt and obscurity, at least in the public mind. Dent and I knew that our friends had died on the mountains—we felt it to be so certain that it was recorded

as a fact on a memorial brass in Eton College Chapel. But in face of the theories prevalent in the Caucasus, and adopted by men in authority, and with presumably the best means of judging of the state of the country, others could not reasonably be called on to share our conviction. Conjecture was accordingly rife, and it took a particularly painful form. Russians do not understand the use of the rope in climbing. The simultaneous loss of four men by an accident seemed therefore improbable to the minds of the Caucasian officials. The hypothesis of violence was consequently resorted to, and the people of the mountains were held, in high quarters, to be under very grave suspicion, and to be amenable to retributive measures. Less responsible critics, who did not accurately appreciate the local orography, at first suggested that the travellers had crossed into Suanetia, and been there waylaid and murdered. We gave no credence whatever to these suggestions. But even for us, who, from better acquaintance with the country and its people, were able to dismiss such crude imaginings, there were many matters of sad interest left open. How, or where, within several square miles, our countrymen had died; whether after or before climbing the great peak; whether on its cliffs, or among the ice-falls that cloak, or under the avalanches that sweep its sides; what relics of their last bivouac might be recovered; how far the snows had given them a natural burial—these were all questions which seemed to call for answer.

The obvious leaders of a search party were Mr. Clinton Dent, who had been with the lost mountaineers until forced by health to leave them, and myself. Myself, first, for old friendship's sake; next because I knew, as no one else in England or in Russia knew, the high mountains about the scene of the accident; and finally because I was able, by the assistance of the Council of the Royal Geographical Society, to obtain leave for an old friend of Mr. Fox's, Captain C. H. Powell, of the Indian Army, an excellent Russian scholar, to place his services as interpreter at the disposal of the search party. We owed very much to Captain Powell for the great ability and patience which he showed in all the needful communications with Russian officials and village notables, and his

knowledge of Russian added in many respects to the interest and pleasure of the journey.

Mr. Hermann Woolley, our other companion, had been one of the explorers and photographers of the Caucasian Mountains in 1888. Indeed, he and his friends on the day of the accident were within six miles—as the eagle flies—of the fatal spot. Yet so separated were they by icy ridges—the fact is significant of the character of the chain—that they heard nothing of what had happened until after their return to England. He brought with him two guides from the Bernese Oberland. Dent and I had with us Kaspar Maurer, of Meiringen, who had travelled in the Himalaya, and a young brother of Fischer, one of the lost guides—by profession a schoolmaster—who joined us as a volunteer.

The material we had to direct us in the search may be concisely set out as follows. Before the party left England I had verbally, and also in writing, given suggestions to Fox for exploring the range of Koshtantau. I had recommended an attack on the northern ridge of the mountain from a side glen of the Bezingi Valley, known as Dumala. This was made, but, owing to uncertain weather and a late start, the party only reached the western base of the mountain. I had also pointed out that, failing success in that direction, a very interesting and beautiful pass could certainly be forced over the eastern ridge, and that from the glacier south of this spur, flowing towards the Cherek, Koshtantau might be again examined, adding, ‘any attempt on this side, however, will be a serious undertaking.’ Mr. Woolley has since justified my suggestion by successfully climbing, and that without meeting with any extraordinary difficulty, the peak by the route thus indicated, which Moore and I had first examined twenty years before.

Fox’s instructions, written from the camp in Dumala from which the climbers sent back their tent, to his German servant and interpreter, Rieger, to meet him at Karaul, in three days, showed that they had my suggestions in mind; while the very singular prospective entry made in the diary Fox left behind with the tent gave us full insight into the details of their plans.

I print here the record of the last three days written up in this diary. It seems to me to give in the simplest form a very true picture of the character of mountaineering in the Caucasus.

'*Sunday, August 26th.*—Up 5.30 A.M. Fine morning, but windy and cold, and not promising for the night. Determined to start for high bivouac. Spent long time cooking meat for two days. Rhododendron wood for fire. Heavy loads. Streich has no faith in cooking soups. Determined to take up two fagots of wood. Left tent 9.45. Went up moraine on left bank of glacier to foot of ice-fall. Very long moraine. Halt for photograph. Charming *gîtes* by stream between moraine and mountain. Little streams with grassy dells. No wood though. Lovely camping-ground at foot of ice-fall. Large cave at top of ice-fall used by bouquetin. Saw two come out of it on our return. Flowers on moraine very beautiful, especially asters, small dark blue gentians, and London pride. Saw two or three kinds of *Gnaphalia*, but no Edelweiss. Halt on moraine for two photos. 10.40 to 11.5. Halt, grass valley at end of moraine, 11.40 to 11.55. From there we topped the ice-fall by grass banks and moraine on left bank. We halted under cavern for lunch from 1.35 to 2.25 P.M., and then pushed on to upper *névé*, always on the left bank. Snow came on thick, with thunder and lightning. Looked out for shelter. Found at last a *Schrund*; rock on one side, snow and icicles the other; got out of storm. Guides lit fire outside under rock and cooked soup. Very cold and damp; our hopes of ascending Koshtantau from this side had been dissipated. The obvious way up was raked with overhanging *séracs*, from which there was no escape.¹ Two ways only presented themselves: (1) to mount high snow-pass east of mountain, and ascend from the other side of what seemed all snow; (2) to climb col west of mountain, and get on to north route from there.² We chose the latter, as the east

¹ This obviously refers to the short north-eastern buttress which projects between the northern and eastern ridges, and divides the two upper bays of the Ulluaux Glacier.

² These are the passes now known respectively as (1) the Ulluaux Pass: (2) the Mishirgi Pass. The second pass is in fact north, not west of the peak.

col was a very long business. Fischer searched for sleeping-place and found a cleft—the rocks sloped upwards. A poor hole, but affording shelter from snow and wind somewhat. The top was so narrow that one could only just squeeze oneself inside; below it widened out a little. The angle was about 30° . We managed to



ULLUAUZ BASHI FROM THE ULLUAUZ GLACIER

rake down about a ton of rock and loose stones, with which the crack was filled, and made a sort of platform at the base, where Streich and Donkin lay. I hollowed out a seat above and made a footstool of my ice-axe below. We curled ourselves in our sleeping-bags, and tried to be thankful for shelter. Everything was wet and clammy, and a slow drip came over my knees. Position had to be changed every ten minutes, each change sending down a handful of pebbles on Donkin's head. The wind was

boisterous. Gusts of snow pattered in, and whistled on the sleeping-bags. I was just dozing off, when I was awakened by a handful of stones from above, which clattered about my ears, followed by a large rock which I had thought secure. It came bang on my head, and made me see a thousand stars, so that for a moment the hole seemed full of light. In endeavouring to move it on one side I shifted the ice-axe, and sent a wheelbarrow of stones down on poor Donkin's head. His patience and endurance can only be likened to that of Job. I had to get down and share the platform. Fischer was already ensconced in another crack outside, so that room was found. The guides were pretty wretched, and had long abandoned all hopes of a mend in the weather. I reminded them of previous experiences, but gloomy thoughts prevailed. The stones were

hard to lie on, but by this time we were fairly accustomed to hard beds.

Monday, 27th.—Drowsiness came over us all in the morning. I was first to wake and see blue sky. Got Streich up. Alas! it was very late, 5.45 A.M., and the morning perfect. We got down, cooked chocolate, ate it in silence, and started off at 6.15 (three hours too late). Twenty minutes took us across the snow-field to foot of col, and we arrived at top of it at 8.20. A lot of fresh snow had fallen, making step-cutting difficult. It is a steep little pass. We mounted by rocks on right. At the top a beautiful view greeted us. We had made a new pass from Dumala Glacier to Mishirgi Glacier. At our feet was the latter; at its head the high buttress of rock leading to snow and rock north *arête* of Koshtantau. Beyond this a pass leading from head of Mishirgi Glacier to foot of Shkara. Beyond this the splendid precipices of Dykhtau. Shkara itself was well seen over the gap between Koshtantau and Dykhtau.¹ These latter practically met at this col, though there seemed to be a fine rock-peak on ridge west of Koshtantau before it descended to col. The *arête*, which we hoped to gain easily, was cut off by the buttress of rock which led to the corniced col we had seen from the Ulluanz Glacier. The final *arête* would go anywhere, but would prove a long business. The obvious way was to climb the rock buttress, which I was sure would go. It was certainly plastered with fresh snow, but nowhere very difficult. Streich's plan was to descend some 200 or 300 feet on to the Mishirgi Glacier, and mount thence to the *arête* by a long rock-rib. He stuck to his opinion, and we had to give in. Had breakfast hurriedly, but unfortunately did not take a photograph, and so missed a splendid and most valuable view, for when we returned it was lost in cloud. We left the col at 9.10. The descent took a long time, and there was much step-cutting. We then tried the rib, and found the rocks, as we had expected, quite smooth. We cut up between them and forced our way up

¹ Probably the gap between Mishirgitau and Khrumkoltau. See S. Sella's photograph, p. 105. This is not the Khrumkol Gap, which is farther east.

slowly, the fresh snow making everything most difficult, but at 11.40 had made little progress; and as it was obvious we had not time to make our peak that day (the *arête* alone would take at least four hours), and as clouds were gathering, we reluctantly ordered a return. The col was reached at 1.15 P.M., and then we finished our stock of provisions, built a cairn, and took a third photo. Our *gîte* of the previous night was reached at 4.5, the descent being somewhat troublesome with the snow softened by the day's sun. Packed up and off at 4.30. I got in with Fischer at 6.25, and got a pot of tea ready. Donkin's foot hurt him and he followed slowly. A hot and strong soup, made by that excellent Streich, and we turned in.

'*Tuesday, 28th.* A beautiful night. All slept like tops. At 4, heavy rain woke us up as it pattered on the tent, but we dozed off again. At 5.30 I woke up and read *Midsummer Night's Dream* till about 7.30, when the sun came out. We had a glorious tub in our little stream, and hung all our things out to dry, for we had descended last night in a thick wetting rain. The man was sent off for milk and cheese. Our Bezingi host's son, who had spent the night up here, entered into a long conversation with me about our plans, and I hope understood them thoroughly. *Weather permitting we hope to start again tomorrow very early, and take three or four days' provisions. Make the Dumala-Dykhsu pass¹ the first day, and camp near its head. Climb Koshtantau, if possible from the south side, the next, and descend to the Dykhsu Glacier. Thence to Karaul.* The man meanwhile to go round to Balkar with a note to Rieger to send him up to Karaul.² It depends on weather; at present it is fine, but, as usual, clouds are rolling up, and I fear we shall have rain before night. Guides are busying themselves nailing boots, drying clothes, cooking meat, etc. Donkin is practising with a revolver at imaginary enemies (11.30). The day has passed very peacefully. The man has gone for milk and cheese with a rouble

¹ Fox knew no separate name for the Tütium Glacier, and treated it as a part of the Dykhsu. An exact knowledge of the south and east sides of Koshtantau was only obtained in 1889.

² See *Alpine Journal*, vol. xiv, pp. 100 and 102.

note (much too high pay, but we do not want to be stinted). I have written up my notes. Donkin has worked out boiling-point observations.¹ We have read much Shakespeare. Gathered wood for to-morrow. Streich and I have had a good bake of bread. He would not believe in baking-powder until he saw its effects. The best bread we have eaten since leaving Batum. Feasted largely of it. Weather looks bad. Clouds down on to glacier (3 P.M.), will soon be over our camp. Hope for best. There is no understanding "Caucasian meteorology."²

Thus the diary ends. It has been suggested that the party spent the next day in camp,³ but the suggestion rests entirely on a statement of the native mentioned in the diary, transmitted through Russian channels. As that statement is shown by the diary to be wrong as to the day and time of the climbers' return, it can hardly be regarded as of much weight as to their departure. It is unlikely, if the weather was fair, that they would have rested another day in camp; and we know from Mr. Holder that the storm-clouds passed away, and that the next two days were fine, except that on the afternoon of the 29th mists interfered with any examination of the higher ridges—a fact of some significance in considering the climbers' subsequent movements.

As to the position of the 'Dunnala-Dykhsu pass,' which the climbers meant to cross, no reasonable doubt can exist in any mountaineer's mind. I had myself pointed it out to Fox, and marked it in my photographs, tracings from which were found at the bivouac. It is visible from the meadow at the foot of the Ullnauz Glacier, where their camp was pitched. [See Initial Letter.] There is no other gap which could possibly answer, among mountain-climbers at least, to Fox's description, 'the high snow-pass east of Koshtantau.'

¹ Preserved in Donkin's notebook. Bashil Pass, 13,030 feet; bivouac opposite Koshtantau, 12,209 feet; Mishirgi Pass, 13,600 feet. This is the last entry.

² I have printed the Diary verbatim except for the transposition of the names Dykhtau and Koshtantau.

³ *Alpine Journal*, vol. xiv. p. 102. The native is made to say that the party returned at 10 A.M. on the 28th, whereas the Diary fixes the day and hour as 6.25 P.M. on the 27th.

The results of the search made by the Surveyor, M. Jukoff, and Mr. Phillipps-Wolley, so far as they went, confirmed the inferences we drew from this documentary evidence. The searchers found tracks in the loose ground on the left bank of the Ulluaux Glacier. Its upper snowfields and ridges they were unable to reach.

There was only one piece of evidence which it was hard to make fit in with the rest. The Starshina (headman) of Bezingi had reported to the Government that his hunters had found the travellers' foot-marks on the snow, and traced them over a pass leading out of his district into that of Balkar, and this statement had been embodied in a report published in the Vladikavkaz newspaper. What the assertion was worth, and to what motives it may fairly be attributed, will, I think, be clearly shown hereafter.

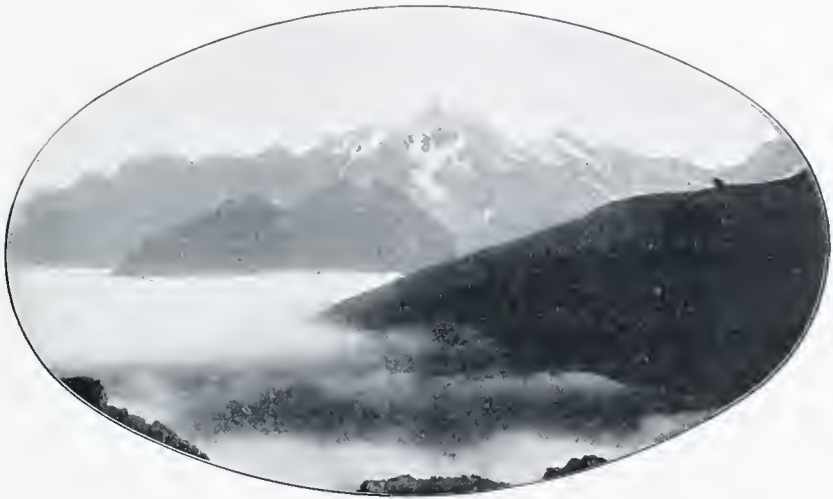
It followed, to the best of our judgment, that we ought to look for traces of the lost party at the head of an unknown glacier, now called the Tiutium, the torrent from which joins the Cherek, or Balkar, river. There, if they carried out their plans, they would probably have bivouacked on the night after they left their tent at Dumala.

The base chosen for our search was therefore Karaul, the pasturage at the head of the Cherek Valley, four hours above the villages of Balkar, and two long days' ride from Naltshik, where a bridge over the great tributary of the Cherek, the Dykhsu (here some two miles from its parent ice) gave, in the old days, a convenient opportunity to set a guard against cattle-lifters from the south side of the chain. This guard is now represented by one or two amiable old Tartars, who live in a stone hut, the only permanent habitation within many miles, and are happy to provide milk to parties temporarily residing in their neighbourhood.

Karaul (5560 feet) was in 1889 our home for nearly a week, and Mr. Woolley's for a much longer time. It was from this base that, after the work of the search-party was concluded, he made his brilliant ascents of Ailama and Koshtantau, and explored the upper basin of the Dykhsu Glacier. Karaul lies, as it were, at the Caucasian cross-roads, where the ancient and much-frequented track

from Gebi to the north and the summer path from the Uruk to Balkar meet the High-level Route of the future, of which this will be the starting-point and Urusbieh the terminus.

The great pass which leads hence to the Bezingi Glacier between Shkara and Mishingitau is without serious difficulty for mountaineers, but it traverses an avenue of snowy peaks unrivalled either in the Alps or Caucasus. Nor is there any lack of easier expeditions and walks suited for travellers who are content to explore where there is no need to climb in the strict sense of the word. They



GILCH

have only to study the map and Signor Sella's panorama to discover the available points which are destined to be the Gornergrat and Mettelhörner of the district.

Our camp was pitched on a grassy terrace at the mouth of a wild gorge. Grey granite screes scantily clothed with azalea bushes and birches, and green flowery grass, sloped down on all sides with extreme steepness, enclosing in their midst a flat open meadow, a mile perhaps in length by half a mile in breadth. Our tents were erected on the little triangle of land above the junction of the two roaring torrents, the Cherek and Dykhsu, side by side with those of M. Bogdanoff, of the Russian Survey—six in all.

Three vistas opened in the mountain circle. First, south-west of

us, up a granite gorge, the mouth of which was not 100 yards off. Its upper crags bend forward in great beaks and noses, and a snow-peak shines high above them. This is the gorge of the Dykhsu, and it leads directly to the great glacier which flows from the northern and eastern slopes of Shkara (17,038 feet) and Ailama (14,854 feet). To the east rises the splendid peak Giulchi (14,678 feet), the corner-stone of the granitic range north of the Uruk—



MINGRELIAN HAYCUTTERS ON THE MARCH

one of the many ridges that confute the old belief that the Caucasus is a narrow single range. To the north, the deep defile of the Cherek leads down to Balkar, and at its angle a white patch of boulders shows where the Tiutiumšū rolls down the pale granites of Koshtantau. For us it indicated the entrance to the Valley of Search.

In front of our little camp passed from time to time, in single file, large parties of natives, Mingrelians of the south side,

who had come across to mow the hay-harvest on the northern steppe, and were now returning home over the old glacier pass, still called the Pasis Mta, a Caucasian St. Théodule, which leads down to Gebi, at the source of the ancient Phasis. Picturesque processions they made as the men, clad in parti-coloured shirts and head-pieces made up of *bashliks* of every colour, tied into all possible shapes, marched by in single file with their scythes over their shoulders, at a quick swinging step, like that of Italian Bersaglieri. Presently a party of Tartars from Balkar would arrive on horseback, men of a sturdier build, headed by a quaint fussy little Mollah in a white turban, who made us the most polite Oriental speeches, and presented us with a tender lamb or half of an exceedingly tough mountain goat. Then a moving mass of brushwood, a Caucasian Birnam Wood, would advance towards us, exhibiting on near approach twinkling feet and ears, and resolving itself finally into a party of donkeys carrying down fuel for the lower villages. Next a Cossack from Naltshik might be seen riding up the river bank, bringing, in the folds of his brown coat, our letters—forwarded by the courtesy of Colonel Viruboff, the Nachalnik—and perhaps, tied behind his saddle, some large black Russian loaves, a welcome change from the thin native cakes, which had disagreed most disastrously with our Swiss followers. One night at dusk our Ossete horseman, Alexander (whom we had just paid, and sent home, as we thought), appeared at the tent-door, wringing his hands and bewailing the loss of his horses. Powell was prepared to write one of his admirable despatches to the Balkarian Starshina to denounce the larceny. But we waited; and, just when it became convenient for him to do so, Alexander found his horses, which, I believe, he had hidden away in order to enjoy a few days more in our camp, where he was treated—or rather treated himself—as an honoured guest.

After a day's rest we were ready for our work; all but Kaufmann, one of Woolley's guides, who was ill and incapable of any exertion.¹ Dent did not like to leave the sick man until his

¹ Of the travellers and guides in the Caucasus in 1888 two travellers and three guides

symptoms were more determined. He remained therefore in camp, while Woolley with two guides undertook to reconnoitre the entrance to the Tintinn valley; for M. Bogdanoff, the Surveyor, had not then heard of any path or access to it. I, who knew most of the mountains, and was therefore likely to be best able to piece in any new additions to our knowledge, undertook to climb, with Captain Powell and the schoolmaster Fischer, as high



THE MILKMAN, KARAUŁ

as time and weather allowed on the spur east of the Cherek valley that forms part of the sky-line of the basin of Karaul.

We made a late start. The slopes faced south and were exceptionally steep and monotonous. The sun beat full on us, the mountain-tops were for the most part veiled in white clouds; but the freshness of the breeze that played beneath the sunshine invigorated us to persevere, and gave some hope that perseverance might be rewarded. At last the tedious slope was broken by a rocky spur crowned by one of M. Bogdanoff's stone-men. The keen upright ridges of the great peaks began to pierce the shining

(including Signor Sella's guide, Maquignaz) suffered severely with dysenteric symptoms, while Fischer temporarily lost the sight of one eye, apparently from after-results of snow-blindness on a constitution weakened by exposure.

billows of cloud. The 'silver spearhead' set so high against the heaven opposite us I knew well—it was Koshtantau itself.

Captain Powell sat down to sketch. The hillside had become steeper and wilder ; we could climb instead of trudge. Disregarding the cries of a Tartar shepherd who was feeding his flock on the highest herbage, Fischer and I moved rapidly, incited by the keen air of 10,000 feet. We gained a rocky crest overlooking the defile of the Cherek and the entrance to the Tiutium valley. We followed it to the highest of a family of M. Bogdanoff's stone-men, on an eminence of about 11,500 feet, or 6000 feet above our camp. The clouds were by this time parting and sinking below the circle of peaks ; the whole course of the Dykhsu Glacier was in view. Its moraines flowed towards us in beautiful curving lines from the base of the great chain. The Agashtan Glacier poured in a broad gentle stream from the watershed between us and the Skenis Skali, spreading out its lower skirts among green alps and wooded knolls, and draping the cliffs above the Cherek with an icy fringe. Ailama was conspicuous on the left by its white Capuchin's hood. Shkara—that majestic mountain—shot up in a vast white wedge against the upper blue. Beyond it the mists were melting from Janga and Gestola. But the peak that first caught and last held our gaze was Koshtantau. It was the nearest and also the most remarkable in form. It shows on this side a broad white crest, the lines of which meet in a fine point. Its pure upper snows soar from a broad pedestal of ridges of light-coloured granite, mountains themselves 15,000 feet in height. My companion looked with brimming eyes on the scene of his brother's death, exclaiming as he looked, 'What a mountain ! I am glad they rest on so noble a peak.'

From the peak itself a splintered crest descends towards the Cherek, bending northwards as it trends away from the summit. This, the Kashtan crest of Russian maps, separates the Ulluauz and Tiutium valleys. The gap by which we believed the climbers to have crossed was in view, defended on this side by precipitous, but not inaccessible, crags. At their base lay a long snow-basin, its floor, some 12,500 feet in height, filled with the gently sloping

névé of a glacier which poured over in an ice-fall, terribly torn, and about 3000 feet in vertical height, into the Tiutiun Valley. From our viewpoint it was difficult to feel any certainty as to whether this ice-fall was passable, or how far the very steep slopes on its right bank—on its left were precipices—would prove of service. Subject to this doubt—only to be resolved on the spot—our route was clear. The lower part of the Tiutiun Valley was hidden, but we noted that it bifurcated near its entrance and that the northern glen fell from an extensive glacier plateau lying under the Kashtan crest. Still farther north, and altogether separated by miles of waste from the Tiutiun and the supposed pass, we looked on steep slopes of broken rock and snow-patches, forming the sides of the Kashtan glen, a name transformed to Koshtan by the surveyors in the case of the highest peak, to which they have lately applied it. My reconnaissance had been fully successful. I had obtained that general distant panorama of the ground about Koshtantau which was essential if we were to avoid subsequent blunders and misdirected wanderings.

It was warm on the lee side of the crest, where the fine-weather east wind did not reach us, and we sat long watching the magical effects of mist and mountain, and light and shadow, as the sun sank westwards. The atmosphere of the Caucasus has more depth, more transparency, more lucidity, than that of the Alps: like that of the Westmorland Lakes, it seems to refine the forms and soften the harshness of the mountains, while it adds to their apparent height. It must have been six o'clock before we started down by a more direct ridge; and I never was in greater danger of a tumble than for the first twenty minutes. It was impossible not to have one's eyes fixed constantly on the upper air, watching glory-coated mists as they whirled up suddenly from the valley, to be caught in the swift breeze and shredded into a thousand fragments, which danced in prismatic colours before the great peaks, hid them for a moment, and then left the deep blue of heaven as pure as before.

Suddenly these visions ceased; we plunged into the cloud-roof that arched the lower world, and ran—the slopes were so steep that we could hardly stop when we had once set off running—

down to the great meadow, over 5000 feet below, in less than an hour. On our return we found that our companions had got back before us. Woolley had entered the vale of the Tintun, and discovered a glacier to which he had seen a way over grass-slopes so precipitous and slippery that he thought we might have to rope to pass them. This glacier proved next day to be the wrong glacier, that of the northern glen, the Ghertui; but Woolley's work had been none the less serviceable, as he had found also a fair path up the main Tintuusu.

All had been arranged for a very early start next day (the 28th July), and we had closed our tent-curtains, when Captain Powell was summoned down to the Surveyor's quarters, and a note addressed to me from Baron Ungern Sternberg, a geologist on the staff of the Governor of the Caucasus, was handed to him. It was dated from 'the Cherek Valley,' and was in the following terms. I abridge:—

'I have crossed to-day, with my Tyrolese guide, the pass from Ullnauz to Balkar. There is no second pass. The descent is very difficult. There are three stone-men on the crest, which, as my native guides tell me the pass is not used by their people, I believe to have been built by Fox and Donkin.'

My first impression on reading the Baron's letter was to believe that he had crossed the Ullnauz Pass. For it seemed strange (since he had with him an Alpine guide) that he should deny the possibility of any pass nearer Koshtantau than his own, unless he had crossed this notable gap. But on second thoughts such an interpretation seemed untenable. It was not credible that a mountaineer of no great experience should have got through the *séacs* I had just seen and not have particularly referred to them. Hence I argued the Baron must have crossed the chain farther north. Granted this, however, the stone-men he described remained to be accounted for. The Baron was camped not far off, the Cossack who had brought the letter said 'across the first bridge.' We hastily took this to mean the Tintuusu bridge. I offered to start at dawn and interview the Baron, leaving the rest of the party to catch me up.

Before sunrise I was off on horseback alone under a cloudless sky. In an hour and a quarter I had reached the roaring Tiutiunsu, and led my horse down the steep pitch beyond it. I rode on for twenty minutes, to a spot whence I could look far down the valley, but no tent was in sight. I resolved to return and wait for my companions. On their arrival, Powell and I rode on, pressing what pace we dared out of our horses on a path which in many places was little better than a broken staircase. After a long hour's ride, we saw a bridge over the Cherek, and beyond it, on a level meadow, a light silk tent.

Baron Ungern Sternberg received us with all the hospitality possible under the circumstances. He reported to us that he had crossed from the foot of the Ulluaux Glacier into the Kashtan Glen, that he was confident he had discovered Fox and Donkin's pass, and that since, though difficult, it was not a dangerous pass for such skilful climbers, he was confirmed in the belief held, he stated, by Colonel Viruboff, the Nachalnik of the Naltshik district, that our countrymen had been the victims of foul play. He reported various petty tales to the disadvantage of Rieger, their interpreter. He told a story of how a native had been found with a wound which might have been inflicted by an ice-axe. The suspected man had proved an alibi, but alibis were easily proved in the Caucasus, and the old chief of Bezingi felt convinced that murder had been committed—though, of course, after the travellers had left the particular district he was responsible for. He had averred it even with tears in his eyes.

Nothing of all this carried weight in my mind. I pointed out to the Baron that we had in Fox's Diary explicit instructions where to search; that I had myself shown Fox, as I was then showing him, by means of M. de Déchy's photographs, the position where I believed a route to lie. The Baron confidently denied the possibility of passage at the spot I indicated on the map and photographs. He had, he said, spent three days on the Ulluaux Glacier, and was certain no such pass could be made. I could only reply that the point was one for an expert's opinion, and that my experience convinced me that I was not in any risk of being mistaken.

There remained the question of the stone-men found, and the footmarks alleged to have been seen by the second search-party, the previous autumn, on the Baron's Pass. Fortunately a Bezingi native, a member of that search-party, was present. He was questioned through Powell, 'Can you say who built the stone-men?' 'No; our searchers, or surveyors, may have built them.' 'Were the footmarks found those of nailed boots like mine?' 'I cannot say; *our Starshina told us* they were the tracks of the Englishmen.' The one puzzling point in the evidence seemed now in a fair way to be cleared up. The native search-parties of the previous autumn (subsequent to M. Jukoff's) had not gone on the right track at all; they had wandered off to a hunters' pass to the Kashtan Glen, and the footsteps they saw—if they really saw any except those on the Ulluauz Glacier—were not our friends', but those of the Surveyor's party. The Starshina, having been ordered to search till he found something, had made haste to find footmarks *leading out of his district*. M. Jukoff subsequently informed us that his staff had built stone-men at the spot in question.

Captain Powell and I rode back in noontide heat up the grand defile of the Cherek. Stiff as tent-poles we dismounted from our Tartar saddles and forced our muscles into a new form of activity. For the first half-hour it was troublesome enough. Some 800 feet up the hill we found our heavily laden comrades, the sick man's place taken by a sturdy young Cossack who was carrying more than his fair share of our packs.

The stream from the Ghertui Glacier was soon left far below. A donkey-track, much used by natives collecting brushwood, zigzagged steeply up amongst beautiful birch-trees and mossy crags, which completely concealed all that lay above. Beyond a brow it went down steeply to the foaming torrent. A few hundred yards of gentle ascent beside the tumbling water, and we looked into a long level upland glen closed by a rocky barrier, hung with snow and ice, at the foot of which the snout of a large glacier pushed forward its grey lines of moraine among the bright hues of the grass and flowers. Flowers covered everything. Our path was buried in

them. Dense beds of cream rhododendron in full bloom clothed the lower slopes, the river banks were painted blue and white and yellow with blossom—gentians and forget-me-nots, daisy-like pyrethrums, primulas, and many other less familiar blooms. The ground below the glacier was so densely carpeted that walking was made very difficult by the complete concealment of the uneven surface. Over the head of the ice-fall gleamed the white crest of Koshtantau, the granite towers and two great obelisks on its eastern ridge thrown up against the crowning snows. We struck up on to the old moraine and walked along its edge. The ice had resumed its advance, and was wrinkling up the loose ground before it in all directions. The top of the moraine presently grew too narrow and broken to serve conveniently as a path, and we left it where a little plain (or slope so gentle that amongst these vast mountains it might be held a plain) spread out on our left, seamed by the water-courses from a small glacier high above. The ice-fall of the great glacier was now full in view opposite us, a superb pile of frozen ruin. The lower part was clearly impassable, and so were the rocks on its left, but on our side there was no difficulty in climbing up steep grassy crags to at least half the height of the fall. At the very base of these slopes we found two deserted Koshes or shepherds' quarters—one under the moraine, the other 500 yards off under the hillside. Each consisted of a low wall built round a pen or pound; the first was floored with manure and partially inundated by the meltings of an adjacent snowbed; the second and more eligible was a thicket of gigantic broad-leaved weeds wet with recent rains—about as convenient quarters as a rhubarb-bed in an English kitchen-garden. We laid low the weeds with our ice-axes until they were reduced to the form of a carpet; then our sleeping-bags were spread, and a fire lighted with wood 'conveyed' from the first Kosh—for we were above the tree-level. We enjoyed the fire until dark, when we got into our bags and pretended to be comfortable. In truth, the ground was lumpy, and the air began to tingle sharply enough with frost to make us bury our heads in the flannel. When I awoke the mountain outlines were black as blots upon

a heaven alive with light, and over the crooked granite teeth of the cliffs beyond the glacier the morning star was swimming up slowly on the front of the dawn. I watched it, wondering vaguely what the day would bring forth, until the pale lemon light grew stronger on the horizon and touched the tops of the eastward peaks. Then I played the odious part of an alarm. Two of the guides had found a hole in the rock only accessible by a narrow funnel. Stones had to be heaved into it in order to arouse them. Fischer had sought solitude somewhere, and was hidden (like one of Doyle's elves) among the gigantic vegetables. The Cossack, however, was within reach, and was prompt in creating a cheerful fire.

It was broad day (5 A.M.), and there was not a cloud in the sky when we set out. The first hour's climb up to the glacier was steep but easy, and there was little moraine to cross. We ascended the slippery slopes of avalanche-snow, fallen in spring from the cliffs on our left, for some distance before we plunged into the heart of the ice-fall. First we found a way through a narrow gate between frozen blocks, then we picked a path under a row of ice-cliffs among the fragments which, from time to time, had tumbled over. Hurrying past these dangerous neighbours, we mounted once more between deep trenches where the ice-axe had often to do its work. One vast, far-stretching chasm, or rather network of branching vaults, seemed to sever us effectually from the corridor under the opposite rocks, by which we hoped to turn the final line of ice-towers. But it was bridged, and this obstacle crossed, we felt certain of success in reaching the upper snowfield. We entered the trough under the further cliffs, drank some water which trickled from them, and found near at hand magnificent primulas growing solitary in the frozen waste at a height of about 12,000 feet. A little more step-cutting in hard ice, raked once or twice a season by falling *séraes*, landed us in safety on the smooth fields of *névé*. Close beside us rose a stupendous mass of blocks and towers of opaque ice, like polar icebergs, on the edge of the frozen cataract. But straight in front an even-floored, gently sloping, broad white corridor stretched

into the secret heart of the mountains—so secret that even the Surveyors had missed it entirely. On all sides pale grey granite cliffs, or the steepest ice, overhung the untrodden snows. At the head of the glacier a steep ridge, seamed by two precipitous gullies, closed the view. Only to their right (as we looked) was there any semblance of possible exit by a practicable snow-slope in this direction, and that exit led to the summit of Koshtantau. Behind us, however, easy slopes trended back to a comparatively low ridge. I recognised it as a false col leading to the Ghertui Glacier.

‘Where are we going then?—up those ice-chimneys?’ asked our Swiss, impressed by the scale of the virgin solitudes, distrustful of my local knowledge, and despondent as to the chances of any discovery in so vast a field of search. I could only assure my companions that to me our route was as clear as that to the Strahleck might be to them, that behind the next buttress of the northern range we should see a pass, and be able to climb to it up steep rocks. We were now approaching the spot where it was reasonable to begin to look for traces of the lost party, if they had fulfilled Fox’s intention and ‘attempted Koshtantau from the south side of the pass.’ But the few possible sites bore no signs of a bivouac.

We tramped steadily up the snow-banks in the blazing sunshine, until, about 10.30 A.M., we stood opposite and under the gap I had seen and sketched twenty-one years before, as well as on the previous day. It was high above us, 1200 to 1400 feet, in an inward bend of the range on our right hand. A broad sheet of snow swept down from it; a narrower white tongue ran up more than half-way. The rib of rocks separating the two snow-troughs supplied an obviously serviceable, if steep, ladder. Maurer, indeed, suggested some rocks more to our right, but they had no claim to be preferred. We crossed a half-open fosse or *Bergschrund*, kicked a few steps in the snow above it, and then grappled with the rocks. They were precipitous, and had to be climbed with hands and knees; but they would not be reckoned difficult among men accustomed to Alpine work.

That is to say, there was good handhold wherever footing was scanty. This was fortunate, for we could now see that the snow on our left lay very loosely on hard ice, and a broad stream of water was flashing down its centre, so powerful are the rays of a Caucasian sun even at 13,000 feet.

The crags beside the glacier having yielded us no traces, we felt that the next step was to go to the pass itself, where we might look for a stone-man, and possibly a record. But we were fully occupied with the practical details of climbing and in no immediate expectation of any discovery, when about noon the leader, at the rope's end, suddenly stopped short, and gasped out, 'Herr Gott! the sleeping-place!'

Before our eyes rose a low wall of large loose stones, built in the form of a semicircle with its convex side to the precipice below, and enclosing a shelf on the face of the cliffs, some six feet across in either direction, and partially overhung and sheltered by a projecting eave of rock. In a moment we were all overlooking the wall. The first object to catch my eyes was a black stewpan, half-full of water, in which a metal drinking-cup floated. A revolver in its case hung under the rocks. The space inside the wall and between it and the overhanging crag was filled with snow and ice to a depth of several feet. The hard-frozen surface was broken here and there by projecting portions of *Rucksacks* and sleeping-bags. The bags were not empty. A momentary shudder passed through more than one mind: 'How are they filled?' But a second glance showed us that there was no terrible discovery to be feared—terrible because it would have meant a lingering fate to our friends. Everything was there—most things at least—except themselves. That they were lost we had long known; yet this sudden discovery of their personal belongings, just as they had left them eleven months before, the consciousness that we stood on their last halting-place, sent a fresh thrill through every heart. Even in the common haunts of men familiar relics move us. How much more so when found in solitudes, which have seen no previous visitors except those whom they hide somewhere in their icy caverns. Surrounded by

so many memorials of the missing, so many objects that spoke of individual traits of character and habit, it was difficult to believe in the catastrophe. It almost seemed natural to expect that our friends might at any moment be seen coming quickly over the crags to regain the bivouac where all still lay exactly as when they quitted it for their last climb.

After the first keen moments of discovery, the necessary work of digging out relics and searching for records was set about in earnest. It was no light task, for on this sunward shelf the snow had often melted and frozen again. The bags were embedded in hard ice mixed with stones, against which our axes often rang ineffectually. The little camp hung like an eagle's nest, on the edge of a cliff of at least 1000 feet. Any object, such as the still well-stocked meat-bag, thrown over its wall fell vertically for some fifty feet into the lesser snow-gully, and then slid swiftly to the level snows far below. Space allowed only three men to work at once inside the wall; outside it no step could be taken without the greatest caution, and Powell found with difficulty a tiny ledge, whence he could safely sketch the eyrie.¹

Woolley and I, with one guide, went on to the pass, still some 300 feet above us. The ascent took us more than half an hour. The first part was hard climbing, up an icy chimney, and then along a rib of rock, steep and narrow. From its top we turned to our left across a broad frozen slope, the head of the great *couloir*, or snow-trough. There the snow covered ice, but was sufficiently adhesive for safety at the moderate angle at which the part we had to cross lay. With due precaution we traversed it to the pass, a ridge broken by crags, on one of which we could see a small pile of stones. As the crest fell before our eyes we looked over it, first to the flashing lines of the rivers in the distant steppe, next on the meadow of Dumala,

¹ Captain Powell's sketch gives a most correct impression of the spot. The shelf of rocks by which we ascended was invisible from where he sat. The crack above, and to the right of the bivouac, is that by which Mr. Woolley and I climbed on to the pass. The only liberty taken has been in the foreground. Captain Powell actually sat on the little bracket of crag directly below the crack, or chimney.

the last camping-ground of Donkin and Fox. The Baron had had little reason for his incredulity; there was no serious difficulty for mountaineers with a rope in the descent on that side. Broad crevassed slopes fell towards the snow-basin which feeds the south-eastern branch of the Ulluaux Glacier. Across this basin the great peak and its precipices were full in view. The summit still rose 2500 feet overhead, and another 1000 feet above the snow-plain of the Ulluaux—the height, that is, of Mont Blanc above the Grand Plateau. Its face was a pile of rocks and ice-cliffs and steep slopes, seamed by gaping chasms, one so large and so blue that Mr. Woolley was able subsequently to recognise it through a field-glass from one of the stations on the Ciscaucasian Railway, a distance of at least fifty miles. We descended a few yards on the farther side of the pass, and carefully examined the eastern ridge; its northern face is so sheeted with ice as to be perfectly unassailable, and no man in his senses would attempt to traverse it. The crest itself between us and Koshtantau was broken by high towers or thin Needles, and equally impracticable. It was obvious that mountaineers longing to get at the smooth upper snows from the ridge we stood on must make their attempt, if at all, by the ledges and gullies on the Tiutiu, or southern, side. They would not touch the crest till beyond the great tower. There it was corniced, but at this spot, where the eastern ridge abuts on the southern, there is, as Mr. Woolley subsequently proved, space to spare, and no one need, and no experienced climber would, run any risk of falling. Close to the top of Koshtantau a crevasse runs round the peak, and above this on the south lies a bank of small loose rocks, on which a stone-man would most certainly have been built by successful climbers; but a powerful telescope established the absence of any sign of a cairn or stone-man—and here again Mr. Woolley made assurance doubly sure by his subsequent ascent.

We carefully pulled to pieces the little stone-man on the pass, but found no record within it. We then rebuilt it, and inserted a memorandum of our visit. The scene we looked on as we lingered on the rocks beside it was strangely beautiful and

impressive. The silence of the upper snows was broken only by the constant ring of the axes and the voices of our comrades which rose clearly through the thin air as they still laboured in their sad task of seeking all that might be found under the icy coverlet. Their figures were thrown out on the edge of the crags against the surface of the Tutiun snowfields, as are those of sailors on a masthead against the sea, when seen from some high cliff. The day was cloudless, the air crystalline, space was for a moment



LOOKING EAST FROM ABOVE KARAUŁ

annihilated or shown in a scale by which we each seemed to stand, not six feet, but 14,000 feet high! The many passes and heights of the central ridge of the Caucasus lay literally at our feet. We looked over them and past the clustered peaks and vast snow-reservoirs of the Adai Khokh Group to innumerable indefinite distances, amongst which I recognised the horn of Shoda, green heights of Racha, blue mountains of Achalzich, opalescent Armenian ranges fading into a saffron sky, on which hung the far-off amber cloudlets which often mark the position of Ararat. Every detail was distinct as on a mapman's model, yet the whole was vast and vague, wonderful

and strange, creating an impression of immeasurable shining space, of the Earth as it might first appear to a visitant from some other planet. The splendour of nature on this day of days seemed not out of harmony with the sadness of our errand. It affected the mind as a solemn and sympathetic Music. While I gazed, four white butterflies circled round the little monument, and again fluttered off. An ancient Greek would have found a symbol in the incident.

Our eyes might wander for a moment, but our thoughts soon returned to our immediate errand. Sitting on the rocks beside the melancholy little stone-man, the story of the catastrophe seemed to unfold itself. The mountaineers, all heavily laden, travellers as well as guides, had reached about noon the crest of the range at the point where we stood. They had given up all thoughts of an attack on the great peak from the side of the Ullhauz, and, following the suggestion made in my notes, and the intention so clearly expressed in Fox's Diary, meant to go down to the Tütium snowfield, and 'climb Koshtantau from the south side.' As they descended, the southern cliffs of the ridge they were on came partially into view. For a short distance these were practicable; beyond they became more formidable, but, owing to foreshortening, how formidable must still have remained for them a matter of speculation. Afternoon clouds probably played about the crests and obscured their features. They saw frozen gullies which might be cut across, ledges that might lead far. A month later in the year the broad sheets of ice, which now would have rendered such an attempt too obviously hazardous, had probably in great part disappeared under the sun of August. They had in their minds the smooth upper snows, that pleasant ridge which, once the great towers passed, leads in continuous curves to the crowning peak. They had never examined from any distant vantage-point the full breadth and height and formidable nature of the crest that separated them from the last tower. Its passage, they persuaded themselves, was worth the attempt, a *mauvais pas* to be faced and surmounted. The alternative was to descend many hundred feet to the Tütium *névé*, to lose all this height for the morrow, to carry down the wraps and provisions they had laboriously raised so far. They may naturally

have been biassed by the fact that they had tried a similar descent from the Mishirgi Pass two days before, and the result had been failure. They had, of course, never seen the broad snow-slope which runs up from the head of the Tintium Glacier. It was altogether concealed by the buttresses close at hand. It was easiest at the moment to stay where they were; and the feeling of the moment weighs, particularly with guides and heavily laden men.

The ledge was found, and the fatal decision made. The loads were laid down, and all went cheerfully to work. Fox doubtless set the guides to wall-building, and laboured hard at it himself; Donkin looked to the fire, adjusted his camera, made his boiling-point observations, unpacked and repacked some of his instruments, meeting the occasion, after his manner, by nice adaptations of homely articles to purposes for which they were never intended. Thus we discovered some delicate instruments done up in the neatest possible parcel in a sock and glove, and all tied together with a bootlace. The red flames of the little fire (we found remnants of firewood) shone for a short time on the icicle-hung rocks, and then the mountaineers rolled themselves close together in their wraps.

Their start next morning was certainly not a hurried one. All loose objects were carefully stowed inside the sacks—except a revolver, which was left hanging on the rocks. We may infer from their leaving it thus partially exposed, that they saw little risk of bad weather before their return. They roped and started, Donkin as usual carrying his light camera on his own shoulders. They cut across the great trough. But here our evidence ends and conjecture begins. The fresh snow mentioned in Fox's Diary may have added to the danger of shelves and ridges difficult at all times. Somewhere the snow slipped with them, or—but what use speculating how the end came? It is enough to know that it must have been swift, simultaneous, painless; that anything that falls on those cliffs falls far, and that in all likelihood the blue ice-vaults at the crags' foot gave to the climbers an immediate and a sufficient tomb. The whole of the ground under the cliffs was carefully searched with strong glasses by us, and ten days later Mr. Woolley

and his guides passed twice along it in his successful ascent of Koshtantau, when he made certain that the peak had not been climbed—that the accident, therefore, happened on the ascent, or on the return from an unsuccessful attempt.

There were only two ways in which our search could have been pushed farther; by attempting to follow the climbers' probable track across the cliffs, or by conveying an army of diggers to the upper snowfields.

The first, *in the condition in which the rocks were at the time of our visit*, would have been highly dangerous. I emphasise these words because in the Caucasus, even more than in the Alps, conditions change from year to year, and from month to month, and I would not be thought to impute to our friends any intentional rashness. A full month later in the year the crags may well have been far less ice-coated, and, therefore, less obviously dangerous. In some snowless year a passage may be found across these cliffs; after the experience of the Alps, it would be rash to call any cliff impassable. But they lie off the proper line of ascent to Koshtantau, the broad snow-slope at the head of the Tintium Glacier, which was attacked by Mr. Woolley;¹ and their passage could, I think, hardly lead to any further result than the possible recovery of Donkin's camera—if he left it behind in some niche, a supposition which, to those who remember his habits best, seems not very probable.

As to the second idea—even if we could have got a regiment of diggers to the spot (which was impossible), their work would almost certainly have been thrown away. A large sleeping-bag which we left at the foot of the cliff had entirely disappeared ten days later—under some fresh fall, or by sliding into the *Bergschrund*—when Woolley returned to the Tintium Glacier. What chance would there have been of finding anything buried under a winter's fall and the accumulations of eleven months?

We had learnt all we came to ascertain—in what way and, within a very few hundred yards, where our friends met their

¹ See next chapter.

death and lie buried. To disinter them had never been any part of our plans or wishes. We were well satisfied to leave the mountaineers in their high tomb, warded by the frosty walls and watched only by the stars, with the brightest peak of the Caucasus for their perpetual monument.

Though within cry, it took us forty minutes to regain our companions, for we had to move carefully on the steep rocks. Some few relics were collected, sufficient to satisfy friends, and to prove to the natives and officials what we had discovered. The revolver with all its barrels loaded, some notes and sketches made by Fox, an instrument or two: these were the principal objects brought down. We carried away a self-cooking soup-tin, and on a match being put to the spirits of wine they burnt up at once, and the contents proved unspoilt. One or two objects, accidentally dropped, fell directly to our tracks on the *névé*, 1000 feet below.

I have written in vain if I have not made it clear that this part of the range is, from its steepness and its crevassed glaciers, inaccessible to all but mountaineers, and that this gap we call a pass has never been reached but by the lost party and ourselves, and is never likely to be visited by native hunters, unless led. Yet it is a pass that will always be recognised as such by men familiar with the passes made of late years in the Alps. There is but one way to it, and that is straight and narrow. These were our chief advantages in our task: we recognised easily from previous experiences the direction in which to look; and that point determined, our field of search was comparatively limited.

As far as the top of the ice-fall all went smoothly; there our leader missed for a moment the morning's track. A little further one of the snow-bridges over a crevasse had fallen since we passed, and several flying leaps were called for. But we suffered no check of any consequence; nothing but what in another mood we might have laughed over; and by dusk we were again in our Kosh. Early next day we returned down the valley of flowers to Karaul.¹

¹ During the three days of our absence no cloud had crossed the sky or touched a mountain peak. Such weather is rare in the Caucasus, and only prevails when a north-east wind is

After our discovery of the bivouac, I made a subsidiary exploration of the Upper Mishirgi (or Kundium Mishirgi, as M. Jukoff has named the eastern branch of that glacier), which enables me to explain the topography of the first attempt on Koshtantau, the miscarriage of which was so deplorable. It may be most convenient to describe it here. Accident on this occasion deprived me of my companions. After leaving Karaul we had had three days of desperately dull weather. The northern valleys were smothered in



THE MISHIRGI GLACIER AND UKIU

wet mists. On the fourth morning we were camped hard by the foot of the Bezingi Glacier, and the clouds were lying lower than ever, when, through a sudden break, the white wall of Katuintau shone out, backed by blue so pure that I succeeded in convincing myself that all might be clear on the heights. I had not faith enough in

blowing. I enjoyed, however, ten days of it in 1887. The atmosphere at such times is often marvellously clear; I saw the crevasses in the high glaciers west of the Klukhor Pass clearly from the deck of a Black Sea steamer off Ochem-chiri (forty miles distant). But there is more colour in Caucasian skies than in Alpine. And after several clear days a thin transparent haze (the dust of the steppe?) softens without hiding the outlines of the great peaks, and gilds their snows.

my own belief, however, to persuade others, and the consequence was that I started alone with Fischer. When we got to the foot of the Mishirgi Glacier we almost gave up hope. But yet another window was opened in heaven. We plodded on up a flowery dell beside the glacier. Then we came on a piece of moraine: gigantic unstable boulders, which gave severe exercise to eyes and limbs. Weary of gymnastics, we struck out on to the ice and tramped doggedly up the glacier. There was a rapid lightening and a twinkling in the mist; then the fog settled down again so thickly that for a few minutes I quite lost sight of, and had to shout for, my companion. And then, in one moment, the vapours parted, and we almost held our breaths while the sheer height of Dykhtau, 8000 feet of snow-cliffs, burst suddenly in all its glory upon us. Not only Dykhtau but the whole circle, the bare cliffs of Missesstau—a Caucasian *Lo Besso*—the triple head of Mishirgitau, the great buttresses and icy crest of Ullauz Bashi, the granitic ridges which Ukiu dominates. It was a sight never to be forgotten, one of those magical revelations which Nature reserves for those who are her old and proved lovers.

The mists of the valleys were forgotten: we were received into an unsullied upper world of blue and white. But what we had come to see still remained hidden. We were almost at the junction of the upper glaciers, but we could not yet look into the basin of the Kundium Mishirgi. I had no doubt what to do next. Looking at the time at our disposal, we should obviously see most by pushing up between the tracks of the avalanches that fall from the cliffs of Dykhtau. As we hurried up the steep banks of riven snow, first a great crag and a broken crest, then the peak of Koshtantau and its long northern ridge came into view. On this side the peak is precipitous and broad, resembling the *Weisshorn* from Zinal, but on a larger scale. Its northern ridge looks, and I do not doubt that it is, practicable. The problem is, the proper access to it. This is apparently either by forcing the rock-tower close to the Mishirgi Pass that guards the lower end of the ridge, as was proposed by Fox,

or by cutting or treading steps up the snow-slopes from the Kundium Mishirgi, and striking the ridge where it grows steep. The first may, or may not, be possible; the second, if the snow is found in fair condition, would certainly be practicable. It might also in different conditions, like most Caucasian slopes, be dangerous, but this would be an exceptional state.

The relics we had brought down from the bivouac were sufficient to satisfy all men of the results of the search. Henceforth, on our



THE NORTH FACE OF MISHIRGITAU

arrival in any mountain village the following scene was repeated. The chief received us at the guest-house, and, the customary compliments paid, inquired as to the results of our journey. What we had done was shortly explained in Russian by Captain Powell to the chief, then the village was summoned and the story repeated more at length, and at the proper moment the articles found, the bags and revolver, shown. This exhibition invariably drew forth a deep exclamation of sympathetic interest from the assembly, who followed the tale, as translated to them in Turkish by their chief, with the closest attention. At the end a more or less

formal, but evidently heartfelt, speech would be made to us to this effect:—

‘We were deeply grieved by the loss of your countrymen, whom we knew and honoured as brave men. We were also grieved that they should have been lost in our country, and that thus a most unjust suspicion should have been cast on our good name. You have never believed, you tell us, in this charge made against us, and you have come from far to remove the suspicion and its consequences from us, and we thank you from the bottom of our hearts. No one but Englishmen could have gone where Donkin and Fox perished, and where you have been. We know and admire English energy, and every Englishman will be welcome among our people. Your friends will always be doubly welcome.’ And then the speaker concluded in the traditional forms of Oriental courtesy, ‘We are brothers, and all we have is at your disposal.’

There can be no doubt that a heavy burden of suspicion was taken off the shoulders of the Turkish mountaineers who live between Elbruz and Ossetia by our discovery. They are, as far as I know them, a race with many good qualities, though it must be admitted that they have some unamiable traits, which are the first to strike a stranger. They are hard dealers in business matters, and great arguers, with—so long as they are at home—no sense of time. But once on the road they improve wonderfully; they walk splendidly, wherever a man in leathern sandals stuffed with hay can walk; they have a great respect for feats of activity, and soon make friends with English mountaineers. Their traditions are hospitable, and their goodwill once won is long retained. A boy of fourteen will do the honours of his Kosh, bring out milk and cream in lordly bowls, and decline payment afterwards with a grace rare, to say the least, in the Alps.

CHAPTER XVII

THE ASCENT OF KOSHTANTAU¹

BY HERMANN WOOLLEY

Est in difficultate locorum et praecipitiis periculum, ciborum et lectorum deliciae desunt ; sunt haec vera ; jucundum erit postea meminisse laborum atque periculorum, juvabit haec animo revolvere et narrare amicis. CONRAD GESNER, A.D. 1555.



THE members of Mr. Holder's party in 1868, glorious as were their immediate surroundings, and ample as was the occupation afforded by the great peaks immediately above the Bezingi Glacier, had often cast longing eyes across the Mishirgi basin to the stately snow-pyramid

that crowns the cliffs of Koshtantau. Various causes, however, prevented us from making any attack on the mountain, and I well remember the regret Holder and I felt as we drove away from Naltshik one September morning (still in ignorance of the catastrophe which had just occurred) at being obliged to leave the noble peak behind us without even attempting its ascent.

Accordingly, finding myself in the following year at Karaul on the conclusion of the labours of the search expedition with a tent, sleeping-bags, and plenty of provisions, and with two guides—Christian Jossi and Johann Kaufmann, both of Grindelwald—I

¹ The following chapter is reprinted from the *Alpine Journal*, vol. xv.

determined to take advantage of the opportunity, and not to leave the district without making an attempt, or if necessary a series of attempts, to attain the summit.

The other members of the search-party left for Bezingi on August 1; but, before departing, each one had afforded me most welcome and valuable assistance. Captain Powell had obtained for me, through the medium of Anzor Aidebuloff, Starshina of Balkar, a very capable native chamois-hunter as porter; Mr. Freshfield had given me copious information about the neighbouring mountains, and had explained what was known of the topography of the Dykhsu basin; while Mr. Dent had steered Kaufmann through an attack of dysentery, and had left instructions for his further treatment. This timely service was perhaps the saving of my expedition, for without such advice and aid my anxiety at Kaufmann's condition would not improbably have prompted me to make my way straight back to Switzerland.

At the outset I had by no means decided what route to choose in attacking Koshtantau. In 1888 our party had seen the northern ridge from the shoulder of Dykhtau, and it had then appeared to offer a promising line of ascent from the Mishirgi Glacier. But it was a far cry to the latter place from Karaul, and before moving round to that side of the mountain, I was disposed to try to gain the northern ridge by crossing Donkin and Fox's Ullauz Pass on the eastern crest, and traversing the highest plateau of the Ullauz *névé*; for this had seemed feasible to Freshfield, Jossi, and myself the day we were on the gap in question. There was, however, another course open. As we were returning down the Tiutium Glacier after the discovery of Donkin and Fox's last bivouac, Dent drew my attention to the slopes at the head of the ice-basin, and suggested that a route might be found in that direction.¹

Before acting on this suggestion I decided to reconnoitre the

¹ This was the direction in which I had, on the strength of A. W. Moore's and my own inspection of the peak from the Shtuluysek in 1868, recommended Donkin to try it. Unfortunately his party tried to follow the east ridge instead of 'going up to the head of the glacier south of the Ullauz Pass.'—D. W. F.

mountain from the south-west in order to ascertain if there were any chance of attacking it from that side, either by the southern ridge or in any other way. This plan had also the advantage of giving Kaufmann an extra day or two to recover strength, as he was not yet fit for hard work.

Accordingly, on August 4, accompanied by Jossi and the native porter, and taking three days' provisions, I started on a journey



THE FYTNARGYN GLACIER

of discovery up the Dykhsu Glacier. The whole of the first day's walk was of unceasing interest, as, with the exception of M. Bogdanoff, of the Russian Survey, probably no stranger had as yet passed up the great ice-stream, and every mile we advanced revealed hitherto unknown and unsuspected splendours. At 11 A.M. we arrived at a hunter's Kosh on the left bank of the glacier, directly opposite to the singularly beautiful peak now known as Ailama, which so fascinated Jossi that he offered to start for its ascent there and then.

It was at this point that we discovered that the camera had been left behind; so the native was sent back to Karaul for it, while my companion and I continued our excursion. Directly after leaving the Kosh we passed the mouth of a side-glen, down which a tributary glacier poured from the north; and looking up this valley, we beheld at its head, a little E. of N., a great peak, which could be none other than Koshtantau. By a curious coincidence it appears that, on the same day and about the same time, Mr. Freshfield and Fischer were examining the north-west face of the mountain from the Mishirgi Glacier.

Resisting the temptation to explore this new ice-stream, which, as I afterwards learnt from M. Bogdanoff, is called the Khrumkol Glacier, we passed on towards the head of the Dykhsu Glacier, and early in the afternoon reached a point on the left moraine commanding views of Shkara and of Mishirgitau. Jossi at once shifted his affections to Shkara; but, mindful of Mr. Mummery's failure with only one guide on a mountain requiring endless step-cutting, I decided to undertake in preference the rock-climb up the southern face of Mishirgitau, hoping to obtain from that peak a near and instructive view of the west side of Dykhtau.

Crossing a depression in the ridge which separates the upper reaches of the Dykhsu from the western branch of the Khrumkol Glacier, we passed the night on the right bank of the latter amidst snow scenery of imposing grandeur, and next day, in spite of a late start, were successful in reaching the point of Mishirgitau at which we aimed (about 16,400 feet), only to find that it was not the highest peak of the mountain.

During this expedition we saw enough of the southern ridge of Koshtantau to be able to conclude that once upon it we should have a good chance of success; but the formidable appearance of the precipices which fall on the western side of the crest to the Khrumkol Glacier deterred us from attempting the ascent from this direction. Nor were we favourably impressed by our inspection of the western ridge, which in several places seemed excessively steep. Consequently, on August 6th we returned to Karaul, with

the intention of making for the head of the Tiutiun Glacier. Here I hoped to find a *coulair* leading to the final peak, or at any rate to the upper portion of the southern ridge of Koshtantau, and so to avoid altogether the ill-omened eastern ridge.

On arriving at Karaul we found Kaufmann much better, and on hearing our plans he asked to be included in the party. The Balkar hunter was also induced to accompany us as far as he could to help to carry the sleeping-bags and other impedimenta.



NUAMKUAM FROM THE DYKHSU GLACIER

Kutché Janibergoff, for this was his name, merits a few words of description. He was thirty to thirty-five years of age, rather short for a Turk, but wiry and enduring, as they all are. His countenance, more of the Teutonic than of the Tartar type, wore an unvarying expression of kindly good-humour, and was a good face for a low comedian, for he always looked as if about to say something facetious. He never did, however; and if he had done so, the best of jokes expressed in Turkish would have been quite wasted

on us. Dressed in the usual lambswool cap and a long cherkeska, or outer coat of grey homespun, he never went abroad without his flint gun in its sheepskin case ('Lumpenbüchse,' Jossi contemptuously called it) and his staff, the latter a ponderous implement, which began like an alpenstock and ended like a fire-poker, being shod with an iron bar about a foot long. It was a durable-looking staff, and will probably serve the Janibergoff family for several generations before being worn out.

In disposition Kutché was gentle, patient, and obliging, and would carry any burden we gave him without grumbling; and although not such a good climber as the Bezingi hunter Byaslán, he was a much more satisfactory man to employ. The only occasion on which he showed signs of discontent was when the professional agitator appeared in the shape of M. Bogdanoff's chief interpreter, who was introduced to the search party as a chief, or son of a chief, of Balkar. This worthy represented to me that Kutché was being underfed, and demanded more food on his behalf. There did not appear to be much justice in the complaint, but in order to ensure satisfactory relations I told the guides to serve him out a good meal on the spot. Kutché did not, however, reap all the benefit, for the reputed chief immediately invited himself to dine with his client, and the two, squatting by the camp fire, shared the feast. Still, every one seemed to be satisfied, the strike was averted, and we had no further trouble with our man.

The next day, like most 'off-days' at Karaul, was spent in bathing and washing clothes in the Cherek, putting fresh nails in our boots, cooking meat, and toasting bread for the next expedition. This last operation, a practice introduced by Freshfield, was performed on a gridiron, and had become a regular custom with us, as the bread of the country was not half baked, and generally disagreed with us unless well toasted.

On these off-days my afternoons would, as a rule, pass in writing up notes and lounging on the green sward, few places in the Caucasus having such soft velvety turf as the little lawn above the junction of the Dykhsu and Cherek torrents.

Towards evening, when the shadows of the lofty crags which

guard the entrance to the Dykhsu gorge began to creep across the valley, M. Bogdanoff with his Cossacks would canter home over the Cherek bridge, and after supper a pleasant hour would be spent in inspecting the day's work on the plane table, comparing sketches, and discussing, so far as my slender Russian vocabulary permitted, the names of the various peaks and glaciers.

Sometimes the Cossacks, who came from the neighbourhood of Ekaterinodar in the Kuban district, would sit up singing in chorus



KOSHTANTAU AND THE KHRUMKOL GLACIER

round the camp fire; but generally by eight or half-past eight we had retired to our tents, and all sounds were hushed except the occasional booming of some great boulder pounding its way down the rocky bed of the Dykhsu torrent.

On Thursday, August 8th, having put all our heavy baggage inside the tent and tied up the door, our party left Karaul at 5.30 A.M., crossed the bridge over the Dykhsu, and set out down the valley by the rough bridle-path which leads on the left bank

of the Cherek to Balkar. A leisurely walk of about an hour and a quarter brought us to the mouth of the Tiutiun Glen, where we deposited our egg-box in the bushes, making signs to Kutché to take it to Balkar, on his descent, to be refilled.

Toiling up the close, oven-like side-glen by the indistinct path worn by shepherds and hunters on the right bank of the Tiutiunsu, we passed through the delightful wooded ravine in which the stream lingers before beginning its last headlong descent to join the Cherek, and entered the more open valley beyond.

While halting, the guides collected a plentiful supply of firewood—Jossi's sheet-anchor on glacier expeditions—and when we started again at eleven o'clock each man carried a large bundle on his pack. Crossing the lower end of the long moraine, we ascended the valley as far as the Kosh, near which the search party had passed two nights about ten days before. The Kosh was now occupied by two young goat-herds, who had secured the fine collection of empty soup-tins which had been left behind at the sleeping-place. Their amazement at our arrival was increased when we declined the sour goat's-milk they offered to us, for to a Caucasian sour milk seems to be the sum of everything man can desire in the shape of refreshment. Leaving the Kosh, we mounted the rocky buttress on the right bank of the ice-fall, in order to gain the level at which the search party had crossed to the left bank; and then it became necessary to relieve the native of his load and to send him back, for we dared not take him farther.

When Kutché saw us preparing to cross the ice-fall he was obviously much impressed by the gravity of our undertaking, and showed his solicitude in various ways. First, he asked me to give him a portion of his pay; then he produced his untouched breakfast (rye-bread and cold mutton), and pressed us to take it, plainly giving us to understand by signs that in a few hours he would be in the lap of plenty at Balkar, while we up in the regions of snow and ice would require all we had with us, and more besides; finally, he shook us each by the hand, making, for him, a long speech in the local dialect, which we took to be a parting benediction; and after our departure he sat for a long

time on a hillock watching our progress with evident disapproval and misgiving.

Kutché's behaviour on this and other occasions fully confirmed all that has been written as to the inability of the natives to reach the place where Donkin and Fox bivouacked. Though the Tartar chamois-hunters climb splendidly on rocks, whether firm or loose, they have as yet, as far as my experience goes, made very little progress in what has been called ice-craft.

On attaining the point where the search party had begun the passage through the *séracs* great changes were found to have taken place during the nine days which had passed since the last visit. A collapse of considerable extent had occurred in the glacier, and we were completely cut off from the route which had then been taken. Before we could gain a footing on the ice it was necessary to climb along the rocks flanking the glacier to a much higher level, and in so doing to ascend under an overhanging mass of *séracs*. This looked so unstable that during the passage Jossi, who was last man, displayed unwonted intolerance of delay, and urged us on both by word and deed. If there was any place on the mountain at which we were obliged to 'give a chance,' as the cricket reports have it, this was one, and the only one; but even in this instance, as was subsequently proved, the risk was by no means so real as it appeared to be.

Once on the ice, we found a sort of terrace, and passed along it unchecked till more than half-way across the glacier; then trouble began. The men, heavily laden as they were, could only move slowly, and the *Rucksacks* had repeatedly to be taken off and to be lowered into crevasses or hauled up chimneys in the ice. At one time it looked as if we were pounded, but at last a way was found, and at five o'clock we were safely across.

The passage of the Tiutiun ice-fall had occupied three hours (an hour longer than on the previous occasion), and when there was time to look around it was seen that masses of clouds had followed us up the valley and were quickly overtaking us. We therefore hurried onward up the left margin of the glacier, and in another hour had gained the plateau, where the main ice-stream

receives a smaller tributary from the north-east before plunging down the gigantic staircase into the Tiutiun Valley.

By this time the view of Giulchi, Laboda, and the other eastern peaks was blotted out, and as we advanced westward up the great rock-bound trough the clouds closed in and completely filled it, hiding from us the crags on either hand. On our right were now the precipices descending from the eastern ridge of Koshtantau, and as spurs or gullies occurred in them we kept gaining or losing sight of the steep and rugged cliffs, which presented through the mist an exceedingly weird and evil aspect. We were beginning to lose faith in the weather; our cheerless surroundings and the sad associations of the place were not calculated to enliven us; and we were but a melancholy band as we plodded on through the dreary waste, with nothing visible but occasional glimpses of the rocks on our right, and no sound breaking the mournful stillness save the monotonous hissing of the rope as it trailed through the wet snow.

As darkness fell, an argument arose as to whether or not we had passed the snow-gully below the Ulluausz Pass. Everything looked so changed in the mist that it was difficult to recognise the landmarks, and the question remained still unsettled when, at half-past seven, a halt was made at a projecting buttress which seemed to promise shelter. Climbing a little way up the rocks, we soon found a ledge large enough to accommodate the whole party, but with no protection from rain or snow, and very little from wind. The height of this bivouac was a little less than 13,000 feet above sea-level.

While the guides were struggling with the damp firewood and melting snow for soup, I kept up my circulation by building a shelter-wall, levelling the floor, and laying down a sort of mattress of loose stones to sleep on; but the supply of material ran short, and at this moment I can distinctly remember the shape and position of one angular outcrop of granite, which, protruding through the superimposed stratum, effectually 'spoil the average.'

The reflection of the warm glow of the fire soon made our surroundings look more cheerful; supper placed us on better

terms with ourselves, and as the moonlight began to break occasionally through the clouds, we became more hopeful as to the morrow. Our quarters were so conveniently arranged that after supper I was able to deliver from the depths of my sleeping-bag, in the 'dormitory,' a short address to the guides, who were smoking in the 'kitchen,' on the importance of making an early start, instead of oversleeping ourselves as we had done under Mishirgitau; then, having fixed 1.30 as the hour of rising, I proceeded to spend the greater part of the night in executing a series of contortions in the but partially successful endeavour to adapt my bodily attitude to the inequalities of my resting-place.

Next morning we were up to time, and at 2.40 all was ready for starting; but Jossi being unwilling to cross the *Schrunds* which lay in our course till the light became better, it was not till 3.50 that we descended from our rocks on to the glacier. The morning was starlit and frosty; still a hazy, watery look in the sky caused us some uneasiness as we passed at a quick pace up the frozen snow towards the head of the great corridor. Before going very far a tempting-looking snow-*couloir* in the rocks on our right was passed, and Jossi seemed inclined to try it; but being determined to have nothing to do with the eastern ridge, to which it led, until all other routes had been tried, I discouraged the proposal, and we continued in the original direction.

As all prospect of success depended on what would be found at the head of the glacier, we looked eagerly out as one buttress after another was passed; and I was pleased to notice that the guides were as excited as myself. At length we rounded the farthest rock-promontory (where, by the by, a sleeping-place would easily have been found the evening before had the light allowed us to advance so far), and on taking in the view of the cirque or basin forming the head of the great trough in all its details we were at once relieved and delighted to find just what we wanted.

To the west, directly in front, rose the southern ridge of Koshtantau, presenting steep ice-slopes below and steeper rocks

above; on our right were the equally abrupt precipices of the eastern ridge; but running up into the angle between these two ridges, at not too great an inclination, was a slope of snow or ice—we did not yet know which—leading apparently, and as we then believed, to the very foot of the final snow-cone of the mountain. Moreover, jutting out through this slope, and extending in the right direction for us, were two ribs of rock which would save much step-cutting in case we encountered ice.

There was no cause now for hesitation; Jossi crossed the accumulation of avalanche-ice at the foot of the incline and led up to the first rocks. These presented no difficulty, and at half-past five we were at the top of the lower rib, at a height of rather over 14,000 feet. Then came a check. The slope above was of hard ice, and although another chain of rocks lay at some distance on our left, the guides considered that these would lead us too far out of our course; we therefore went straight upward, and for the next hour and a half were all hard at work, Jossi cutting small steps, which were enlarged by Kaufmann and myself in order to provide for the descent. Progress was painfully slow, and when at last the next group of rocks was gained there was further delay, as one of my feet was slightly frost-bitten, and the usual remedy—rubbing with snow—had to be employed. During our halt for this purpose we noticed that although not yet half-past seven, clouds were steadily rising in the Tium valley, and the eastern peaks were already partly obscured. Consequently, fearing to be fog-bound before getting high enough to select the best route to the summit, we lost no time in scaling the scattered rocks, and soon came to the next slope.

Matters now assumed quite a different complexion, for, to our great delight, the snow proved to be deep and in good condition, and we began to gain height with such rapidity that our confidence soon returned. The great ridge on our left sank steadily lower and lower; between the rock-teeth with which it was fringed glimpses of Shkara began to appear, and shortly after half-past eight we were close below its crest.

As the result proved, our best course would now have been

to scale the ridge at once; but Jossi, suspecting—if I remember rightly—a snow cornice, preferred to traverse the rocks just below it. This was a mistake. Before proceeding very far we came to the head of a very steep *couloir*, with about a foot of snow in it. I must confess that it did not appear very formidable to my unpractised eye, but the guides seemed to be certain that the snow rested insecurely on ice, and regarded the combination with profound distrust. Access to the ridge above was at this point barred by a huge cornice, so, being unwilling to retrace our steps, it was decided to cross the gully.



THE RANGE ABOVE THE MISHIRGI GLACIER, WITH SHKARA BEYOND

We had with us 90 feet of light cord; doubling this and knotting it to our rope we were able to pay out 100 feet of line to Jossi, who carefully made steps across the *couloir*, and was followed by myself and then by Kaufmann. This manœuvre, which consumed more than half an hour, brought us to the foot of an upright rock chimney; and as the leader was clearing a way up it through the frozen snow, there was ample time to reflect that one or two more such obstacles would be quite enough to ensure our defeat, for it was already nearly ten o'clock.

We seemed to be an age in this chimney, but at last Jossi stepped up on to the ridge, and immediately exclaimed something about 'eine schöne Spitze.' What particular peak excited his admiration I forgot to inquire; for on scrambling after him, a view which struck me as the most magnificent I had ever seen suddenly burst on me. The aspect of the slopes from below had somewhat deceived us; and instead of finding ourselves, as we expected, below the final peak, we had hit the southern ridge of Koshtantau, just at the foot of a great comb of rocks, which breaks the continuity of the snow-crest.

To the east and south-east the view was limited by haze, but elsewhere everything was clear and bathed in sunshine. Southward, beyond the Dykhsu Glacier, were seen the snowy cap and dazzling ice-cliffs of the graceful Ailama. North-west of the latter stood that parent of mighty glaciers, Shkara, a noble peak, presenting on this side a far more picturesque appearance than when seen from the west, and fully justifying Mr. Freshfield's description of it as a 'triumph of mountain architecture.' Over Shkara's northern flanks appeared the crest of Janga, and farther west the 'Saddle Peak,' which I suppose we may now call Katuintau. Turning more to the north, the eye rested on the steep black crags of Mishirgitau, whose two peaks still seemed to be of equal height; and, lastly, close above us to the north were the final snow-slopes on the east side of Koshtantau. The way was not yet visible, being hidden by the rocky ridge along which we had still to find a passage.

Long before there had been time to do justice to the scene we began to climb northward up the crags which crowned the ridge. It was perhaps the most anxious time of the whole ascent, for we knew that at any moment we might be stopped by some rock-tower or deep cleft in the ridge; but after we had clambered over several projecting teeth a position was gained, from which we observed with satisfaction that, for some distance at least, no formidable obstacle lay in our course.

The next forty-five minutes were spent in the most delightful rock-climbing any one could desire. The ridge rose steeply, and

was piled with granite blocks, towers, and slabs of every imaginable form; but however extraordinary the combination, there was always some crevice to squeeze through, some chimney to creep up, or some slab with a neat handhold just in the right place. The work was so enjoyable that doubts and fears were forgotten, and we went scrambling along in high spirits, looking keenly ahead each time a commanding point was reached, and taking advantage of every pause to snatch another glance at the glorious view on our left.

Shortly before eleven o'clock, after surmounting an unusually long ridge of rock, Jossi turned to me with a knowing look on his broad good-humoured face, and said, 'Wir haben gewonnen.' This announcement came so unexpectedly that for a moment I could find no words to reply; but my thoughts, like those of the historical parrot, were none the less significant. On joining Jossi, however, I certainly did not at first fully share his hopefulness.

It was true that the rocky crest along which we had been climbing now gave place to a snow-bank extending up to the eastern ridge, and quite free from difficulty; but just at the point of junction of the two ridges stood a great rock-tower with precipitous sides, and against this the snow-bank abutted. To reach the final peak it was plain that we should have to climb round to the left of the tower. Could we do so? The rocks looked unpromising, and the steep slopes below them were certain to be cased in hard ice, as they faced the afternoon sun.

To the west of the tower was an excessively steep ice-gully, and beyond this the south-west face of the mountain, consisting of a series of precipices descending about 4000 feet to the eastern branch of the Khrumkol Glacier. But with these we should have nothing to do. Once round the tower and past the head of the gully, our account would be with the easy-looking snow-slopes on the Ulluanz side of the peak.

Jossi was confident of success, and we advanced along the broad snow-ridge, which was corniced on our right but fell away in steep cliffs on the left. Before going very far, however, Kaufmann, whose strength had been overtaken by the climb up the rocks, was obliged to give in. I was extremely sorry to leave him behind.

Having worked hard on the previous day, carried a heavy load across the ice-fall, and overcome with us the chief difficulties of the ascent, he fully deserved to share our success; but there was no alternative; so dividing the food, and leaving him in a perfectly safe position within easy reach of sheltering rocks, Jossi and I continued our climb.

For some distance we were favoured by soft snow, but as the ridge became steeper this gradually gave place to ice, and steps had to be cut all the way to the tower, where we turned to the left, and began to climb round its base. At this stage of the ascent one might be seriously delayed if there were much ice; but, fortunately for us, the rocks, though not as firm as those below, were quite free from ice, and at a quarter-past one we had passed round to the west side of the tower, and were standing on a short narrow neck or ridge of snow-laden rocks connecting the tower with the foot of the final snow-slopes already mentioned.

Here, for the first time, we were able to look down on the north side of the mountain; indeed, the neck is so narrow that a person sitting on it could send a stone either on to the Khrumkol Glacier on the south-east, or down precipices of ice and rock on to the *névé* which feeds the Ullhauz Glacier on the north. But this is possible only for a length of a few yards; farther on the neck becomes merged into a broad snow-ridge, which in turn soon expands to form the conical summit of the mountain.

Ascending the snow-ridge in a north-westerly direction, we were soon high enough to turn and look back over the tower on to the eastern ridge. This no longer appeared so formidable as it had when seen from the Ullhauz Pass; still, it looked difficult enough. Prophecy in such matters is, of course, imprudent; but apart from the dangerous character of the *arête*, of which there is, unhappily, ample proof, its great length, considering the arduous nature of the climbing involved, seemed to Jossi and myself sufficient to defeat any attempt on the peak by this route.

There is little to describe in the rest of our ascent; all the excitement had gone out of it, for the result was no longer uncertain. The mist which had now closed round us hid the view,

and the monotony of the way was increased by the necessity for step-cutting. It was clearly a case for crampons, and no doubt a Tiroler on his *Steigeisen* would have walked up the cone in less than half the time consumed by us, as there was a thin layer of frozen snow on the ice-slope.

In using the term cone, I should explain that it is only from the east and north that the summit of Dykhtau appears perfectly conical; on the south and south-west it is escarped, and falls away in rocky precipices; and in order to avoid the exertion of making steps, we now betook ourselves to the loose and treacherous rocks which fringed the edge of this escarpment, and, following its irregular outline as far as possible, picked our way slowly upwards. At twenty minutes past three we arrived at the foot of the snow-mound, which for the last hour had been tantalisingly in view, and, exchanging congratulations on the termination of our labours, we put on a spurt and quickly gained its top.

I shall not easily forget the pained and injured look which chastened my companion's countenance as he turned to me at this point. Above us rose yet another cone, very similar in appearance to the one just surmounted. We had, in fact, arrived at that peculiar fold or crease in the *névé* which, lying below the summit of the peak, and being plainly seen from the east, gave rise to Dent's remark that the apex of the mountain appeared to have been cut off and carelessly replaced.

Realising for the first time how exhausted Jossi was with the labour of step-cutting—he had been leading ever since we left our bivouac—I took his place for the comparatively short remaining portion of the ascent. The usual exasperating experience was repeated—a few yards of snow, then hard ice—and with many a vicious hack at our stubborn adversary, we slowly won our way upward, till at length the slope became more and more gradual, and at forty-seven minutes past three we walked on to the summit.

Whatever may have been the custom elsewhere with regard to first ascents, there is, I believe, no precedent for singing patriotic songs on Caucasian summits, and certainly we were in no mood to introduce innovations; for nothing takes the swagger out of

a man much more effectually than a long ice-slope. Therefore, waiving all pomp and ceremony, we seated ourselves on the snow and opened the provision bag. We were in the middle of an almost level snow-ridge, about twenty yards long and a yard or two broad, running nearly east and west, and during our repast there was plenty of time to examine what little view remained, as it was more or less cloudy in every direction. Shkara, looming through the haze, looked more colossal than ever; the three peaks of Janga were also visible; but the only summits quite free from mist were those of Mishirgitau and Dykhtau. The view of the vast snow-clad precipices, which we could now see on the northern faces of these mountains, must be striking under any circumstances; but on this occasion the gloomy, threatening sky and driving masses of cloud gave to the scene a peculiarly impressive character of wildness and desolation.

Our meal being ended, we walked to that side of the summit from which we could look down the northern ridge. This was for the most part a snow-crest, and our impression was that it might be ascended without great difficulty from the Kundium Mishirgi Glacier on its western side. The upper portion of the crest would be easily passed; such obstacles as may exist would be found in the slopes between the glacier and the lower part of the ridge.

As there was no stone on the summit with which to make a cairn, we now descended on the eastern side to the nearest rocks. No doubt this was the spot where, weather and time permitting, Donkin and Fox would have left a stone-man had they gained the summit on their final attempt. But we were unable to discover anything of the kind; so, collecting the fragments of pale granite which lay near, we hurriedly built a small cairn, placed in it a sardine-box containing a card with our names, and at once began the descent,—for it was already half-past four, and we were anxious to rejoin Kaufmann. Making our way carefully down the border of loose rocks, we soon caught sight of him, through a break in the mist, sitting contentedly far below on the southern ridge, from which the steep ice-gully separated us. Having

passed the neck, we were able to improve our pace in circumventing the tower; but the time thus gained by no means compensated me for the woful havoc inflicted by the sharp splinters of granite on my only jacket, which from that time lost what little show of seamliness it had hitherto retained.

Below the tower caution was less needful, and, hurrying down the snow-bank, we joined Kaufmann at a quarter to six, finding him fairly comfortable, but considerably perturbed by the avalanches of stones which, he told us, had been descending the *couloir* during our absence. Indeed, he hinted, the disturbance had been so great, that he had begun to wonder not only *what*, but *who* was coming next.

As we had really not dislodged much stone from the edge of the precipice, Kaufmann's statement, taken together with the fact that the Khrunkol Glacier carries down an extraordinary quantity of debris, strengthens my impression that the rocks of Koshtantau and of its southern ridge are loose and unsafe on the Khrunkol side, and that in the afternoon the lower slopes are probably swept by falling stones.

By the time our reunited party were again moving the clouds had once more surrounded us, and the wind became so cold that we were glad to scramble as quickly as possible down the rocky comb in order to get under the shelter of the ridge. To do this we continued for a short distance after leaving the rocks along the snow-crest without meeting the slightest difficulty, and so avoided the tedious passage of the *couloir*, which had delayed us so long on the ascent.

Below the ridge our traces in the soft snow were soon found, and we began to descend rapidly into the Tiutium basin, now a gloomy caldron of surging mists. The rocks gave more trouble than before, much of the debris which had been firmly frozen in the morning being now loosened; and on coming to the long ice-ladder the darkness proved a serious hindrance, as the steps, so laboriously made, were now difficult to distinguish, and often nearly effaced. Fortunately, just when most needed, the moon began to shine through the mist, and lighted us down the rest of the ice-

slope, and by the time the glacier below was gained one of those atmospheric surprises peculiar to the Caucasus had occurred; every cloud had vanished as if by magic, the dreary hollow had become a beautiful fairy scene, and the jagged ridge on the south side of the glacier showed clear and sharp against the sky, with every snowy ledge and furrow gleaming in the moonlight.

At twenty minutes past ten we regained our sleeping-place, and as plenty of wood was left, a cheerful fire was soon blazing under our kettle. The soup was a brilliant success, and before long we were wrapped in sleep, sound enough in my case to defy even the sharp ridges of the miniature Schreckhorn, which still formed a prominent feature of my couch.

The next morning was beautifully fine, but the night had been very cold, and there was some trouble with our frozen boots before starting. Shortly before seven o'clock we quitted our ledge, and immediately discovered that it was situated at the very foot of the snow-gully descending from the Ulluauz Pass. We had, therefore, slept about 1000 feet below Donkin and Fox's last bivouac, which was almost directly above us. There was some excuse for not recognising the place before, as so much snow had disappeared from the *couloir* since July 29 that its appearance was much altered; moreover, this was the first time during our second visit that we saw the spot by daylight. Of the articles which had fallen from the bivouac on the day of its discovery not a trace now remained; even the sleeping-bag, which had been left lying on the steep snow-slope below the rocks, had vanished, probably by sliding with the melting snow into the *Bergschrund* below.

Leisurely descending the glacier, we had by ten o'clock crossed to the right bank of the ice-fall. To our surprise, the greater portion of the leaning ice-tower was still standing; but it was so evidently in the last stage of decrepitude that we were glad to leave it behind and to begin the descent of the rocky buttress overlooking the valley. Here we were welcomed by the warm breeze from the pastures below, laden with the perfume of flowers, which smelt doubly sweet to us after our two days' exile from the regions of vegetation.

On regaining the Kosh, we found that the goatherds had moved their quarters to a spot farther down the valley, on reaching which we threw ourselves on the grass, and took our second breakfast. As there was no more climbing to do, we ventured to wash down our meal with draughts of sour milk, and then lay till noon in the rich herbage absorbed in admiration of the wonderful ice-fall above us.

It is entirely beyond my power to describe the fascinating beauty of the scene; but the view of that great frozen cataract hemmed in between mighty walls of granite, its thousands of fantastic *séraes* continually assuming fresh shapes as the light clouds floated above them, will not soon be forgotten.

When at length we resumed our journey it became evident that sour goat's milk was to us as a snare and a stumbling-block. Whether the innocent-looking goatherds possessed the secret of brewing something richer in alcohol than the ordinary fermented milk, or whether the luxuriant herbage of the valley imparted narcotic properties to the beverage, I cannot say. The fact remained that our legs almost refused to carry us, and Kaufmann there and then swore off the insidious fluid, and, moreover, kept his pledge till he left the country.

By the time the end of the open valley was gained we had walked off the effects of our libations, and, taking a farewell look at the snowy summit of our peak, we descended the hot Tiutiun glen for the third and last time. The walk up the Cherek valley seemed as endless and wearisome as ever; but at last M. Bogdanoff's white tents came in view, and at four o'clock we threw down our packs on the green terrace at Karaul, and so ended one of the finest and most exciting expeditions I have ever enjoyed.

We had found the ascent laborious, but, after crossing the ice-fall, free from special difficulty and danger. The rocks encountered had been easily climbed, and not a single falling stone had crossed our track. The discovery of the route taken by us was in a great measure the result of the operations carried out by the search party, as the expedition to Donkin and Fox's

bivouac suggested the possibility of gaining the southern ridge from the head of the Tintium Glacier. But for that expedition I might not have found this approach to the peak without considerable waste of time. Success was ultimately won, mainly by Jossi's patience and endurance; but Kaufmann, though he did not gain the summit, rendered me invaluable service by helping to carry wood and provisions across the ice-fall, where no native could be taken.

The exciting feature of the ascent was the long-continued uncertainty of success; for from the moment of leaving the sleeping-place till the tower was turned and the final slopes were won, we were never able to foresee the issue, and during the greater part of the climb our fortunes seemed to be continually hanging in the balance.

Being all in indifferent condition, our pace was slow; from sleeping-place to summit we occupied twelve hours, one hour of this time being needlessly wasted, chiefly by an injudicious choice of route. Had the upper portion of the slope under the southern ridge been also of ice, twelve hours would not have been excessive; but with all the snow on the mountain in good condition, it would be quite possible to reach the summit in eight or nine hours.

The disadvantage of our line of ascent lies in the necessity for bivouacking above the ice-fall, and in the consequent labour of conveying wood and sleeping-bags so far without porters. Those, however, who follow the route I have described may be assured that they will be amply rewarded for the trouble of ascending the Tintium Glacier by the grandeur of its scenery, and that if the summit, or even the southern ridge of Koshtantau, be gained early in the day, in anything like good weather, a view will be enjoyed of such splendour as few peaks can command.

CHAPTER XVIII

CHEGEM

Viator.—Well, if ever I come to London—of which many a man there, if he were in my place, would make a question, I will sit down and write my Travels, and, like Tom Coriate, print them at my own charge. Pray, what do you call this hill we came down?

Piscator.—We call it Hanson Tout.

Viator.—Why, farewell, Hanson Tout! I'll no more on thee. I'll go twenty miles about first.

The Compleat Angler, Part II., by C. COTTON.



THE basins of the upper valleys north of the Central Group, Balkar, Bezingi, and Chegem, have been laid out by Nature for habitation by the same race. The communications between them are by easy grass-passes, easily crossed in a few hours. The two latter valleys use the same exits; the men of Bezingi cross to Chegem and

take the Tuiber Pass when they want to taste the fruits of Suanetia; the men of Chegem frequently ride across the ridge and follow the Bezingi path when they have business at Naltsbik. There is an alternative road down the Chegem river, but it is comparatively little used.

From the low horse-pass between Chegem and Bezingi there is an interesting but crowded view of the peaks of the Koshtantau spur. After the large, tame, and formless ugliness of the Bezingi basin, the environs of Chegem offer a welcome change. The scenery is still bare, and rather strange than beautiful; there are no forests in the foreground or great snow-peaks in the distance. The new

element in the landscape is furnished by the walls of limestone—perhaps dolomitic in substance, certainly resembling dolomite in their red-gold tint and the horizontal direction of their ledges—which on both sides of the river overhang the grass slopes. The principal village lies on the farther side of the valley, in front of a great opening in its rock-walls. Mr. Grove has described the first view of Chegem :—

‘Before us was a vast portal of tremendous cliffs, beyond which lay a deep, mysterious gorge, very sombre from its narrowness and from the great height of its precipitous sides. We could trace this vast gloomy ravine far back among the hills. Anything so strange as the entrance to it no man of us had ever seen, and I can only compare it to one of those arid mountain recesses which Doré has imagined : indeed, looking at that strange gateway, it seemed easy to believe in the supernatural. Those huge portals must have opened by some mighty spell ; and in that dark gorge, running into the heart of the mountains, there should surely be dragons or great serpents, crawling in recesses the sun never sees, some unholy mystery, an enchanted castle, or a warlock’s haunt.’

It is this setting that gives the place its extraordinarily weird aspect. In itself it is only distinguished from the neighbouring villages by one ancient tower of refuge, and the modern mosque and chief’s house, conspicuous by their green tin roofs, which rise in its centre. The first luxury of civilisation to penetrate the fastnesses of the Caucasus is the petroleum lamp, the next the metal roofing common in Russia, the third barbed wire !

The villages of which Chegem is the chief lie at some distance—five to six hours’ march—below the glaciers which fill the two heads of the valley. The representation of these glens and ridges in the five-verst map is entirely erroneous, and only surpassed in looseness by that of the chain west of Ushba. Nor is it only the Surveyors who have gone astray in this region. M. E. Favre, no doubt misled, as I was, by the old map, has overlooked the depression which separates the horse-shoe ridge round the Jilkisu from the great granite spur that forms the western boundary of the Chegem district. What is more important, in his geological map he has failed to notice that the former group is altogether limestone.

In the geological map appended to this volume I have drawn the limit of the crystalline rocks—where I believe it to be—at the Sireen Pass. This, probably, interesting route is still unknown to travellers.

I shall, I think, best convey an accurate impression of the country before us by reverting to my diaries of 1889 for an account of our adventures and explorations.

I must ask the reader then to return once more to the Missess Kosh—to fancy himself about to spend a night in the cave under the big boulder beside the Bezingi Glacier. We had lightened our luggage as much as possible, and left our tents at Bezingi. Provisions and some wraps had been brought up for us by young Sujunshof, the son of the man who has put a green roof on his house at Bezingi. He is an ill-conditioned youth, and travellers should beware of his tricks. The mists, as is too often the case in this valley, were roaming upwards, and the climate was Caledonian. Everything, that is to say, was dripping, and the cave was more or less of a well. By an elaborate arrangement of mackintoshes we managed to sleep more or less drily. I am afraid my companions gave me the best place; but I was the first to wake. Every mist had melted, and the great white wall of Katuintau gleamed faintly under a spangled sky. We were rather lengthy in our preparations. We were bound for a pass only, and the Alpine guide of the present generation does not see the force of starting in the dark, except for a peak; so it was broad daylight, and the sun had already touched the triple crest of Janga before we were half-way across the broad stream of the Bezingi Glacier.

Mr. Cockin had in the previous summer employed an off-day in climbing to the gap north of Salynan Bashi. He had looked down from it on to a glacier he believed to be the Bulungu Glacier, which is wrongly represented in the five-verst map as flowing directly from this part of the crest into a side glen which opens a short distance above Chegem into the main valley. We plodded steadily up the very long schist slopes which lead to the foot of the Salynan Glacier. This ice-stream

pours out of its upper reservoir between steep rocks, through a gap which it entirely fills. Mr. Cockin passed here without difficulty; we lost much time in rock-scrambling and step-cutting in very hard ice, in order to get up along the left or north bank. There were many fallen rocks about, but none crossed our track at this early hour. Above this passage we saw our work before us. The ascent lay up a glacier of moderate size and inclination to a gap defended by a long ice-slope, which can, however, be easily evaded by using the rocks to the north of it. We met with no further checks, yet we were not on the crest before noon.

The views on the ascent and from the pass itself were of the utmost grandeur. The peaks of the Central Group are well displayed across the deep trench of the Bezingi Glacier. Dykhtau throws its mighty ridges into the air with defiant energy; Kosh-tantau, graceful and stately, a queen of mountains, leans on its northern shoulder. The great Valley of Ice leads the eye on to the walls of Asia, the broad precipices and graceful curves of Janga and Shkara. I have twice seen this north-western face of the Central Group from close at hand; I have admired it also from Elbruz. If I do not dwell once more on its unique and consummate splendour, it is only because there are certain scenes that are best left to the imagination. Some day, perhaps, a great artist with the pen or pencil may succeed in conveying to sympathetic minds the impression this view has left on all who have seen it. Masters of style, Ruskin or Pierre Loti, may, by closeness and delicacy of observation and expression, make unfamiliar scenery present to their reader's mind. Their eloquence gives charm to their repetitions. I am unwilling that the Caucasus should suffer injustice from the dulness of a matter-of-fact mountaineer.

Westward the view was very different, less overwhelming in strange sublimity, yet a mountain landscape of rare beauty. Our pass lay perhaps a mile north of the main chain. Far below us a great glacier swept down in a succession of curves from the ridge on which we stood, and from the watershed on our left. Above

its base rose a splendid rock mass, the Caucasian Schreckhorn. Tiktengen. Elbruz was completely masked, but to the south we saw Ushba and the Laila and had a glimpse of green forests. The day was exquisite, the peaks unclouded; they swam in that soft vaporous æther which is as characteristic of the Central Caucasus as a certain hard and sharp definition is of the Central Alps. At midsummer Signor Sella has found this quality of the Caucasian atmosphere a practical difficulty in photography.

It was about half-past one when we started to descend. The cliff that cut us off from the glacier at our feet could only be very imperfectly seen. It was evidently steep and high, but there was no reason to assume it to be impracticable or dangerous. The first few hundred feet, indeed, would have been easy but for the number of loose fragments lying about and the general disintegration, which was such that no man in the rear could move hand or foot without thought of his fellows below him. We were at first on a broad rock-face, seamed by shallow furrows, which trended to the left, where far below we could see a great ice-slope sweeping down from under the shadow of a boss of glacier fixed on the face of Salynan Bashi. On our right this face was bounded by a buttress, beyond which there was an invisible range of precipices. We worked down slowly; for our leader, Fischer, had not yet quite acquired the decision of an old guide, and sometimes hesitated. Presently the slope steepened, and the furrow we had been using became glazed with ice. To leave it the only way—I had better, perhaps, say the way we found—lay over a rock which bulged out above an ice-bank. Fischer very slowly but skilfully worked his limbs over and down the rock, and reached a foothold he had succeeded in hewing on the top of the ice. The next man tried to follow; but from a misplaced unwillingness to trust to the rope, remained for some minutes in the attitude of Prometheus, and equally immovable. Dent and I waited, at first patiently enough, throwing down nothing but hints and encouragements; but our sufferance was brought to a sudden end when the mountain began to throw stones at us. A sharp, shrill clatter was heard overhead, and the air about us whistled as it does

in the hollow of an English common when the volunteers are in camp and long-range practice is going on over your head. Dent was touched on the knee. Our encouragements gained force, a fresh volley, and we both became so eloquent that our comrade promptly disappeared. A moment afterwards a voice from below announced that he was safe in Fischer's keeping. We scrambled over the smooth rock, putting our trust in Maurer and the rope, with as much alertness and as little regard for appearances as an old lady at an Oxford Street crossing.

This volley was but the opening of the attack. The westering sun had let loose the mountain batteries; henceforth we had to reckon with the volleys of stones which screamed down every trough into the central ice-gully with most ominous frequency. The velocity of a pebble or a boulder that has come down 500 to 1000 feet in a few bounds is equally deadly. The question for us was how far we could, by hard climbing, avoid their tracks—at any rate, avoid remaining in their tracks. Maurer suggested as an alternative that we might sit down under a sheltering crag and wait for night and frost. The suggestion was chilling and unacceptable. We hoped that by crossing the line of fire once more we might find some means of descent on the buttress to our right, and—when it became impracticable—gain comparative shelter on the nearer edge of the ice-trough, beyond the point where a bend in its course seemed to send most of the missiles to the centre or the farther side.

The next hour or two was spent in exercises of the nature Mr. Willink has depicted so admirably. More than once I had an uncomfortable feeling of 'having seen it all before,' which was wholly due to our realisation of his 'perilous positions.' Not that there was much real peril. The pencil is not so shameless as the camera, but still it can be a great romancer. We always had plenty, or some of us had plenty, to hold on to; but there was a great deal of mountaineering 'business,' of roping and unroping, and letting down of ice-axes. There was often a deplorable deficiency in standing room. There were some curious corners to be turned, an almost upright wall to be descended. But I cannot

honestly say there was any single bad step which, with the precautions we were taking, suggested uneasiness. Some climbers perhaps would have thought our precautions superfluous, but I like to feel safe. As we drew near the great ice-trough the cliffs became easier. The most dangerous five minutes was while we were passing over a black protruding rock which was covered with grey gashes cut by the falling stones. We made such haste as was possible when every third step had to be hacked in ice.

This point safely passed, we breathed more freely. For it would, we flattered ourselves, be an eccentric and exceptionally malevolent missile that preferred the side of the cliffs we were working under to the middle of the gully. Still, our progress was very slow, for the rocks were too smooth to be of much use, and we had to cut most of the time in ice, and the step-cutting could not be hurried except by the second man improving the leader's niches. The afternoon lights and shadows on Tiktengen were exquisite; but we admired them under difficulties. The sunset was one of the most glorious I have ever seen, and I enjoyed it with a strange intensity; but it came all too soon. When its hues faded we were still jammed between the ice and the lowest rocks in a queer little funnel, where the unevennesses shortened our step-cutting. Below this point, but still some 200 feet above the *Bergschrund* or moat which divided us from the *névé* of the glacier, the leader at last struck his heel into snow that held—held imperfectly, but still enough to allow us to cease from step-cutting, and, moving with caution, to approach the crevasse before dark.

When we came in the gloaming on to the high upper edge of the great trench, Maurer pronounced it desirable to seek an easier passage. We cut a few more steps beside it; and while doing so—while, indeed, the leader was already testing a bridge—a yell rose from the rear. Fischer had been hit on the nape of his neck by a stray pebble, which had ricocheted off the lower cliffs. The stone had not come from very far, and a headache was the only mischief caused. It was the last shot in the action. Another minute and we were out of range on a broad snow-level with the 1400 feet

of rock-wall behind, and nothing but a great *névé* and a crevassed glacier in front of us.

For the last few minutes there had hardly been light enough for us to see where we put our feet. Lanterns were now brought into use, and a light supper of chocolate and 'little glasses,' kept for such occasions, hastily served. The night promised to be fine; fleecy vapours, those beautiful Caucasian clouds which one learns to regard as creatures of the Earth rather than of the sky, were moving about under us on the surface of the snow and among

THE PASS



THE SHAURTU GLACIER AND SALYNAN PASS

the lower hills, but the great peaks were quite clear. The moon, already risen, but hidden from us by Salynan Bashi, was throwing its beams across the lower glacier.

The long strain of seven hours' incessant occupation in finding foothold for oneself and watching one's companions, of constant apprehension of some sudden divergence of the missiles, which though they, for the most part, flew past too swiftly to be seen, had kept up a constant scream in our ears, was now over. The relief was immense. Our Mark Tapley remarked cheerfully that 'we'd had a rattling day,' and with the noise of those terrible stones still

in our ears, no one was found to question the adjective. There is no doubt we had run unwittingly into serious danger for a time, though by hard climbing we had reduced that time to comparatively narrow limits. There was much wisdom in a principle, or *obiter dictum*, of that excellent mountaineer, the late A. W. Moore: 'In a strange country avoid new passes you do not know the other side of.' We had trusted rather lightly to the opinion expressed by Mr. Cockin, who had looked down from the pass, that its western slope was relatively easy. So it had proved, easy but dangerous. It was small blame to Mr. Cockin that he had not recognised that it was used as a shoot by all the loose stones on Salynan Bashi. Mistakes, or inadvertencies, of this kind are hardly to be avoided in exploration; that is why in new regions so much forethought is essential to ensure immunity from accidents. Some slight error of judgment probably causes most of the fatal disasters on distant mountains. To the Alpine climber even his past experience may prove a snare; he cannot realise at first the unstable equilibrium not only of snow and ice but of the rocks themselves in ranges subjected to heavier snowfalls, hotter suns, and more rapid and intense alternations of temperature.

We old climbers discussed eagerly the best route to *terra firma* and a sleeping-place. Our neophyte, in a spirit worthy of the Swiss Family Robinson, urged that it would be the right thing to build a snow-but where we were. His arguments were cut short by a tug of the rope, and the leading lantern started downwards at a swinging pace.

We were at the head of a glacier which clearly had nothing to do with the Bulungu glen, but stretched due west, or nearly so, to the head of the Garasu Valley under Tiktengen. No human being had ever trodden these snows, and our prospects might, therefore, to outsiders have seemed precarious. But we felt as little anxious as if the Monteners had been in sight: we were too old hands at the work not to get clear of a glacier on a fine night.

Three bold rocks, which reminded me of the Grand Mulets,

helped to hold up the snow platform on which we stood. Our course lay well to their north. A short run brought us upon the first network of abysses and chasms. Keeping high to our right, we avoided these, and soon stepped forth into the welcome moonlight, where we made more rapid progress. Presently we came to the spot where several glaciers meet to form a single stream. Should we take the left or right bank? We tried towards the left first, but found ourselves in a network of crevasses, too intricate to be easily dealt with in shadowy moonlight. What was to be done? The neophyte again suggested that in similar situations Arctic travellers usually erected snow-huts. Some one asked with asperity where the spade was to come from? Maurer turned in our footsteps and made for the opposite moraine. We were soon skipping with the preternatural certainty of muscles well set, but not overstrained, by a long day's work, over the gigantic boulders. And now fortune favoured us. Between the moraine and the mountain lay a series of slopes of hard avalanche snow. We flew down them rejoicing, plunging swiftly through many hundred feet of frosty air. When the slope slackened we found ourselves in a dell under the moraine where streams had arranged small stones into a level floor.

It was past ten; we might go farther and fare worse, so we determined to halt till dawn. Our luggage was of the scantiest; but we put on all the wraps we could muster, lit a 'Self-cooking Soup-tin,' and made such arrangements in pebbles as were possible, with a view to repose. A pocket volume of Dickens served as a pillow, and a combination of maps was my inadequate counterpane. The air grew too chilly for much sleep, and my companions paced frequently like ghostly sentries between my eyes and the stars. It was a glorious night; the young moon had risen high and threw an ineffable radiance on the great cliffs of Tiktengen, while thin scurves of silver mist rose and fell, and at last melted altogether beneath the peaks. Above the northern ridge the Great Bear circled slowly westwards; the planets, solid balls of light, burned in a vault of vapourless purity. At last the morning star gave the signal for their paling, and a faint light was reflected from the dawn-facing cliffs of Tiktengen.

Daylight revealed the gigantic proportions of the moraines which had sheltered us. The cause of their dimensions, which are quite out of proportion to the size of the glacier, we had no need to discuss. The moraine of a glacier represents not the stuff it has dug out or rubbed off, but that which has fallen on to it. The ice-streams that carry most rubbish with them are those which lie under the loftiest and loosest cliffs. We knew, only too well, the friable character of the schists of the Salyuan ridge.

Presently in the hollow beside the ice we came to signs of herds, and a track. A side glen opened on our right, closed by some inconsiderable peaks and the Tiutiurgu Glacier. A little farther on we looked down on the end of our own glacier. We were at the source of the Garasu, and could already see the path from the Tuiber Pass descending the opposite hillside, and the smoke of a shepherd's Kosh rising from the knoll between the two torrents.

We evaded our torrent by crossing the glacier arch from under which it sprang, and traversing some waste ground from which the ice had recently retreated, reached the Kosh in a few minutes. The shepherd was away, but he had left his fire alight, and his milk and butter behind him. A great blaze was soon created, chocolate and tea and toast made ready.

We were thoroughly enjoying our meal and the beauties of the spot—the soft turf, the foreground of birch, fir, and rhododendron, and the distant view of the snows we had crossed—when a troop of horsemen came into sight riding up the valley. ‘They are not natives,’ said the man with the field-glasses; ‘there is an officer in uniform.’ Surveyors then, we surmised; but our luck was greater than we knew. The officer was the surveyor whom of all others we most wished to meet, M. Jukoff, who had taken part in the search for Donkin and Fox.

M. Jukoff proposed to postpone his day's work, and insisted on our returning with him to his camp, one and a half hours distant, at the junction of the two headwaters of the Chegem river, the Garasu and Bashilsu. The valley of the Garasu is broad and grassy, the path runs at first along its left bank among

grand old firs, the remains of an extensive forest. Immediately at its head, rising abruptly, without buttresses, in the fashion of the Eiger above Grindelwald, towers the tremendous peak of Tiktengen. I lingered down the valley, making frequent halts, and with my face constantly turned over my shoulder like the Envious in Dante's *Inferno*.

The description of mountain views is a somewhat hopeless task. Their effect is often dependent on accidents of light as well as on combinations of line and of foreground, that language can hardly render with sufficient minuteness, and conventional epithets only blur. I have, I fear, already wearied my readers with description. I shall be content to say here that I know few more imposing or more beautiful aspects of a great peak rising at the head of a wooded valley than this view of Tiktengen. Had I the magic palace of the *Arabian Nights*, the windows of which presented whatever view the inmate wished for, Tiktengen from the Garasu would take its place in my Caucasian Gallery beside the white cliffs of Janga, Koshtantau from the ridges of Karaul, Shkara beyond the woods of the Skenis Skali, and Ushba sunset-flushed above the lily-gardens of the Laila. Our photographers have realised the Oriental tale; by an unlucky chance this particular view was not added to their gallery until too late for use here.

We found the three white tents that make a surveyor's summer quarters pitched just above the opening of the valley where the stream had carved a little gorge through wooded bluffs. Resting on gentian-studded banks, we gazed idly at the pale limestone cliffs and towers of the range beyond the Bashilsu, while the hospitable Cossacks busied themselves with the preparation of a meal. Time passed quickly, and we only left ourselves just enough daylight for the three hours' walk to Chegem.

The scenery on the descent is singular rather than striking. After woods come barley fields, followed by Bulungu, the first hamlet. Then the valley bends sharply to the north, and its principal villages come in sight, backed by their limestone cliffs and caverns. The green roofs of the mosque and chief's house of Chegem soon become conspicuous, and on the hill above them a

cluster of tombs of the shape common in Ossetia catches the traveller's eyes.

The guest-room at Chegem is several degrees superior to that at Bezingi; but it is small, close, and full of insects. The people, and particularly the chief's family, are far more agreeable and straightforward in their dealings with strangers than the Bezingi folk. The chief's hospitality was profuse. Could we have gone to bed on tea and cakes, we should have been happy. But that was not to be. The duty of hosts and guests demanded a solemn banquet, which did not commence until 10 P.M. At that hour the round wooden tables appeared steaming with huge lumps of fat, hot, boiled mutton, clustered round a bowl of sour-milk sauce, and garnished with fragments of half-baked native loaves. With the meal appeared the chief, the chief's brother, and the chorus that is as inevitable and as boring in a Turkish village as in a Greek play. Here were all our old friends, the familiar types never absent from a village gathering; we recognised at once the foolish, picturesque old man who leans on his staff and stares and grunts monotonously, the man of experience who has seen you somewhere before, and joins in the conversation constantly to emphasise the fact, the restless boys who skirmish and upset the *airam*. They at least can be expelled; for seats in the guests' house when there is an English company are, as the Dresden burghers write on their garden benches, *Nur für Gewachsene*. But the elders have to be endured. One particularly tall man, who was always in the way, on being begged to sit down, replied that he was the chief's younger brother, and it would not be becoming for him to take such a liberty in the presence of the head of the family. At last our entertainment came to an end, our hosts withdrew, and—welcome sight!—their servants appeared with armfuls of coverlets. In a few moments we had forgotten everything.

Chegem is a noteworthy place in several ways. The people, though primitive enough, are superior in dress and manners to most of their neighbours. They have recently raised a mosque which, owing to the zinc employed in the roof, is very un-Oriental in appearance, and may very likely have been designed by a Russian

architect. The chief's new house also has a zinc roof. The ruling family seem to retain their influence; there is no anarchy or divided control, as at Bezingi or Urusbieh, and travellers are gainers thereby. The tombs above the village are structures similar to those found in Digoria. They are said to have been built by the Ossetes before they were driven farther east. Still more curious are the rock-refuges at the mouth of the Jilkisu. The cliff that overhangs on the west entrance to that valley appears at first sight vertical, but close study reveals a horizontal ledge running across its face. This is rendered accessible at one point by a staircase, now broken down, but formerly fortified at its head and foot; the caves behind the ledge were of old places of refuge for the villagers when attacked by their enemies. These valleys show signs in the fortifications, which protect them both at their heads and above the limestone gorges below the villages, of a time when the inhabitants had no secure existence even in these remote fastnesses. I am afraid we explored Chegem rather sleepily; we were too weary to wander far up the strange gorge of the Jilkisu, even though tempted by the prospect of visiting the scene of Grove's capture of a live wild-goat, and of reaching the natural fruit-garden at its head described by the natives, who make raspberry-parties there at the proper season. These delights remain for the next travellers, who may find a pass leading over to the upper waters of the Bashilsu, and gain a very interesting view of the ranges that surround its sources.

The horse road from Chegem to the Baksan and Urusbieh is long and dull. Any high-level route would be much preferable, and the long and lofty spur, crowned by at least four peaks of over 14,000 feet and covered with great glaciers, which extends east of the Adyrnu, offers a choice of direct passes. The diary of Mr. Fox showed that they had taken one of these passes. We were anxious to retrace it, and with this object Captain Powell and I, leaving Mr. Dent at Chegem, set out with Maurer and Fischer for the head of the Bashilsu. We had promised to lunch with M. Jukoff at his camp in passing. While Powell sat over his tea, I, who could not talk Russian, followed our

men, who had gone on up the valley with a baggage horse. My lonely walk up the charming valley of the Bashilsu proved delightful. Most solitary climbing is, I must admit, reprehensible. It is a pity, for at no time does the wanderer enter into such close relations with the spirit of nature as when he is alone. And in the remote Caucasus solitude has an additional zest. To the inhabitants of the greatest city in the world there is a curious satisfaction in feeling so far, not only from one's country, but from human beings in the same stage of civilisation. There is, moreover, a sense of mastery of the situation in being able to throw aside for a moment all the paraphernalia of travel, and simply to take a walk.

The woods were full of strawberries, and I soon lay down with a handful in a lovely glade, to wait for my companion. Behind me a slender cascade spouted out of the pale limestone cliffs; the lower slopes of the central chain were covered with firs and birches, which fell in folds of verdure to the stream; the snowy peaks of the Urubashi spur we were about to explore completed the landscape. An even path led on among level meadows, pleasantly broken by groups of trees. At the head of this meadow a substantial wooden Kosh seemed our natural night-quarters. It occupies a situation which, in the Alps, would be chosen for a mountain inn. Powell, however, had extracted certain indications from the chief's son, and in obedience to these we pursued our way up the valley. The beautiful meadows here came to an end; we mounted a steep bank and found ourselves in the highest reach of the Bashilsu, which begins its course in a bare rock-strewn glen, surrounded by cliffs and glaciers, and filled by a large ice-stream, flowing from the angle formed by the junction of the Urubashi spur and the main chain. Mr. Mummery, in 1888, forced a pass from the Leksur Glacier in this direction. There are Koshes on both sides of the river; we arrived at dusk at the highest on the left bank, and found a sufficient shelter under a great boulder, where we passed a fair night.

I had not Fox's diary in my pocket. My recollection was clear that he must have descended by one of two large glaciers which drain into a secondary glen, the torrent of which joins the Bashilsu at the lower Kosh. However, Powell's definite instruc-

tions carried the day as far as deciding our route was concerned, and for the moment we were led, by an incident which followed our arrival, to believe that we were on our friends' tracks. The shepherd, after staring at Fischer for some time, asked him if he was not one of the Franks who had passed in the previous year. He had recognised the family likeness. Subsequent perusal of the diary places it beyond doubt that the party crossed close to the peak of Jailik Bashi, and descended by the central glacier of the Urubashi spurs. The meeting therefore must have taken place at the lower Kosh.

The hospitable shepherds regaled us, not only with the inevitable and universal *airam* or sour milk—if a man cannot reconcile himself to sour milk, he is not fit for the Caucasus—but with a local delicacy that has lately been brought to the knowledge of Europe, *kéfir*. This may best be described as 'effervescing milk.' It is obtained by putting into the liquid some yellow grains, parts of a mushroom which contains a bacillus known to science as *Dispora caucasica*. The action of the grains is to decompose the sugar in the milk, and to produce carbonic acid and alcohol. The grains multiply indefinitely in the milk; when dried they can be preserved and kept for future use. The beverage has a very peculiar flavour, not nauseous to every one; its results on the digestion are frequently unsatisfactory, as one of my companions learnt to his cost.

The ascent to our next pass was, like most things in the Caucasus, long, but it was extremely interesting and beautiful. A tracing I had made from one of M. Jukoff's maps showed that by climbing the steep hill on our right we should reach a glacier leading up to the Adyrsu watershed. A very fine glacier it proved, sloping down in a broad ice-fall from two snowy basins, the crests round which were comparatively low. In place of turning the fall we charged it, and thereby gained a pretty piece of ice-work and a pleasant opportunity to admire Koshtantau and Dykhtau. The two peaks stood out above the nearer ranges as noble pyramids, while the level battlements behind the Bezingi Glacier produced comparatively little effect. Tiktengen and the

nearer ridges were imposing, but our backs were turned to them till we reached the pass. This lay at the head of the southernmost of two broad *névé* basins, and the ascent to it, on the east side, was as gentle as that to the St. Théodule. The view was again superb, and the guides were as enthusiastic as ourselves. To the west, we had before us the whole circle of mountains which encompass the sources of the Baksan; Elbruz, enormous and majestic, full in front; then Dongusorun, and a row of teeth and domes, above which rose the two horns of Ushba. We had walked up from the Kosh in six hours without any prolonged halt; on the pass we made tea, and spent a couple of hours, lapped in the most delicately iced air, in perfect enjoyment of the outlook. The mountains were transfigured by aerial colour, Elbruz in particular swam in a golden light, which had the softness, but none of the indistinctness, of haze. The great domes looked like part of the mountain of a dream rather than a mere extinct volcano. The scale of the whole landscape was eminently Caucasian. Dent Blanches and Bietschhorns were massed in splendid confusion between us and Suanetia.

Immediately at our feet lay a long glacier stream, at the upper end of which a gap, the lowest pass in the Urubashi range, lower than the ridge on which we stood, led to a branch of the glacier that is the source of the Bashilsu. Opposite, between the long glacier and the basin I had traversed two years before in mounting to the Mestia Pass, rose a peak of 14,273 feet, the southern Adyrsu Bashi of the map. The descent was steep but free from difficulty, though, as the snow in the troughs lay on ice, we had at first a certain amount of step-cutting. Once on the level glacier our course was simple. We strolled down it, our eyes riveted on the superb apparition of Elbruz, until the crevasses at its lower end forced us over rough moraine to the rocks on the right bank.

The descent to the Adyrsu below the glaciers was ordinary enough—a rugged slope, a fir-forest, a path, a short glen opening into the flat, torrent-devastated tract, which forms the head of the Adyr valley. At the lower Kosh we found a polite little

Turk of about fourteen. He gave us fresh milk and *airam*, and we in return regaled him and his sister with candied ginger. Then the guides came up, and we put on the pace suitable to the close of a successful day; and only pausing now and again to admire the pictures of wood and water and snow in which the valley abounds, crossed the familiar bridge of Urusbieh at dusk, and were welcomed to our old quarters in the Prince's enclosure.

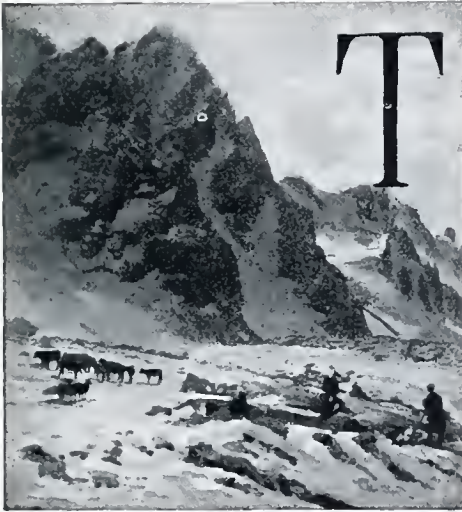
With the knowledge thus gained, and the careful bearings taken by Fox, and recorded in his recovered diary, I have been able to ascertain beyond, I believe, any reasonable doubt the point at which our friends crossed the chain. Their pass lay about a mile north of ours, to the south of the peak of Jailik Bashi. They descended the great Jailik Glacier, which Mr. Fox describes as four miles long, and receiving numerous affluents from its left bank. On their right they noticed the nameless rock-peak, shown in Sella's panoramas as rising on the secondary ridge that separates the glacier we ascended from the Jailik. A short, steep ice-wall on the east side was the only difficulty they encountered. Fox estimates the time from Urusbieh to Chegem by their route as about 20 to 22 hours without halts.¹

¹ Fox was under an erroneous impression that the ridge of the southern Adyrsu Bashi formed part of the watershed of the Caucasus. This obscures his narrative on first perusal.

CHAPTER XIX

THE PASSES OF THE BAKSAN

Αὐτὴ δὲ κορυφαὶ χειμῶνος μὲν ἄβατοι, θέρους δὲ προσβαίνουσιν ὑποδοῦμενοι κεντρωτὰ ὠμοβοῖνα δίκην τυμπάνων πλατεῖα διὰ τὰς χιόνας καὶ τοὺς κρυστάλλους.¹ Καταβαίνουσι δ' ἐπὶ δορᾶς κείμενοι σὺν τοῖς φορτίοις καὶ κατολισθαίνοντες· ἐνταῦθα δὲ καὶ τροχίσκοι ξύλινοι κεντρωτῶι τοῖς πέλμασιν ὑποτίθενται. Τοῦ γοῦν Καυκάσου τὰ μὲν ἄκρα τοιαῦτα. STRABO, lib. xi. c. 6.



THE great Glacier Passes of the Caucasus deserve more attention than they have as yet received at the hands of English mountaineers. Some are recognised routes of local traffic; others are known to a few native hunters. Many more will doubtless, as in the Alps, be eventually added to the list by the enterprise of explorers. Those already open furnish, however, ample opportunity for

high-level routes of the most convenient and varied character. I shall give in the Topographical Appendix the outlines of some of these routes, which I hope will prove attractive to the travellers of the next century.

The history of the passes by which communication has been kept up between Suanetia and the tribes north of the chain possesses, I think, more than a local interest. It may serve to throw light on the discussion that crops up from time to time with regard to the use and disuse of certain Swiss passes. It is often assumed that the cause of the abandonment of Alpine

¹ This seems a very distinct reference to glaciers as distinct from snow.

routes much frequented in the Middle Ages, and the adoption of others, must be sought mainly in climatic changes and their effect on glaciers. Changes in roads have had generally at least as much to do with such diversions of traffic. The energy of those we may call commercial mountaineers depends principally on the necessities they are under, and the alternatives they have to face. Where an easy circuit enables the cattle-dealer to avoid glaciers, they remain untrodden, at any rate by his cattle and beasts of burden. In the contrary case means will be found, as on the St. Théodule in the Middle Ages, or on the Tuiber Pass to-day, to get animals over. The continuity of the ice barrier



ON THE TUIBER PASS

of the Caucasus (it is 100 miles, as the crow flies, from the Nakhar Pass to the Mamison) accounts for the boldness of the Caucasians in crossing vast glaciers, and for the agility of their horses and cattle in sliding down snow-slopes. Another reason for the multi-

tude of glacier passes formerly existing, and indicated more or less vaguely and erroneously on the five-verst map, lay in the internal divisions and predatory habits of the Free Suanetians. The castles of the Suanetian commonalty were as inimical to free travel as the robber-fortresses of the mediæval barons. The stranger could not pass without paying toll and tax, or, worse still, being treated as a target by a marksman who planted his pronged stick and took deliberate aim from behind a safe thicket. It was only natural, therefore, that the northern tribesman who wanted to get to the Latpari should avoid Mujal by a high-level route, which included the Zammer Pass, or that the gaps right and left of Ushba should be occasionally traversed by active hunters who wished to slip unobserved into Lower Suanetia.

With the growth of security and freedom of travel, the more difficult of the passes from Suanetia northwards are less and less frequented by the natives. As roads are yearly improved and tolls abolished, the better road carries the day against the shorter. Prince Atar sends his horse-buyers to Ossetia by Zageri and the Mamison, rather than over the Tuiber Pass. The passes now most in use are the Dongusorum, the easiest of all, generally open in summer for horses; the Betsho Pass, crossed from time to time by donkeys of exceptional hardihood; and the Tuiber Pass, leading to Chegem, much used by cattle and pedestrians, but which horses can only manage in a very snowy year, when the crevasses have been buried or bridged.

Let us count over from west to east the other passes which are in occasional use, or of which a tradition still lives in the country-side. The Jiper Pass over the glaciers at the source of the Baksan to the Nenskra, leading from Urushieh to nowhere in particular, is used chiefly by hunters. The Akhsu and the Chatuintau, leading east and west of Ushba from the Shikildi Glacier, a pass from the Adylsu, and two from the Adyrsu to the Leksur Glacier, one from Chegem by the Bashil and Leksur Glaciers—all these are chiefly thieves' or hunters' passes. The Zanner Pass from Mujal to the Bezingi Glacier had fallen into complete disuse in 1887. To get directly to Karaul the Suanetians have to go round by the Skenis Skali and the Fytuargyn Pass.

To give here all the details I possess concerning these passes would be tiresome. The first traveller to cross the Jiper, Betsho, and Tuiber Passes was M. de Déchy, who in the first expedition brought to light the complete misrepresentation of the local topography in the five-verst map. My own adventures in reopening the Zanner I have already recounted. The passage of the Dongusorum was made by our party in 1868. It was much enlivened by the conduct of our troop of Suanetian porters, who struck work regularly once a day, and even threatened to rob and desert us. We intimated that it was our habit if disturbed in the night to immediately discharge our revolvers at random. That evening a branch fell from a tree near our tent; the crash was followed by

a chorus of entreaties to us not to shoot. Two days afterwards our porters met some friends on the pass returning with stolen cattle, and fresh difficulty arose in inducing them to run the risk of meeting the aggrieved owners. We crossed in bad weather; but except for the views of Dongusorun and Elbruz, the pass (which resembles the St. Théodule in the amount of snow crossed) can never, judged by the extremely high standard of Caucasian Passes in this part of the chain, be a very striking one. The Betscho Pass is also a perfectly easy glacier col, and is much



THE DONGUSORUN PASS

the most direct. There is no reason why Urusbieh should not be reached in a day and a half from Betscho by it. It is the way by which the people of that place convey goods across the chain. The Tuiber Pass crosses an enormous field of glaciers, a real *mer de glace*. The snow and ice to be traversed cannot be less than nine miles; but the slopes are gentle, and in some years when the crevasses are filled by a heavy winter's snow-fall horses can be got over.

The Akhsu Pass, which I crossed in 1889 with Captain Powell, has no practical value, since it is longer and much higher than the Betscho Pass. But for mountaineers it has the great advan-

tage of introducing them to the wild scenery at the back of Ushba, and to one of the most remarkable glaciers of the Caucasus.

Every traveller who has gone up to the Baksan sources is struck by the picturesque opening of a group of valleys on the left, some three hours above Urusbieh. The torrent which here brings in the united waters of many glaciers of the main chain is known as the Adylsu. A short distance above its junction with the Baksan it receives an important tributary from the south, the outflow of the Shikildi Glacier.

The Prince of Urusbieh had told me of two passes, known to his hunters, accessible from this glacier; one east of Ushba by the Chalaat Glacier to Mestia, the second west of it to Betsho. We chose the latter; and after the usual delays of a start from a Caucasian village, set out one afternoon with a horse to carry our luggage to the Shikildi Kosh. Our horseman took the wrong track, and led us across the Adylsu. Finding ourselves ascending that valley on its right bank, and night coming on, we were forced to halt in the forest. Our camp-fire was nothing less than a great prostrate pine-trunk, which lit up the grassy glade in which we laid our sleeping-bags. Next morning we crossed the Adylsu with some difficulty, and one of us rode the horse across the Shikildi torrent, while the others found a bridge of avalanche snow. The animal fell and hurt itself on the farther bank. Finally, we reached the Kosh too late to cross the chain before night fell. We had nothing to do for the rest of the day but to study the remarkable phenomenon before us. The Shikildi Glacier presented itself as an advancing mound of huge blocks of grey granite. From time to time a mass, the size of a cottage, fell with a resounding noise down the face of the great dyke. Here was something to excite the curiosity of the believer in glacier excavation, an ice-stream of powers apparently far in excess of those of its kindred. I can indicate, however, the origin of the abnormal burden brought down by this ice-sledge, to borrow Professor Heim's accurate description of a glacier.¹ Some thirty

¹ See an article by M. Dinnik in *Petermann's Mitteilungen*, vol. xxx.

years ago, in 1866, a noise as of thunder was heard by the shepherds of the Baksan, and a great cloud of smoke or dust was observed to issue from the recesses of the chain under Ushba. Had a new volcano burst forth? After a time it was ascertained that a great rock had crashed down from the cliffs on the east side of the Shikildi Glacier. Ever since, the ice has been slowly transporting the debris to the valley. We saw next day the gap in the mountain side which had provided the enormous masses now strewn over the lower glacier.

The shepherds were hospitable according to their means; and the younger of the two, who was acquainted with the pass to Betsbo, agreed to accompany us over it. My night was disturbed by a monotonous monologue, broken by sleepy, but impatient, English interjections from my companion. When we were both thoroughly awake, we discovered that the chief shepherd was performing his devotions in the moonlight.

The ascent of the lower glacier up to the point where its tributaries unite was a laborious business. I never saw such a goods-train of a glacier. It was bringing down material enough to macadamise all the roads in Russia. The immense size of the single blocks, and the complete burial of the ice under them, are the features which give their extraordinary character to the moraines of the Shikildi. The rock and ice scenery at the junction of its two main sources is magnificent. Far away to the left, at the end of a long trench, lies the Chatuintau Pass. The main chain rises opposite in a wall, splendidly buttressed and crowned by the crags we call Little Ushba. The cliffs are continuous except where a very steep glacier staircase leads up to the snow-basin which lies under Chatuintau at the point where Ushba itself (which is invisible) is attached to the main chain. Our course lay to the right, where above a low and easily avoided ice-fall a recess in the mountains was filled half with ice and half with grass. We disturbed a party of mountain goats in their secluded pasture. The pass we were making for was still invisible; the high gaps in view would have led us on to the western glacier of Ushba. The ascent lies along the left

side of the principal western source of the Shikildi Glacier. We climbed interminable slopes of ice and snow, only once taking to the rocks to avoid crevasses. At the last, in place of making for a steep gap apparently in the true direction, we turned due west up a bank of *névé*, and found ourselves on the high plateau conspicuous from Elbruz,¹ on the top of the spur which separates the Ozengi and Shikildi basins. Hence we could see the western cliffs of Ushba. A short level walk brought us to the pass, a narrow gap between low eminences, from which a broad steep gully led down to a glacier, known to our shepherd as the Akhsu, which flows south-west, and ends near the southern glaciers of Dongusorun under the Betscho Pass.

For the sake of the view we walked up a few steps to the eminence on our west, which commanded a prospect of Dongusorun and Elbruz. We were high above the Chatuintau Pass, and not less, I think, than 13,000 feet.

Below the *Bergschrund* the descent was easy. We ran or slid down a smooth glacier and beds of snow until we came to the flowers, and a few minutes later to the track of the Betscho Pass. We were in the very extensive mountain basin, filled with glaciers and wide pastures, which is enclosed between the main chain and the spur that overhangs Lower Suanetia. The five-verst map took this spur for the watershed, and obliterated the whole of this tract. The Dongusorun glen was soon left behind; we traversed the level meadows of the central dale, and then descended by a most romantic gorge into the forest zone. The path was often broken by earth-slips, and half buried in flowers and foliage. The great screen of the Mazeri Peak, here seen end on as a sharp pinnacle, was most imposing, and Ushba itself more than once completed a picture which called for a painter. Down we plunged till a torrent, plunging also from the cliffs that uphold the western glacier of Ushba, met us. Its waters, swollen by the sunshine, seemed barely fordable. Some Suanetians on the other side were acting apparently on the principle of the Horatian

¹ See Signor Sella's Panorama.

rustic. Less patient, I reconnoitred up stream and found a place where by a double jump it seemed possible to cross. Powell and I leapt successfully, but our companions preferred to wade, and got a thorough wetting.

The rest of the walk to Mazeri is most charming, and the track good. It leads for some distance through a pine forest, then, as it descends steeply, a bend in the valley brings the Laila Peaks



MAZERI

into view. Ourselves in shadow, we saw them illuminated by the slant rays of the evening sunshine. The vision was enchanting, and I felt happy to be once more in Suanetia.

By the time we had crossed the great bare fan-slope that spreads across the valley, and passed under the towers of the Dadish Kilian's castle at Mazeri, the shadows were thickening fast. Powell and I walked on at our best pace, and at last saw a light twinkling in the sheds that form the administrative centre of the District. We found a party of officials playing cards. The Priestav and his secretary were unfortunately absent, and there was only a police-officer in charge. Our reception consequently

was the reverse of cordial, and we had to assert ourselves in order to obtain quarters and to avoid being relegated to the roofless and floorless shed dignified by the name of a *dukhan*. Police officers in Russia are not popular or famous for their manners, and the man in charge at Betshe justified the estimate of his fellow-countrymen. It was not till next day, when two sons of the late Prince Murat, youths educated at the Roman Catholic College at Canterbury, rode in over the spurs of the Laila, and



THE DADISH KILIAN'S CASTLE, MAZERI :
EXTERIOR



THE DADISH KILIAN'S CASTLE, MAZERI :
INNER COURT

greeted us warmly in perfect English, that our character was established in the official's eyes, and he threw his draft report on the suspicious strangers, one of whom was an English officer, into the wastepaper basket. Then he became confidential, and entertained us with narratives of the wiles by which he decoyed Suanetian murderers, who had taken to the bush, to venture back to their homes and into his clutches. I was reminded of the tales told me once by a French brigadier in the wilds of Corsica. On the whole, I should prefer not to ride about Suanetia with that officer. Culprits who go to Siberia leave relations at

home; the natives of Suanetia have not as yet been deprived of their fire-arms, and a shot is easily fired from the forest.

East of Ushba the glacial belt of the Caucasus broadens. The passes that descend into the valley of the Mulkhura traverse far more snow and ice than those that lead into Dadish Kilian's Suanetia. The Chatuintau may be recommended to the next explorer; it has the merit of novelty, so too have the Adyltau and the Gorvashtau (or Western Adyrtau). The two last will lead down on the Asian side to the Leksur Glacier. This is the grandest of all the Suanetian glaciers, and the arrangement of the peaks round it is superb.

In 1887 M. de Déchy and I found ourselves at Urusbieh at the end of July. We resolved to take the pass which crosses the chain at the head of the Adyr Valley, and descends almost on to the head of the Leksur Glacier. The natives naturally tried to persuade us to cross one of the easier passes. After M. de Déchy had been engaged a whole day in discussion a reasonable compromise was effected. Donkeys were to take our heavy luggage over the Betsho Pass. Six men consented to act as porters over the Adyrtau or Mestia Pass.

Early on the following morning we hoped to start, but the Urusbians were otherwise minded. The debate of the previous day was renewed, and we went into Committee on the exact adjustment of the loads. A very argumentative villager produced scales and weighed each man's pack with the most precise care. At last, about noon, equality was attained, and an extra porter having been conceded, we got off.

The vale of the Adyrsu has been well described by Mr. Grove. Its scenery is unusually Alpine in character. The ascent at first is steep; afterwards the path follows the foaming torrent through open pine-woods, which frame charming vistas of snow and water. After reaching the torrent-swept level at the head of the valley, the mouth of the great glen leading to the Urubashi Glaciers is seen on the left. Half an hour higher, at the end of the stony plain, on a green slope sparsely wooded with birches, we found the shepherd's Kosh, where our porters meant us to pass the night. Five glaciers

descend towards the head of the valley; one of these leads to the next tributary of the Baksan, the Adylsu, by a pass called the Kai-avgan-aush by the Surveyors. This should be an easy and charming excursion, and Kurmuichi, the point north of the gap, must command the most complete view obtainable of the ridges round the sources of the Baksan, and the eastern face of Elbruz.

Our Urusbieh men, once on the march, proved thoroughly



PORTERS ON THE MARCH

good fellows. They came with great readiness to be photographed round the camp-fire. As usual, there was no hut; a low wall, a few sticks, and several sheepskin cloaks formed the shepherds' quarters. The sunset was glorious; our supper was satisfactory. The *kaimak*, a sort of Devonshire cream, was so good that the guides made themselves ill with it. Alpine peasants are never quite well or happy unless they have hard sausage and rancid cheese as the staple of their diet. I have had the amount of fresh meat supplied made a matter of serious complaint by my Swiss companions.

What really upsets the traveller in the Caucasus is the imperfectly baked native bread. It is quite worth while to travel about with a mule-load of dark Russian loaves, baked almost to the consistency of biscuit.

We slept so well in our tent that the first sound we heard was the good-humoured 'Pack up, and be off' of our porters. For once in a way they were in a hurry; ropeless men have a reasonable preference for crossing glaciers before the snow is soft. By 5 A.M. we were on the march up the large glacier, close to whose tongue we had pitched our camp. A shorter path might have been found along the grass banks on our left. We ascended without obstacle the gentle slopes of the glacier. On our right hand rose the broad peak which dominates the whole Adyr valley. The meltings from an upper ice-field to the west poured down in a fine waterfall, singularly inserted between two glaciers. Our porters indicated an alternative pass in this direction to the Leksur, which I understood them to call the Gorvashtau.

M. de Déchy reported their conversation: 'They are asking how the grey old man will get over the mountain.' Twenty years seem doubtless a century at Urusbieh, and the reappearance in the village of one of the first climbers of Elbruz had created much interest. I was old enough, at any rate, to have become legendary.

After a time we left the more level glacier, which flows from a fine cirque at the back of the southern Adyrsu Bashi of the Surveyors, and climbed steep slippery ice-slopes and broken banks of scree. From the highest our course lay about south-west over an undulating snow-field. We were in the midst of a wide basin of shining glaciers. Elbruz rose nobly above the intervening ranges, but in other directions there was little distant view.

In 1887 the snow in the Caucasus was invariably soft. There had not been sufficient alternations of temperature after the spring-falls, I suppose, to form a durable crust. Our porters refused to be roped, and steered their course through the concealed crevasses of the upper *névé* with something of the instinct of chamois. I inquired frequently in the Caucasus, but the only place where I heard of human lives having been lost in crevasses was on the Laila Pass,

which is reputed in Suanetia to be more dangerous on this account than those of the main chain. Accidents to animals, however, are frequent, and native travellers have often fallen victims to avalanches. As the slope steepened our train laboured heavily. Remembering their personal remarks, I put myself in front and gave them a lead up the last slopes. I was rewarded by being slapped on the shoulder and called a 'Jighit' by a hearty Turk. I have since discovered from Count Tolstoi's tales that 'Jighit' is Caucasian



VIEW FROM THE MESTIA PASS

for a successful cattle-lifter, and hence for any person whose career or exploits command the temporary respect of the public.

The ridge of the Caucasus, reached in six hours from the Kosh, is at this spot a wide snowy flat. We halted on its farther edge, while my companion obtained a photograph of the astounding view to the south. We saw very little of the green hills of Suanetia, and nothing of the plains of the Rion. Our prospect may be roughly compared to that seen when looking towards Savoy from the Col du Géant. We were faced by an enormous spur of the

main chain, answering to the Chamonix Aiguilles. This secondary ridge, as high as the watershed, was marvellously steep and splendidly white. Its cliffs, wherever glaciers did not hang from them, were encased in icy armour, delicately fluted by the channels formed by the melting of the snow during the recent warm rainstorms. It ended to the west in a bold, dark rock-peak, beyond which we looked across to the crest of the Laila. On our left was a wide snowy basin, the highest reservoir of the Leksur Glacier, over the edge of which it is possible, as Mr. Mummery proved in 1887, to cross either to the Tuiber or the Bashil Glaciers. Tetnuld and Gestola were recognisable in this direction as we descended, raising their snowy horns over the pass to the Tuiber.

From our feet stretched a vast glacier, larger than the Mer de Glace, filling the whole of an enormous trough between us and the southern ridge. No civilised man had ever seen and admired it before. We descended under the cliffs of Latsga by easy slopes and moraines. Soon the lower reaches of the ice opened before us, backed by the mass of Chatuintau and the double peak of Ushba—a superb spectacle.

The main glacier was broad and comparatively level, exhibiting ice-tables, moulins, and all the familiar features of the ice-world on a great scale. The rocky shelves on its right bank were deliciously green, a favourite pasture of the mountain goats, for which our porters kept a vain look-out. A broad ice-fall poured down on the right, probably from the Gorvashtau. A great frozen tributary flowed in from the west, and the united flood, suddenly turning at right angles, poured through a gap in the southern ridge down upon the woods of Suanetia. We now left the ice for a time, and rested our eyes and limbs on the green slopes among the fresh southern flowers. Banks of the cream-coloured Caucasian rhododendron were in full bloom; the turf was a bed of *Anemone narcissiflora*, ranunculus, gentians, yellow poppies, pink daisies, forget-me-nots—a nosegay of the utmost luxuriance thrown into the lap of the eternal frost. We found remains of bivouacs, but there was no path. Tracks are soon overgrown and buried by flowers in Suanetia. Presently our porters saw, or thought

they saw, a wild-goat, and some time was lost with no result. Then the hillside became steep, and we had to descend again on the rubbish that here covered the ice. Very bad walking we found it, until after a rough scramble over a gritty bank we were able to take advantage of a moraine, old enough to be thickly overgrown with copses, and to have become beautiful with wild roses, lilies, and larkspurs.

Our track was now broken by a deep hollow, through which flowed a torrent from a glacier, that lay concealed in the range on our left. To avoid the circuit we returned to the Leksur Glacier, and thus regained the track beyond the side-glen. The end of our gigantic ice-stream was at last in view; a narrow path ran along the hillside above it. The sun was already setting, and I hurried on for half a mile, until I came upon a spot suitable for a camp. Nowhere yet since daybreak had we seen a bit of ground level enough to pitch a tent on.

An old moraine, several hundred feet above the present level of the ice, and overgrown with flowers and brushwood, enclosed a tiny dale between itself and the mountain slope. Water was at hand, and with darkness so near we were glad to pitch at once our tents and light our fire. The porters cut several armfuls of grass and twigs, strewed them in the hollow, wrapped themselves in their *bourkas*, and fell on the ground, like collies, in a black heap. A sharp pattering on the canvas woke me before dawn. A heavy shower was falling, and our followers had withdrawn under the shelter of a neighbouring pine-grove, whence their fire threw a picturesque gleam on the dark wood.

When morning came the sky had cleared, and the first objects to catch our eyes were the towers of Ushba, which rose with splendid abruptness above the head of a strange glacier which fell towards us in a steep and sinuous course. This was the Chalaat Glacier, which drains a double basin on either flank of Chatuintau. Owing to the steepness of the general inclination of its bed, it attains to a lower point in the valley than the larger stream of the Leksur. It reaches, indeed, a lower point than any other ice-stream on either side of the Caucasus. Not many years ago the two glaciers met

at their extremity, now the Leksur terminates at 5600 feet, and the Chalaat at 5200 feet. The descent from the Chatuintau Pass lies over the northern *névé* of the Chalaat Glacier.

The lower moraines of the Leksur Glacier presented the unusual phenomenon of a green oasis far out on the glacier. It was, perhaps, the result of an earth-slip from the slope immediately above, but it is also quite possible that the medial moraine may have been fertilised by the winds.

A short run brought us down to the torrent, and then a level path led through copses, rich in wild roses of the most delicate tints, and strawberries that were worth the picking. At the first farm, marked by a ruined tower, we learned that a bridge was broken, and that we must keep to the left bank. This was, on the whole, fortunate; for, abandoning the stone-strewn ground near the torrent, we were led over sloping hay-meadows, broken by deep dells in which grew gigantic weeds and flowers. The peaks of Ushba, never long absent in Suanetia, came out above the lawns, and the long line of glaciers of the Laila made a noble background to the seventy towers of Mestia, which rose among fruit-trees and barley-fields beyond the broad, bare bed of the torrent.

The Suanetian Passes are described in some detail in the Appendix. They are remarkable for their length, their freedom from difficulty, and the magnificence of their scenery. If there were inns at the head of the side valleys of Suanetia, the western passes would hardly be more serious undertakings than the St. Théodule. But the routes which débouch through the great glacier basins east of Ushba rival in the amount of snow and ice to be traversed the longest passes of the Bernese Oberland. Nowhere in the Alps are there three adjacent passes exhibiting such a succession of forest, glacier, and peak scenery as may be enjoyed by the traveller who takes the Zanner, Tuiber, and Mestia. Nowhere is there such a choice of superb *High-level Routes* as in the mountains between Karaul and the sources of the Baksan. The modern peak-hunter loses more than he suspects in variety, scenery, and adventure by his lack of curiosity, invention, and locomotive force.

CHAPTER XX

URUSBIEH AND ELBRUZ

Uno avulso non deficit alter.

VIRGIL.



NO mountains in the world probably, unless we make an exception in favour of our own Westmorland hills, are at such pains to make the most of their charms in the eyes of every one who comes near them as the Alps. The great lakes of Lombardy and Switzerland bathe their feet or open waterways into their heart. Many of the loftiest peaks—for instance, Mont Blanc and the Oberland summits—overshadow valleys that have long been human homes. The Caucasus is of a more reserved disposition, and not at all inclined to meet a possible admirer half-way. Kasbek alone of the great peaks confronts the ordinary passer-by, and forces even the Russian soldier to learn its name. Elbruz, even when not in cloud, is itself but a great white cloud on the horizon to the ordinary highroad traveller. He learns to distinguish it by a local name, as the Romans did Mons Vesulus. But that is the extent of his interest in it.

Tourists, it is likely, will have to wait many years before they find haunts to their taste in the Caucasus. The Messrs. Cook have been over the Darial, and pronounce that the Caucasus will not do. For such mercies we may be truly thankful. Even the

resorts of Russian fashion, the Caucasian Baths, are not likely to attract those who have their choice of the waters of Western Europe. The view of the mountains from Piatigorsk bears some resemblance to that of the Alps from Neuchâtel; but with these important differences, that there is no lake in the foreground, and that in place of forests and vineyards the eye looks out over long, low waves of grey or golden steppe to the blue, snow-capped wall on the horizon. But apart from this view there is little at Piatigorsk but dust and water-melons, and most visitors soon tire of the combination.

The Baths, however, may serve well as a starting-point for a visit to Urusbieh and the glaciers of Elbruz. Speaking for myself, I cannot say I think the expedition worth the trouble, unless it is combined with a passage of the chain to Suanetia, for which Urusbieh is the best starting-point; for the valley of the Baksan, the approach to Elbruz, is phenomenal in its dullness. Its limestone gorge is arid and Syrian in character, and, except for a certain air of weirdness and remoteness, more to be felt than analysed, the scenery during a long day's ride of forty miles never attains distinction.

A great part of the road may be driven, provided always that the bridges are sound and the Malka, the stream which drains the northern glaciers of Elbruz, is not in flood. For many hours the track traverses the steppe. Cherkess villages, long straggling collections of wooden homesteads and farm buildings, each surrounded by a rude fence, white Cossack colonies clustering about a green cupola, ruinous sentry-boxes on stilts, low hills waving with corn or dotted with ricks, amongst which the bullock-carts move slowly, waste fields of weeds and grasses—these are the traveller's surroundings. The dull voice of torrents, the murmur of insects, the distant creak of wheels alone meet his ears. Horseflies darken the air, small stinging gnats issue in swarms from the rank herbage, and prevent any disposition to drowsiness. At last the Baksan post-house comes into view, and his post-boy draws up among the mud and the pigs, and shouts for fresh horses. When we passed, the sun was falling westwards. Suddenly I was aware of something high

and bright on the eastern horizon. The clouds had parted, and Kasbek was catching the afternoon light. Splendid our old friend looked; it was worth coming back to the Caucasus to see him thus again. Let the reader try to recall the view of Monte Viso from the Piedmontese plain, and then add 4000 feet to the mountain's stature, and he will see Kasbek from Baksanski. Our Alpine guides were overcome with astonishment at the mountain's dimensions.

'Directly' proved on this occasion not to mean more than an hour's waiting, and once more the wheels went round, and the telega up and down, and up again, and all our internal organs felt as if they were getting mixed, and what minds we had left were devoted to caring for our instruments. The moon was throwing a passing gleam on the cupolas of Elbruz, just seen over grassy downs, as we jolted over the bridge of the Baksan below Atashuki, and drew up at the door of the local chieftain, whose home was distinguished from the neighbouring hovels by the white walls and the petroleum lamp burning in its window. Atashuki is still in Cherkess country—Circassia—outside the pale of the Mountain Turks.

The position of host and guest seemed to me on my last visit to have become slightly strained. Things were in what is called a transitional stage. The old order of keeping open house for all comers was still nominally *de rigueur*; the new order of 'every accommodation for tourists' had yet to come. Had we not had Government recommendations, we might, I think, have fared but poorly. As it was, we were treated to an unlimited supply of spirits, a very late supper, and a fair amount of bedding, for all of which next morning we made a due recompense in roubles. There was no more difficulty in doing this than at the Great St. Bernard Hospice.

The whole of the next day's ride lay along the banks of the Baksan. The corn-fields of the Circassians are soon left behind. The track crosses a melancholy, level prairie, where there is no sign of inhabitants past or present, except a group of tall Turkish tombstones of the usual form, crowned with stone turbans. The scenery of the Baksan divides itself naturally into three stages. First

come the rounded cretaceous downs, then scarped and weather-tinted limestone crags, closing in at last upon the river in a bare, treeless defile. This opens on a wide Alpine valley, the sides of which are partly fir-covered. A broad snowy mass, Dongusorun, curiously like the Breithorn, closes the vista. At a farm belonging to the Urusbieh chiefs, some thirty-three miles below their village, the carriage-track ends.



URUSBIEH

The stars were shining with eastern brilliance in a cloudless vault, as on the night of July 23, 1887, a solitary horseman pushed his wheezy animal up the path that leads to the homes of the Turkish tribesmen. The moon was hidden behind the steep southern slope. Wherever the track had to cross the bed of some tributary stream it became so hard to trace that the rider was forced to dismount. From time to time the dim, dark shape

and high bonnet of a belated native would loom in the darkness and disappear again with a passing grunt of salutation. Presently the moon shone out on the shallows of the river, and the fires of isolated homesteads gleamed on the opposite side of the valley. The traveller halted, and waited until the tramp of baggage animals again met his ear, and the raised voices of a considerable company heard above the roar of the torrent told him that the length of the day's march was having its effect on the tempers of his followers.

It was past 11 P.M. when the tired caravan dismounted to cross the bridge over the Baksan, and scrambling and splashing about among the scattered waters of the Kiurtiuu stream, entered the precincts of the princely residence of Urusbieh. The precincts are fenced off by hurdles, and the guest's house was very like a country cricketing shed. It was dilapidated, but otherwise unchanged, since I had lodged there eighteen years before. I have visited Urusbieh three times. On my first journey, in 1868, it was our starting-point for Elbruz. Our cartes-de-visite are preserved among the archives. In default of a better, the village serves as a centre, or rather as a base, for mountaineers. Many of the paths from Suanetia and from the Karatshai unite several hours farther up the valley. But there are no higher permanent habitations.

Urusbieh is far from attractive at first sight, yet the views to be seen from its environs on a fine morning are not without grandeur and even beauty of a somewhat stern order. The mountaineer who comes from Balkar and Bezingi is delighted,—as was Mr. Grove; on the other hand, those who cross from Suanetia are apt to feel that the forests are scanty, the hillsides burnt up, the rocks ugly in colour, and Dongusorum but a clumsy mountain after Tetnuld and Ushba. The village is of the type I have already more than once described—flat-roofed and basket-chimneyed. But it is several degrees higher in civilisation than any other we have hitherto found north of the mountains. At the time of our first visit the chiefs of Urusbieh, commonly spoken of as princes by the Russians, were three

brothers. One is dead; there is a dark story of crime, possibly no better founded than most stories are in a country where telling stories is the main employment of at least half the population—all the males. The survivors are men of intelligence, and one of them has been as far as Interlaken and studied the manufacture of Gruyère cheese in the Pays de Vaud. The Russian authorities sent him so far in the hope of creating dairy



THE LADIES OF URUSHIEH

industries in the Caucasus. The ladies of the family are, as Mr. Woolley's photograph shows, exempt from Oriental prejudices, and are of an interesting type.

In the good old times the Urushihs—the family shares the name of their place of abode—exerted a patriarchal authority, but lately a Radical Government—such is the aspect Russian rule wears from the point of view of a Caucasian chief—has introduced many strange novelties. There is a Starshina or Mayor; there is something like a Village Council in which, as in most new bodies, every member has his own opinion on every possible subject,

and is too conscientious not to enunciate it at length. The semi-feudal service of former days is a thing of the past, and the traveller who wants horses or porters is greatly the sufferer. Let us hope some one is the gainer. Urusbieh has not only a local administration, it has a manufacture and trade. *Bourkas*, the great black sheepskin cloaks of the Caucasus, are made here; there is a village smith who will sharpen you a dagger or even



MOUNTAINS SOUTH OF URUSBIEH

mend an ice-axe; there are three shops where you may buy, amongst other goods, pernicious sweetmeats. The enterprising tradesmen are Jews: they live apparently on good terms with the mountaineers, secure from the persecution they might have to suffer from more civilised neighbours in the lowlands. Their only regret seemed to be that there were not enough families at Urusbieh to found a synagogue.

On my more recent visits to Urusbieh I have found myself among old friends. Elderly Turks suddenly step forward, and

shake hands warmly—or else clap me on the back and exclaim something like my name, followed by ‘Mingi Tau; karasho.’ We say ‘Karasho’ a good deal, but our stock of Russian does not carry us much further. One, however, got so far as to inquire after ‘Moore,’ and ‘Franzi’ (François Dévouassoud), and ‘the little Gospodin who walked so well.’ He meant Comyns Tucker. The inquirer’s memory for faces was better than mine; he had, perhaps, not seen so many in the interval, but I rightly guessed him to be one of our 1868 porters, glad to recall an incident which has doubtless become a legend to the rising generation.

After spending a day with the princes, and enjoying the excellent fare they most hospitably put before their English guests, the mountaineer will move his camp to the head of the valley. The sources of the Baksan are still some hours distant; the great Elbruz is quite out of sight. The road up the Baksan continues good but dull, until a great mound like that in the Roseg Thal, a moraine or mountain-fall (I am not certain which), has been surmounted. The valley then begins to wind, and side-glens fall in on both sides. At the mouth of the Adylsu fascinating glimpses of granite peaks and dense forests open on the left, the great brow of Dongusorum towers overhead, and the Azau Glacier closes the valley. The landscape is all that an Alpine climber can desire. There is plenty of pastoral life in the summer months at the head of the Baksan. Substantial log-huts built of enormous trunks, stuffed with moss, stand in the open glades; there are many patches of cultivation, and herds of horses and oxen are scattered about the clearings. But still there is no Elbruz. The giant mountain, 2700 feet higher than Mont Blanc, might be 300 miles off for all that can be seen of it. To get our first view of its summits we must turn into the pretty glen of Terskol. Over the brow of the glacier, which closes the valley in the ordinary fashion of glaciers, rises a broad dome with a bulge on its south-western curve. It gives no impression of vast size or height. We are too near and too low, and see it much as the traveller sees St. Peter’s from the Piazza.

The view is one more illustration of the commonplace that one must stand aloof from great mountains to realise their true proportions.

It was from this glen that in 1868 we climbed to our bivouac for Elbruz. Subsequent parties have found an easier, if somewhat less direct way, from a higher point on the Baksan, and so reached the same point, the crest of the spur that separates the glacier



THE TERSKOL GLEN

of the Terskol Glen from those that fall to the Upper Baksan. All these ice-streams have a common source in the great plateau of Elbruz, the vast snowy reservoir that is spread like a saucer round the base of the inverted tea-cup, that—*parvum componere magno*—may represent the mountain.

The view from this bivouac-place is already glorious. The foreground is eccentric, the lavas twisted by heat and broken by

cold lie ranged in confused ridges above and between the streams of ice that have overflowed them, the great dome rises in dazzling purity and with unique simplicity. There is no effort in its simple lines; the size of the whole mass slowly grows upon the mind of the spectator as he gazes and finds something to serve as a scale.



DONGUSORUN FROM THE BIVOUAC

We are brought face to face with the great chain, which rises opposite, beyond the Baksan valley. This portion of it is very different in character from the mountains of the Central Group. Here there are no great parallel trenches filled with ice at its base; there is no continuous snowy wall, such as that above the Bezingi Glacier. The broad back of Dongusorun stands alone with two of the easiest of Caucasian passes on either flank. Farther east,

far out-topping a clustered group of pikes and precipices, rise the famous peaks of Ushba. Then the chain sinks to the deep curve of the Chatuintau Pass, beyond which the eyes strive to unravel the maze of snowy domes and crests and short steep glaciers that engirdle the vale of the Adylsu and look down on the south on the great basin of the Leksur Glacier.

Our enjoyment of the scene was interrupted by a perfectly



THE TERSKOL GLACIER: ICE AND LAVA

unforeseen disturbance. Our porters presented a demand for their first two days' pay; we reminded them that they had distinctly agreed that the settlement was to be delayed until our return to Urusbieh, but at the same time offered the money in two notes. They refused it, and required that each man should be given his exact portion; we told them we had not sufficient small notes with us, on which they announced their intention of returning home, and leaving us to get our luggage back as best we could. Such unreasonable conduct could only be met with contempt, and

we answered that they might do as they pleased; that we should start soon after midnight, and should return in the afternoon, and, unless our goods were carried safely down to the shepherds' bivouac before nightfall, should pay them nothing; we added, that if any of them were willing to attempt the ascent it would give us great pleasure, and that they should have every assistance from our rope and ice-axes. On receiving this message from Paul, the five all departed, as they would have had us believe, never to return; but in less than half an hour they came back, like boys who had had their sulk out, and made a half apology for their behaviour. This difficulty having been satisfactorily smoothed over, the men retreated to lairs somewhat lower down the hillside.

The cold during the night was so intense that the water in a gutta-percha bag, which we had filled overnight and hung within the canvas, was frozen before morning into a solid sausage of ice, and in consequence, having no firewood with us, we could procure nothing to drink. At 2.10 A.M. we set out, the natives not answering to our shouts. When, in a quarter of an hour, we reached the edge of the great snow-plain, Elbruz loomed before us, huge and pale, but, to our surprise and dismay, partially shrouded by a black cloud. The walking was easy, and we tramped on in solemn, not to say surly silence, our ice-axes under our arms, and our hands in our pockets.

The last rays of the setting moon lit up the summits of the main chain, over the gaps in which we already saw portions of the southern spurs. The icy sides of Ushba and Dongusorun reflected the pale gleam of the sky; a dark rock-peak farther west stood in deep shadow. We were high enough to overlook the ridges that run out from Elbruz towards the north-east, in which direction a dark band of vapour, illuminated by fitful flashes of sheet-lightning, overhung the distant steppe. The thick black cloud was still on the mountain before us; otherwise the sky overhead was clear, and the stars shone out with preternatural brilliancy.

Near the point where the snow began to slope towards the base of the summits, the crisp surface broke under my feet, and

I disappeared, as suddenly as through a trapdoor, into a concealed crevasse. The crevasse was one of those which gradually enlarge as they descend, but the check given by the rope enabled me at once to plant my feet on a ledge on one side, and my back against the other. The snow-crust on the sides of the hole I had made broke away beneath my arms when I first tried to raise myself on it, and it cost us all a long struggle before I was hauled out and landed safely.



THE 'GRAND PLATEAU' OF ELBRUZ

The slopes now steepened, the cold grew more intense, and the wind almost unbearable, so that altogether the prospect was far from cheering. The morning star aroused us to a temporary enthusiasm by the strange accompaniments and brightness of its rising. Heralded by a glow of light, which made one of the party exclaim, 'Here comes the sun!' it leapt forth with a sudden splendour from amidst the flashes of lightning playing in the dark cloud that lay below, shrouding the distant steppe. The shock was but momentary, and we soon relapsed into a state

of icy desperation, which was not diminished by the sudden desertion of our Mingrelian servant, Paul, who, fairly beaten by the intense cold, turned and fled down our tracks. For hour after hour we went on without a halt, hoping that the sun would bring with it some increase of warmth.

A sunrise viewed from a height equal to that of the top of Mont Blanc is a scene of unearthly splendour, of which words can convey but a feeble impression. A sudden kindling of the eastern ranges first warned us to be on the watch; in a moment the snows upon which we were standing, the crags above us, indeed the whole atmosphere, seemed suffused with rose pink. The cloud on the summit, which had changed from black to grey as daylight dawned, now caught the pervading flush, and suddenly melted away, like a ghost who had outstayed his time. As the hues faded, the sun's orb rose in the east and flooded us with a stream of golden rays, which were soon merged in the clear light of day. There was no increase of warmth as yet, and, despite the improved look of the weather, it became a serious question whether we could go on. By 7.30 A.M. we were at a height of over 16,000 feet, and had reached the rocks which form the upper portion of the cone. Seeking what shelter we could among them, we stood shivering, kicking our feet against the rock, and beating our fingers, to preserve them if possible from frost-bite, while the debate as to whether we should turn back or not was carried on in voices almost inaudible from the chattering of our teeth. On the one hand, the wind did not abate, and the risk of frost-bites was growing serious: two of my companions had no sensation in their fingers, and my toes were similarly affected. On the other hand, the rocks were less cold to the feet than snow, and gave some shelter from the weather. Looking back, we saw, to our surprise, two of the Urusbieh men advancing rapidly in our footsteps. We had almost decided to turn when they came up to us, looking fairly comfortable in their big sheepskin cloaks, and quite unaffected by the cold. A third, however, who had started with them, had, like Paul, given in. I said, 'If a porter goes on, I will go with him.' 'If one goes, all go,' added

Moore. The decision was accepted, and we again set our faces to the mountain.

From this time the cold, though severe, ceased to be painful. A long climb up easy rocks, mostly broken small, with here and there a large knob projecting from the surface, brought us to the foot of a low cliff, to surmount which a few steps were cut in an ice-chimney, the only approach to a difficulty on the mountain. Arrived on the top of what had for long been our sky-line, we saw as much more rock above us. Doubts were even now felt, and expressed, as to our success. We persevered, however, making but few and short halts, until the base of some bold crags we had taken long to reach was passed. Almost suddenly, at the last, we found ourselves on a level with their tops, and stepped on to a broad crest, running S.E. and N.W. We turned to the left and faced the wind for a final struggle. The ridge was easy and, led by the porters, we marched along it in procession, until it culminated in a bare patch of rocks surrounded by snow. This summit was at one end of a horse-shoe ridge, crowned by three distinct eminences, and enclosing on three sides a snowy plateau, open to the east. The rocks which we picked up, and carried down with us, are lava. We walked, or rather ran, round the ridge to its extremity, crossing two considerable depressions, and visiting all three tops; under the farthest, a tower of rock, we found shelter and a quite endurable temperature.

There we sat down, to examine into the details of the vast panorama. The two natives pointed out the various valleys, while we endeavoured to recognise the mountains. Light clouds were driving against the western face of the peak, and a sea of mist hid the northern steppe—otherwise the view was clear. Beginning in the east, the feature of the panorama was the central chain between ourselves and Kasbek. I have never seen any group of mountains which bears so well being looked down upon as the great peaks that stand over the sources of the Cherek. The Pennines from Mont Blanc look puny in comparison with Koshtantau, Dykhtau, and Shkara from Elbruz. The Caucasian groups are finer, and the peaks sharper, and there is a suggestion of unseen depth

in the trenches separating them, that I never noticed so forcibly in any Alpine view.

Turning southwards, the double-toothed Ushba still asserted itself, although at last distinctly beneath us; the greater part of the summits and snowfields of the chain between us and Suanetia lay, as on a relief map, at our feet, and we could see beyond them the snowy-crested Laila, and in the far distance the blue ranges of the Turkish frontier between Batum and Achalzieh. Again shifting our position, we looked over the shoulders of a bold rock-peak, the loftiest to the west of Elbruz, and endeavoured to make out the Black Sea. Whether the level grey surface which met our eyes was water, or a filmy haze hanging over its surface, it was impossible to distinguish. The mists, beating below on the slope of the mountain, hid the sources of the Kuban, but we looked immediately down upon those of the Malka. On this side the slope of the mountain seemed to be uniform for nearly 10,000 feet; and although there is nothing in its steepness to render an ascent impossible, the climb would be very long and toilsome.

We were not hungry, and, if we had wished to drink any one's health, we had nothing to drink it in; so we gave vent to our feelings, and surprised the porters with 'Three times three, and one more!' in honour of the mountain, which by the help of wind and cold had made so good a fight against us. We then hurried back to the first summit, on which, as it seemed somewhat the highest, François had already set himself to work to erect a small stone-man.

At this period, some one remembered 'that we had forgotten the rarity of the air.' We tried to observe it, but failed, and I think the fact that, at a height of 18,500 feet, no single man, out of a party of six, was in any way affected, helps to prove that mountain-sickness is not a necessary evil, except at greater elevations than have yet been attained. We reached the top of Elbruz at 10.40, and left a few minutes after 11 A.M. The ascent from our bivouac—one of 6500 feet, or 800 feet more than that of Mont Blanc from the Grands Mulets—had occupied $7\frac{1}{2}$

hours, with very few halts; the return was accomplished in four hours, and might have been made much faster.

We had some difficulty in reconciling the appearance of the summit of the mountain, when seen from a distance, either on the north or south, with what we saw on our top. From Poti, or Piatigorsk, Elbruz appears to culminate in two peaks of nearly equal height, separated by a considerable hollow. In walking round the horse-shoe ridge, we naturally looked out to see if there was not some other summit, but none was visible; and on the west (where, if anywhere, it should have been found), the slopes appeared to break down abruptly towards the Karatshai, and there were—so we thought at the time—no clouds dense enough to have concealed any eminence nearly equalling in height that upon which we stood.¹ But we were wrong; the western and slightly higher peak was completely concealed by the mists. The gap, 1500 feet deep, was greater and wider than we had any reason to imagine. It must be remembered that we had never seen Elbruz until we were on it, and consequently had very vague ideas of the structure of the mountain. I suffered from a similar illusion once on the Königspitze, when on a fine day the Ortler was obliterated by a local vapour.

The rocks were so easy that, but for the trouble of coiling up and then again getting out the rope, we should have hurried down without it. Some little care was necessary, on the part of those in the rear, to avoid dislodging loose stones, and Moore got a nasty blow on his finger from one, the effects of which lasted for many weeks. At about one o'clock we sat down on the spot where we had held our debate in the morning, and made the first regular meal of the day. We now, too, broke the icicles off our beards, which had been thus fringed since 3 A.M. We observed that the principal eastern glacier of Elbruz flows from the same *névé* as the ice-streams that descend to the sources of the Baksan, and that there was no apparent difficulty in following it into the head of the Irik glen, from which we had originally

¹ I leave this passage substantially as it was written in 1869.—D. W. F.

proposed to attack the mountain. The snow was still in good order owing to the extreme cold, and we slid quickly down—the two natives, though declining to be attached to our rope, gladly accepting the suggestion that they should hold it in their hands. When ascending in our tracks, they had seen the hole made by my disappearance in the crevasse, and the lesson had not been wholly lost upon them.

A cloud which had formed in the valley now swept up and enveloped us for half an hour, but we found no difficulty in steering our way through the layer of mist into bright sunshine. We arrived at the bivouac to find that Paul had already left with the baggage, and we soon followed, leisurely descending the steep slopes beside the ice-fall. The stream, which the day before had burst from the foot of the glacier, had changed its source, and to-day spurted in a jet from the top of a bank of ice. The heat of the afternoon had swollen its waters, and we found some difficulty in crossing them. The two natives had arrived before us, and told their story to their companions and the shepherds, who, having made up their minds that we should never be seen again, were surprised and seemingly pleased to welcome us, not only safe but successful. On our appearance in camp we had to submit to the congratulations of the country, offered in their usual form of hugging and kissing.

We were too stiff, after our long exposure to cold, to rest very easily, and were ready to start at an early hour next morning on our return to Urusbieh. Our men, however, had other plans, and we found that they meant to kill and eat a sheep before leaving. Wishing to take our time on the road, we left them to follow; but I no sooner attempted to walk than one of my ankles became painful, as if it had been badly sprained, and I was therefore obliged to stop and mount a horse which we had brought up with us from the village. The pain and stiffness, no doubt resulting from the cold, gradually wore off, and I was glad to get off at the half-way. The train of porters overtook us about an hour out of Urusbieh, and we walked in together. I never saw better walkers than these Tartars, not only on a hill-side,

but—which is even more remarkable amongst mountaineers—upon flat ground. They gave us a start, and caught us up easily in the ascent of Elbruz, and now, when Tucker, wishing to try their mettle, put on a spurt across the meadow, they walked with apparent ease at a pace of five miles an hour, and soon caused my friend to repent the trial of speed he had rashly provoked. These men are the raw material out of which Caucasian guides will have to be made, and, if the great language difficulty could be overcome, there is no reason why they should not, with a little practice in ice-craft, become first-rate companions for a traveller anxious to explore the glaciers of this part of the chain.

We entered Urusbieh, and reached the guest-house almost unobserved; but we had not been there many minutes before our native companions spread the news of our return, and a crowd of excited villagers flocked into the room. Several minutes passed before the story was fully understood: our burnt faces, and the partially-blinded eyes of the two men who had accompanied us, were visible signs that we had in truth spent many hours on the snowfields, and the circumstantial account and description of the summit given by the porters seemed to create a general belief in the reality of the ascent. The scene was most entertaining. The whole male population of the place crowded round us to shake hands, each of my companions found himself a centre of attraction, and the air rang with ‘Allah!’ seasoned phrases of exclamation and astonishment, mingled, as each newcomer entered, and required to hear the tale afresh, with constant reiterations of ‘Mingi-Tau’—a familiar name, which sounds far more pleasant to my ear than the heavy-syllabled Elbruz.

We underwent a crossfire of questionings as to what we had found on the top, and had sorrowfully to confess that we had seen nothing of the gigantic cock who lives up aloft, and is said to salute the sunrise by crowing and flapping his wings, and to prevent the approach of men to the treasure he is set to guard by attacking intruders with his beak and talons. We could not even pretend to have had an interview with the giants and genii

believed to dwell in the clefts and caverns of Elbruz, concerning one of whom Haxthausen relates the following legend:—

‘An Abkhasian once went down into the deepest cavern of the mountain, where he found a powerful giant, who said to him, “Child of man of the upper world, who hast dared to come down here, tell me how the race of man lives in the world above? Is woman still true to man? Is the daughter still obedient to the mother?” The Abkhasian answered in the affirmative, whereat the giant gnashed his teeth, groaned, and said, “Then must I still live on here with sighs and lamentation!”’

Perhaps the next climber of Elbruz will furnish the giant with his order of release in the form of ‘a hilltop novel.’

The princes, of course, came to talk the expedition over with us, and seemed much struck by what they heard of the use we had made of our mountaineering gear, of which they had before scarcely comprehended the purpose. Hamzet’s enthusiasm was boundless; he strolled in and out perpetually, repeating each time the magic word ‘Mingi-Tau!’ till at last he achieved an astonishing linguistic feat, and showed at the same time a surprising acquaintance with the manners of Western Europe, by confidentially suggesting, ‘Mingi-Tau—London, champagne Frühstück, karasho.’

It was six years before the heights of Elbruz were again visited by climbers. The leader of the second expedition to the Caucasus was my old companion, A. W. Moore, but, through an unlucky accident, he did not share in this ascent.

The mountaineers’ camp was pitched a few hundred feet lower than ours on the same ridge. They started in the night, and in seven hours gained the western summit, which, according to the last measurement, has an advantage of 123 feet over its rival. They reached it without difficulty or danger, but not without the need of some physical endurance, for they all suffered more or less from the rarity of the air, the effects of which had been so conspicuously absent during our ascent.

At first sight it may seem difficult to account for so dissimilar a result in the case of two parties, both consisting of men accustomed to mountains. But the explanation is, I think, not far to seek. The gale which nearly defeated us saved us from mountain sickness.

I have compared the accounts of many mountain travellers, and it seems apparent that those who suffer from 'rarity of the air' do so mostly on still days and in hollows rather than on ridges. From De Saussure's time 'the stagnation of the air' has been complained of. I have myself been on Mont Blanc three times, and once only, the day being perfectly still, did I suffer in any degree from nausea and headache. On that occasion I had been living at 6000 feet for some weeks previously, and was in exceptionally good training. Two years later I came straight out from England, and felt no inconvenience of any kind, although the pace from the Cabane Vallot to the top was hurried. The scientific problems involved in the acclimatisation of human beings to altitudes extending from 15,000 to 30,000 feet have attracted attention, and been much discussed during the last few years by competent persons both in this country and abroad. It cannot be said, I think, that any great practical advance in the provision of antidotes to the effects of thin air and scanty oxygen has yet been made; but the nature of those effects is beginning to be better understood by physiologists, and that may be the first step towards their prevention. The results of residence at the Mont Blanc observatories should be instructive. As far as my personal experience goes, I believe that inconvenience is much less felt on rocks than on snow, on windy days than on still days, when it is freezing than when the snows are melting. I am disposed therefore to agree with those who lay stress on the absorption of oxygen caused by the melting of snow. I venture to believe, as do some of my friends better qualified from their technical knowledge of the human frame, that a man who will devote time and money enough to the problem may climb to the top of the Himalaya. The adventurer will do well to study the recent experiences of aeronauts, and to ascertain the feasibility of providing oxygen-bags for use at least on the highest bivouacs. And if he will excuse so humble a piece of advice, he should, discarding all traditions, set himself to invent the form of footgear which will be most efficient as a protection against frost-bite, and yet not unsuited to possible rock-scrambling. Polar experience should in this matter come to his aid. The first requisite of all, however, in

such an enterprise is a belief in the possibility of success, and I have only known one Alpine guide—and he is no longer alive—who had such a belief. Faint hearts will never win Gaurisankar!

Mr. Grove gives a close description of the western summit, which shows that it is, like its neighbour, a volcanic cone. It has been visited since, on several occasions: by M. de Déchy in 1885, by Signor V. Sella in 1889, and by Russian travellers. Mr. H. Woolley has climbed it from the north and crossed the gap between the two peaks.

There will never be any difficulty in fine and calm weather to any healthy person with the requisite amount of endurance in an ascent of Elbruz. But there is likely to be considerable danger to those who do not observe the proper use of the rope, or are caught in the bad weather which comes on in the Caucasus with a suddenness rare even in the Alps. A Russian party had terrible experiences on the Saddle some years ago. There is no reason why a hut should not be erected on the northern rocks; and if this were done, the possibility of obtaining scientific observations would be increased, and the dangers of the mountain greatly diminished.

Elbruz is not—some one has said—a climber's mountain. So much the worse for the unfortunate climber, who can only be happy when he is a rock-limpet. No true mountaineer will ever refuse to recognise the unique majesty of the monarch of the Caucasus.

The ascent, I admit, is not a 'climb' in the most modern sense of the word. But, under circumstances at all favourable, it is one of the most interesting and enjoyable walks in the world. It was once the fashion for those who knew no better to declare that nothing worth seeing met the eyes in a high ascent. To such rash assertions Signor Sella's panorama may serve as a conclusive answer. The traveller on Elbruz commands the great line of the Caucasus. Its clustered companies parade, as it were, before him in a majestic procession, with Ushba, a little advanced, as a captain, in their front. He sees on one side the northern steppe in its impressive boundlessness, the long ridges

of the spurs that lift themselves up from the plain high over the shining vapours of the valleys; on the other the forests of Suanetia and the Kodor, the line of hills that fringes the Black Sea and the swelling masses of the Highlands of Armenia. The scene brought under his eyes, at first overwhelming in its vastness, suggests, as he gazes on it, some harmonious plan, a sense of ordered masses, of infinite detail. And to this majestic landscape, of a scale and splendour so strange as to seem hardly real, the sky supplies ever-shifting effects. New subtleties of tint and definition, of luminous colour in the depths and clear outline on the heights, are brought out by every passing alternation of light and shadow, by the progress of the sun across a vault that has not the blue of lowland skies but a depth and darkness as of 'sheer space begun.'

After a lapse of nearly thirty years that view—that vision, rather—remains bright in my memory. I have since seen other panoramas, more complete in some respects or more varied, but none so majestic as that from the great Caucasian mountain. And here let me make a confession which may surprise many and shock some modern climbers.

I love summit-views, and I sincerely pity those who can find in them no charm or beauty. My own enjoyment of panoramas is not rooted solely in the novelty of 'looking down on all that has looked down on us,' in topographical interest, or in the personal excitement of recognising in the 'airy objects that hover on the brink of nothing,' the mountain shapes that line the horizon, familiars whose presence stirs old and dear memories.

I am quite ready to admit that many summit-views are very ugly, particularly those obtained on middle-class heights which do not command the valleys and plains and seem to display only—in Dr. Johnson's phrase—'more stones and a wider circuit of barren desolation.' I will allow, too, that climbers have often invited criticism by passing unnoticed the many beauties of the ascent and then descanting on the scene from the summit with a precision of detail and a waste of adjectives worthy of an auctioneer's catalogue. But of late the pendulum has swung to

the other extreme: most mountaineers ignore the view, and are content to celebrate in its place their gymnastic or digestive feats. It is time to insist that there is something to be gained on the heights, that the great peaks have revelations to bestow on their faithful worshippers. I am glad to find that, in making this protest, I am at one in the main with Sir W. M. Conway. An Art Professor is a valuable ally. But I am afraid we arrive at our conclusion by different roads.

My friend and late colleague lays down, as the test of excellence in a panorama, that it must 'admit of the uninterrupted travel of the circumambient eye.' The phrase is powerful: one almost hesitates to argue with the owner of such an organ. But to my mind, and so far as I understand Sir W. M. Conway's argument, the criterion he sets up is hardly the true one. For obvious reasons, no human being can see a panorama as a whole. It may be a recommendation to a view, no doubt, that our eyes, as they sweep the horizon, should be arrested by no obtrusive and inharmonious breaks in the bounding lines, that the successive pictures should melt into one another rather than be separately framed. Some people, indeed, prefer them framed, and many very striking summit-views are of this character. But Sir W. M. Conway probably would not reckon these as panoramas, and I prefer to meet him on his own ground.

In the views over great expanses of the Earth's surface, gained from its loftiest eminences, the effect is not produced by form in the outlines. As in a sea-piece, the surface lines tend to be horizontal. The charm of the prospect depends most on atmospheric colours, on aerial effects, on sudden interchanges of light and shade. The larger the scale of the landscape the more important these become. The curves may be insignificant and deficient in variety, the horizon flat. Beauty of form is best seen and appreciated from below: on the heights we are witnesses of extraordinarily subtle gradations of tone in Earth and sky, of marvellous revelations of local detail produced by the passing shadows of clouds or the shifting arrows of sunshine, of lights of a radiance and a softness hardly known in our underworld.

The permanent lines of the landscape are subsidiary: it is the season, the hour, and the weather that make the view. It follows that no such classification of panoramic points as Sir W. M. Conway proposes can be completely satisfactory. A dull sky or mid-day glare will often destroy a divine prospect. Still, there are panoramas and panoramas. As a rule, summits that overlook the slopes of a chain or a great valley afford the most varied and impressive views. One must see the mountains from base to cope, not only their upper storeys and pinnacles. In my Alpine experience, I should rank highest the views from Mont Blanc and Monte Rosa, the Bietschhorn and Schreckhorn, the Disgrazia and Adamello, the Weisskugel and Monte Cevedale. I have seen the Mont Blanc view three times, and three of the others twice. To these I must add the fascinating but little known panoramas visible from the highest crests of the Maritime Alps, which embrace on one side the coast of the Mediterranean from Toulon to Spezzia, with Corsica shining like a jewel between sea and sky, on the other the plains of Piedmont and the noble curve of the Alps from Monte Viso to the Bernina.

The view from the Laila when the rising sun is burnishing the golden harvests of Suanetia and casting the shadows of the great peaks across the glaciers of the Caucasus has a glory and completeness of its own. But I must not allow myself to wander back among my Caucasian memories.

In maintaining the attraction of the views, from 'exceeding high mountains,' I have a great authority in human pleasures and temptations on my side, a greater even than the Climber of the Karakoram, and I am not ashamed to play for once the part of Devil's Advocate against the popular prejudices of orthodox Æstheticism.

CHAPTER XXI

THE SOURCES OF THE KUBAN

BY MAURICE DE DÉCHY

Cold upon the dead volcano sleeps the gleam of dying day.

TENNYSON.



IN July 1886 we left the Baths of Kislovodsk and ascended the Podkumok valley, turning our faces once more towards the remote and solitary mountains. Aul Abukova is the last settlement on the way; our next sight of inhabited regions would be in the Kuban district, on the other side of the hills that divide the waters of the Caspian from those of the Black Sea. The character of the country we had to cross is a tableland, intersected by small cañons and eroded ravines. Towards evening, after nine hours

march, we were south-east of the eminence called Kumbashi on the five-verst map, which stands on the Kuban side of the water-parting. A heavy thunder-storm passed over us, bringing snow and hail, but as soon as this had spent itself, we encamped on the

edge of the plateau. Close to our encampment was a Kosh, and on the slopes towards the Kuban numerous flocks of sheep were grazing.

Next day we did not start till ten o'clock, as the horses ordered arrived late. As far as could be seen, the entire upland sloped steeply towards the south-west, with here and there rocky bluffs. When, after a long day's march, we reached the narrow opening of the Mara glen, the wide valley of the Kuban was spread out before us. The smoothness of outline and warmth of colouring of the slopes were in singular contrast to most of the northern valleys of the Central Caucasus.

The rushing Kuban flows between broken ground partly covered with vegetation. The mountain flanks are forest-clad, and below the forest appear the houses of Aul Khumara. A jagged rocky cliff projects above the valley, and a glimpse is caught of blue mountains beyond. An immense rock-tower, round which the stream flows with great velocity, rises in the middle of the landscape.

At Aul Ossetinsky Khumara, where we spent the night, my observations gave an elevation of 2746 feet. Above this point the valley bifurcates. From the south-east comes the Kuban, having its main sources in the western glaciers of Elbruz, while from the south its important tributary, the Teberda, flows from the unexplored glacier group west of the Klukhor Pass. The valley of the Teberda is everywhere of interest. As we followed it, the path began to ascend, and the *arba*—a two-wheeled cart drawn by oxen—which carried our baggage, made but slow progress. After a short ascent we reached a higher level, where the air was clearer. Over the wide, almost flat valley the impetuous Teberda spreads itself in several channels, and seems to have cut a new bed where trees were recently growing. On the slopes rocks of different colours are noticeable, and higher up appear jagged pinnacles and turrets.

Aul Teberdinsk is 3947 feet above the sea: beyond it the valley again becomes narrower, and the road leads through a thick forest of birch, amongst which large trunks of pine and fir become more and more frequent. The character of the woods, the patches of soft green pasture and the high cliffs with distant snow-covered

peaks showing between them, all mark the approach to the great chain. In the pine-wood there is a circular lake, and near it we came upon a turpentine distillery. A retired Lieutenant-Colonel, M. Grigoire de Besguine, has built for himself a modest retreat close by, where he is certainly out of the world in the fullest sense of the term. From him we received much hospitality, and his kindness was all the more opportune as we had had three wet days in succession. M. de Besguine's house we found to be 4337 feet above sea-level.

On July 23rd we continued our upward journey towards the Klukhor Pass. We had intended to cross the main chain by



GLACIERS WEST OF THE KLUKHOR PASS

this route to the confluence of the Gvandra stream and the Kluich, tributaries of the Kodor, and to make our way back northwards over the Nakhar Pass to Utshkulan in Karatshai. But we had to give in to the obstinacy of the Teberdines, who explained that the path over the Nakhar was impracticable for beasts of burden, and who refused to act as porters. Promises and entreaties were alike vain, and we were forced to return from the Klukhor Pass and reach the Karatshai district by the passes which separate it from Teberda.

For the first three hours the road up the Teberda Valley led through meadows and woods, consisting of beech, birch, and pine. At a height of 4683 feet the valley becomes wider, and is

partly overflowed by the river. Hence we had a good view of the upper regions—the snow-peaks and glaciers of a group that lies S.S.W. of the Klukhor, and forms part of the main range.¹

Up to this point the Teberda had maintained a generally straight course, but here the valley divided. We followed the south-easterly stream, the chief feeder, which flows from the narrower branch of the valley. Above the defile rise perpendicular cliffs of gneiss, only partly clothed in forest; while below the stream rushes with a deep sound of thunder between walls of rock.

After an hour the gorge again widens, and at a height of about 5600 feet we came on a long meadow, where the mountain sides are covered with deciduous trees and pines. To the right, near a group of huts, a lateral valley opens, affording a view of the range which



ICE-LAKE NEAR THE KLUKHOR PASS

separates the two head streams of the Teberda—immense walls of black rock with precipitous sides on which little snow lodges. The summits, amongst which a Dru-like needle is remarkable, were unfortunately enveloped in fog, but they form a group of wild precipitous peaks, such as is seldom met with even in the Central Caucasus.

An hour later, after little or no further ascent, we reached a mountain tarn, a feature of great interest, considering the remarkable scarcity of lakes in the Caucasus. This basin is oval in shape, and not far from its shores rise cliffs partly covered with snow and glacier ice.

The absence of lakes and the extreme rarity of mountain tarns

¹ This important glacier group deserves exploration. See the map at the end of this chapter.—D. W. F.

in the Caucasus is an interesting fact which geologists may be invited to explain. Erratic blocks sufficiently prove that at one time great glaciers descended to the plain on the northern side of the range. On neither slope can the rocks have offered any exceptional obstacle to the erosive action of the glaciers, either by their dip or from their composition, but the absence of important lake-basins at the foot of the Caucasus is certainly an argument for the opponents of those who believe in the unlimited power of glacial erosion. If it is suggested that large basins—Abich finds evidence sufficient to justify his assuming the former existence of a large lake on the plain near Vladikavkaz—would in course of time become filled up, still the scarcity of small mountain tarns remains to be accounted for.¹

At six o'clock we encamped under a solitary pine-tree, the last outpost of the forest. The elevation was 7126 feet, which may be taken as representing here the upper limit of tree growth. Next morning we started at day-break, and climbed towards the ridge through a thick undergrowth of rhododendron. On a high plain we found a Kosh. A small flock of sheep were grazing over a surface whereon stones were more plentiful than grass, although ranunculus, carex, and potentilla showed themselves. The surrounding country was barren and desolate: after a time we caught sight of a glacier valley to the southward, shut off by a semicircle of snow-covered peaks which formed part of the main chain. Vegetation was now sparse, and higher up ceased entirely. Moraines and masses of detritus became more frequent, and the bare rock—gneiss and gneissoid granite—predominated. In the northern valleys of this part of the Caucasus a sterile, desolate zone separates the bright-coloured world of the lower levels from the sublimity of the frozen regions above, and it is only when this is passed that, as it were by a touch of magic, the snow-kingdom reveals itself in a majestic beauty all its own.

At the head of the valley (8627 feet), the steel-blue surface of another lake spread out before us. An overhanging glacier

¹ See my remarks in Vol. i. p. 52 on this subject—D. W. F.

appeared over the mountain side enclosing the lake, and the slopes down to the water's edge were covered with rubbish and snow. Masses of snow and ice floated about on the surface of the water, reminding us strongly of the Gurgler Eissee in Tyrol.

Crossing obliquely an immense field of soft snow, we reached the crest of the Klukhor Pass at nine o'clock, the ascent having been very gradual all the way from the lake. Wide snowfields extend all round the saddle, from which masses of rock of fantastic



FROM THE KLUKHOR PASS : THE ASIAN SIDE

forms project here and there. At the time of our visit the scene, which in clear weather must be one of dazzling brilliancy, was dull and grey in tone; the cloud-caps of the mountains grew denser and denser, and the storm muttered and grumbled down the ravines and along the steep faces of the mountain sides.

My measurements with the Fortin barometer gave the height of the Klukhor as 9100 feet (Russian Survey, 9240). The temperature of the air had fallen to 37.8° F. The crystalline rocks of the main ridge above the ice-lake were intersected by veins of granitic

porphyry and other eruptive rocks. On both sides of the pass there are dykes of greenstone diabase in the granite; witnesses of those forces which, farther to the eastward, have raised the huge volcanoes which dominate the Caucasus on the north of the main chain.

By noon we had again reached our camping place; everything was packed up as quickly as possible, as rain had begun to fall. An hour brought us to the Teberda Lake, yet another to the Kosh at the entrance to the western side-valley, the rock scenery of which seemed wilder and grander than ever in the driving mist. At eight o'clock we were back at our headquarters, after a long but interesting day's march.

When we left our camp on the Teberda on July 25th to make our way eastwards, we first went down the main valley for some distance in order to reach a narrow side-glen which opened to our right. Here the vegetation was luxuriant, apparently on account of the shelter afforded by the high mountain slopes. Later on we came to deciduous trees and then meadow: green plains alternated with stony ascents. From some points we obtained beautiful views of the right-hand side of the Teberda Valley, but except for these the way was monotonous in the extreme. It took us four and a half hours to reach the ridge dividing the Teberda and Dout valleys; here the mercurial barometer gave an elevation of 9950 feet, higher than the Klukhor, and an ascent of 5577 feet from the Teberda. The main chain becomes markedly lower to the west of Elbruz, and the number of glaciers on it diminishes, while to the northward the cross-ridges rise to a comparatively high elevation, and the saddles in them are loftier than those of the watershed. What we had seen of the transverse ravines of the Teberda had already proved the precipitous nature of this range.

When we reached the top of the pass we could see nothing: all the surrounding heights were enveloped in dense fog. Accordingly, as soon as our instruments had been read, we began the descent to the Dout Valley, but we had scarcely started when suddenly, over the cloud-layers enveloping the ranges opposite, mountainous forms appeared, almost impossible at first to distinguish from the

cloud itself, but gradually becoming clearer. I rushed breathlessly back to the top of the pass: the snowy summit which towered alone high above the clouds was Elbruz, the Mingi Tau of the Caucasian mountaineers. Only the western peak was visible, and of that, indeed, merely the opening of the crater which forms the highest crest. This from our point of view took the form of two elevated rock-masses resting on the vast snow-foundations of



ELBRUZ FROM THE WEST

the mountain. We left the pass late in the afternoon—about 4.30—after trying to photograph the scene, and hastened downwards, hour after hour, through steep ravines to Aul Dout, a group of cottages at the end of a rocky defile. Our measurements gave 6030 feet as the elevation of this wretched village, which stands in a treeless, almost desert, region, surrounded on all sides by a monotonous stony waste—a specimen of the ugly type of Caucasian scenery.

I had sent our interpreter on in front to hunt for quarters, but when we reached Dout he could offer us nothing better than a damp, windowless room, close to a cattle-shed. As we were quickly convinced that the village could boast few more commodious dwellings, we made the best of it, and unpacked our belongings.

From Dout we had only to cross a single steep high ridge to get into the Kuban district of Utshkulan. On this day, as on the preceding, our route lay through a region of the highest geological interest, but the scenery was, if possible, more dreary than ever. We were never able to see any distance ahead, and behind us was nothing but the stony slopes of the Dout Valley. When we got to the top of the pass, however, after two and a half hours' march, we were rewarded by a magnificent sight of the huge bulk of Elbruz.

The height of the Dout-Utshkulan pass we made out to be 8422 feet: lower, therefore, than the Dout-Teberda. I climbed a rising ground to the south of the path and photographed Elbruz.

The descent led through deep ravines cut in the mountain sides. Half-way down green meadow-terraces open out, on which are numerous Koshes. The slope is not so steep as on the Dout side. Elbruz remained visible: white clouds enveloped the summits at first, but gradually melted away, and by noon the ice-girt giant stood out cloudless against the dark blue sky. We reached the scattered hamlets of Utshkulan (4452 feet) in three and a half hours from our highest point. We found good quarters in a Russian school-house.

Our plans now led us to the eastern sources of the Kuban, to the Ullukam Valley, which we wished to ascend and thence cross the transverse ridge connecting Elbruz with the main range, so as to reach the sources of the Baksan. On the morning of July 27th we were in Khursuk (4852 feet), the chief place in these valleys, near the mouth of the Ullukam Valley. We had sent the interpreter on to Khursuk the night before to procure horses and beasts of burden for the journey up the valley, and a sufficient number of porters for crossing the glacier. When we ourselves arrived we encountered the entire population assembled before the

courthouse, only to receive the cheerful information that not one of them would accompany us on our proposed expedition; nor could we by entreaties, remonstrances, or offers of money produce the smallest impression, even after hours of debate amid deafening uproar. As the weather was fine and I did not wish to waste more of our precious time, I resolved to visit at least the glaciers at the head of the valley.

About three o'clock we proceeded with a small following southwards along the course of the Ullukam river. The slope of the valley is here but slight, and in the widenings or on the less inclined parts of its sides we saw carefully cultivated arable fields and hay-crops. Then the forest—chiefly birch-trees and pines—closes in. After two hours' march the valley becomes narrow, with steep rocky slopes, between which a high wooded bank closes the level reach of the river. Above, glacier-clad mountains were visible, wrapped in clouds. Immense masses of detritus lie between the left wall of the ravine and the dome-shaped centre of the bank, while to the right the stream forces its way through a narrow gorge. The whole is a typical moraine formation, and the bank is doubtless an old terminal moraine of the Ullukam glacier.

The journey through the lonely upper valley, which still here and there shows patches of pasture-land, was monotonous. It was not till dusk—five hours after our departure from Khursuk—that we reached the principal group of huts of the upper valley, Ullukam Kosh. We spent the night in a little, low wooden hut. Aneroid observations gave an elevation of 7300 feet. We were hospitably received by the shepherds, and a Karatshai chief, who introduced himself to us, helped to shorten the evening. Outside the night was clear and starry, and everything promised fine weather on the morrow.

Early on the 28th we started upwards again. After a short steep descent into a valley where rhododendron bushes dotted the surface of the ground, we reached a level basin in which two mountain streams mingled their waters. That on the left side came from the mouth of a ravine called by the natives Khotitau,

which we ascended, keeping close to the wall of the gorge. High up we came suddenly upon a kind of caldron: the bottom was partly covered with stones, partly with vegetation, intersected by water-courses; the sides formed almost a circle of steep mountain slopes, with a glacier, much broken up, imbedded in the lower part. The scenery is picturesque, but without the remarkable features of peaks or expanses of ice which might be expected in the neighbourhood of Elbruz. The mountain rampart before us belongs to the ridge joining Elbruz to the main chain, and the name 'Khotitau,' which is applied to it by the natives, corresponds to the description by which a pass over to the Karatschai is known on the Baksan.

In the right-hand valley, the head of which is occupied by a glacier, we saw a basin, of which the bottom is almost smooth, ascending but little to the foot of the mountain behind. The natives know this valley and the surrounding heights under the name of Asau, which is also given to the glacier on the other side, from which the sources of the Baksan rise, by the Baksan Tartars. The nomenclature indicates the fact that a way over this glacier into the Baksan region is known to the people of Karatschai.

Returning to the Ullukam Kosh, I took a short walk down the valley in order to get a glimpse of the glen known as the Kitsbkinakol, which goes up towards the main ridge. Here I again noticed that the sides of the mountains rise to only a moderate height, and are neither bold in form nor clothed with any great extent of glaciers. Towards evening we returned to Khursuk.

Forced to give up the idea of reaching the Baksan Valley over the glaciers on account of the refusal of the natives to accompany us, I determined to substitute for my original plan an expedition which, if it did not take me through the magnificent scenery of the glacier region, might perhaps add to our topographical, and still more to our geological, knowledge. This was a journey round the north of Elbruz. Our object was to get to Urusbich on the Baksan, always keeping near to the foot of the

great mountain. Several passes crossed by the natives serve the same purpose, but these are to the north, and farther from Elbruz itself. They were used by Grove and his party in 1874. The last pass, the Kiurtiun, is common to both routes. Another whole day we had to remain idle in Khursuk, during splendid weather, while the village elders assured us hourly that the horses would arrive immediately, and that the men had actually been engaged. Nothing came, and at last we were forced to unpack our gear, pitch our tent once more on the floor of the courthouse, and again prepare a meal.

We left Khursuk on July 30th, followed to the last moment by the shouts of the inhabitants, who swarmed round us unrestrained. It was a chill cloudy morning, but we were glad to turn our backs on the Karatshai, although three or four days' journey through an uninhabited mountain region lay in front of us before we could hope to reach the Baksan Valley, and the signs of approaching bad weather threatened us with the discomforts of wet camping-grounds at high levels. Our upward path lay due east along the left bank of the Ullu-Khursuk stream, which is almost hemmed in on both sides by steep declivities. The channels of this stream, and of others which, like it, issue from the Elbruz glaciers, form longitudinal valleys; while during our journey amongst the sources of the Kuban we observed that the streams from the main Caucasian range—the Teberda, Dout, Utshkulan, and Ullukam—take their way through transverse valleys. This change of direction in the outflowing waters clearly shows how different the tectonic structure is in the volcanic region of Elbruz.

We followed the narrow valley, through pine forests, for three hours, until we reached an important Kosh with large cattle-sheds. Elbruz had been visible for a long time; the black precipices of the crater rising sharply from the snow, and, more to the right, a wide plateau sloping upwards to the peaks; but as we approached closer to the mountain everything appeared wonderfully foreshortened, and the impression of grandeur and size, so striking when Elbruz is seen from a distance, was entirely wanting.

The two streams forming the Ullu-Khursuk unite near some cattle-sheds. Our way turned sharply to the right, and led through a deeply-eroded chasm, never far from the crystalline rocks, which here rise bare and jagged. Notwithstanding the immediate vicinity of high mountains, the ice scenery was not remarkable. Our course was now N.NW., but it is difficult to make our route agree with either the older maps or the more recent surveys. At two o'clock we crossed the summit of the first pass on our tour of Elbruz. Opposite to us, covering the comparatively low base of the peak, lay the long plateau of Elbruz—a wide ice surface, cleft and broken in places, and sloping gently upwards. The whole view was perfectly clear. It bore little likeness to any Alpine scene, unless perhaps to the high snowfields of the Mandron Glacier in the Adamello Group. But Elbruz, seen from this point, rather resembles the Norwegian Fjeld: there are none of the steep soaring lines of our Alpine peaks, and the varied surroundings and granite ridges of the main chain of the Caucasus are all wanting.¹

We found ourselves on a long high tableland extending under the snows of Elbruz, with a sudden descent at its eastern end. On this plain there were patches of phanerogamic plants of the higher Alpine species; it seemed remarkable that this vegetation should reach so high up on the northern side of Elbruz.

Descending a very steep ravine leading northwards, we arrived, in an hour's time, at a most miserable Kosh, where, instead of a hut, there was only a wooden framework, over which rags had been thrown. The night in the tent was cold; in the morning the minimum thermometer registered 30·2° F., the elevation of our camp being 8537 feet. We were astir early, and warmed ourselves with hot tea—a fluid even more appreciated by our people than by us, as it was a good deal colder outside the tent: at least they lingered till about 7 A.M. (July 31st), when we at last got the caravan in motion.

¹ It was, doubtless, from the reports of travellers whose journeys were confined to this region that some of the early descriptions of the Caucasus quoted in Chapter I. were delivered.

Everything around was comfortless and desolate. After an ascent of an hour and a half we reached the chain running northwards from Elbruz between the Ullu-Khursuk and Malka rivers, and constituting the watershed between the Kuban and Terek. The top of the pass we ascertained to be 10,573 feet.

The Elbruz plateau was again before us; from its heights long glaciers poured, the immense ice-sheets concealing the highest sources of the Malka. The glaciers reached to about 9600 feet. From the main ice, of which the upper levels were enveloped in fog, three glaciers descend beyond the Malka Glacier, and quite to the east a broad ice-tongue breaks over jagged cliffs. We followed the base of this glacier-covered mountain wall during a long descent. The landscape became less savage, the valley widened out, and vegetation appeared in places. About noon we reached the junction of two streams, tributaries of the Malka. The slopes of the valley separate to the northward farther and farther from each other, and are broken through by fantastic rock-shapes; great lava streams have poured over them.

We next turned eastward, and in two and a half hours again crossed a ridge, whence we had an extensive view over the Malka Valley. The stream winds down the valley, sweeping in curves round the salient angles formed by the northern spurs of the mountain tableland, the declivities of which, often covered with vegetation, slope steeply down to the river.

By half-past four we had reached a high pasturage, on which sheep and cattle were grazing round a wretched shed which we were told was called Baksankosh. The shepherds and their flocks came from Urusbieh or the Baksan Valley. It seems that the watershed between the Malka and the Ullu-Khursuk—between, that is, the Caspian and the Black Sea—is also the frontier between the people of Karatshai and the Baksan Tartars who live on the western and eastern sides of it.

As the rain continued we preferred to take possession of the hut and not to pitch our tent, although what we call a hut was a mere wooden shell, over which a *bourka* and other stuffs had been thrown. On the floor lay some dry grass and wood, and a

kind of wall was piled up with the same materials, but in front the hut stood open to wind and rain. The height of this place we made out to be about 7660 feet. Towards evening the weather improved, and I gave orders for an early start. At six next morning (August 1st) we were ready. But the baggage-horses did not appear; in their place the chief driver presented himself, with an insolent demand that he should be paid before resuming the journey. I remained obdurate, and made arrangements for my travelling companions to remain behind with the baggage while I rode down the Malka Valley and sought assistance; but after two hours and a half we got away.

We travelled up and down several ravines for an hour and a half, through a wilder and more rugged region. Then we came to a small pasture, where sheep were grazing under the guardianship of huge dogs, which rushed at us with fierce howls. Steep and pathless slopes followed. At ten o'clock we reached the top of a ridge, which radiates from Balik Bashi. We were on the edge of a nearly circular rock-basin which faces southwards, and is bounded by a mountain wall: the same mountain wall apparently crossed our path farther on. Looking back, a view opened to the northward, which afforded a marked contrast to the desert immediately surrounding us: we could see for an immense distance over ranges of mountain spurs, blue on the horizon—over the tableland with its cañons, of which we had already had a glimpse on the preceding day during our passage across the Malka Valley. The table-shaped plateaus, cut through by deep channels, could now be seen in their entirety, their tops often crowned with fantastic towers and pinnacles. The green of the meadows covered wide areas, and the vivid colouring of the rocks heightened the panoramic effect, even from our distant point of view. There lay also the country we had passed through on our journey from Kislovodsk to the eastern border of the Kuban. To this district we now bade farewell: an upland region of great interest from its wealth and variety of form and colour and from a certain impressive size and severity. Here are vast tracts of mountain country, wholly uninhabited, in primæval

solitude. On the pastures one meets in summer only the grazing flocks, watched over by one or two shepherds and their formidable dogs, who wander from place to place, moving with them their habitations: small huts, easily set up and yet more easily taken down. The tumult of the busy world never breaks upon the stillness of these mountain solitudes, where the same pastoral life is led from generation to generation, unchanged through a thousand years.

We descended the steep declivity into the caldron, across the bottom of which, among miserable, brownish-green grass and scattered stones, a clear brooklet rushed, hastening to a friendlier region in the valleys.

Traversing the left bank, we made our way across the boulders to the flank of the mountain facing us, and ascended by a series of zigzags, reaching the top of the pass at a quarter to one o'clock. Below us lay a sterile valley, shut in by rocky walls rising to no great height. The surrounding scenery was unchanged, but to the south-east, where the valley stretched downwards to the lower levels, rose a mountain barrier, the top of which was lost in the clouds. It was the main range of the Caucasus, with its rock-masses and its snow-peaks, its spurs snow-covered, vast ice-streams in its folds, and, below the snow-line, forest and meadow. It was an impressive panorama, full of grandeur and of beauty, which unfolded itself. The clouds which lay on the ice-fields and floated round the snow-covered pinnacles may have diminished the topographical interest of our view, but they took away nothing from the impressiveness of the picture.

To the saddle giving access from the mountain country to the north of Elbruz, from the Malka country to the Baksan Valley and its chief place, Urusbieh, the name Kiurtium Pass may appropriately be given, from the valley on its southern side. I made the height 10,580 feet (Russian Survey, 10,630).

The water from the pass, which unites with the other sources of the Kiurtium, flows into the Baksan at the village of Urusbieh. The stream flows first eastwards, and then enters a widening glen not devoid of vegetation, which soon opens into a valley con-

taining the main stream. This flows S.S.E., and maintains that direction as far as Urusbieh. Below the open pasture the valley narrows, and descends rapidly, resuming its dreary, stony appearance. We had now to pass through a very narrow gorge, and to cross the stream several times before we came to a low terrace overlooking the Baksan Valley. Then suddenly and at our feet we saw the flat grass-grown roofs and basketwork chimneys of Urusbieh; the Baksan, here divided into several channels, spread its grey waters over the level floor of the valley, the mountains opposite were broken by the deep gap of the Adyrsu, through which, framed as a picture by cliffs green with firs at their base, bare and jagged above, the icy peaks that girdle Suanetia shone soft and golden in the evening light, which still lingered upon their summits.

We had returned to familiar scenes and old quarters.¹

¹ I am able, through the courtesy of General Kulberg, to add a sketch-map of the Klukhor Group, reduced from the most recent sheets of the new survey.—D. W. F.

CHAPTER XXII

THE SOLITUDE OF ABKHASIA

For such accidents as baffle expectation, and are incapable of being accurately reckoned upon, are quite sufficient to bring us to great and frequent distresses—for instance, downpour of rain and rise of torrents, excessive frosts and snows, wintry and cloudy weather, and other things like these—but if we also neglect to provide for those which can be foreseen, is it not likely that we shall have ourselves to thank for frequent failures? *Fragment of POLYBIUS* (Shuckburgh's edition).

Λέγονται δὲ καὶ τῶ Παναγαίῳ ἔνοιον χρῆσασθαι φροντιστηρίῳ καὶ ἕτεροι τῶ Ἄθω· ἐγὼ δὲ μέγιστον τούτων ἀνελλθῶν ὕψος οὐδὲν σοφώτερος ἑαυτοῦ καταβήσομαι· οὐδὲ γὰρ ἔκεινοι· ἔφη· Αἰ γὰρ τοιαὶ δὲ περίωπαι γλαυκότερον μὲν τοι τῶν οὐρανῶν ἀναφαίνουσι καὶ μείζους τοὺς ἀστέρας καὶ τὸν ἥλιον ἀνίσχοντα ἐκ νυκτὸς, ἃ καὶ ποιμέσιν ἤδη καὶ αἰπάλοις ἔτι δῆλα· ὕψηδε τὸ θεῖον ἐπιμελεῖται τοῦ ἀνθρώπου γένους, καὶ ὅπη χαίρει ὑπ' αὐτοῦ θεραπεύομενον, ὅ,τι τε ἀρετὴ καὶ ὅ,τι δικαιοσύνη καὶ σωφροσύνη οὔτε ὁ Ἄθως ἐκδειξεί τοῖς ἀνελλθοῦσιν, οὔτε ὁ θαυμαζόμενος ὑπὸ τῶν ποιητῶν Ὀλύμπιος, εἰ μὴ διορώη αὐτὰ ἢ ψυχῇ, ἣν εἰ καθαρὰ καὶ ἀκήρατος αὐτῶν ἄπτοιτο πολλῶ μείζον ἔγωγ' ἂν φαίην ἄπτειν τουτοῦ τοῦ Κανκασίου. PHILOSTRATUS, *De Vita Apollonii Tyriensis*, l. ii. c. 5.



I HAD for years been possessed by a strong desire to penetrate the 'No Man's Land' west of Suanetia and between the rivers Ingur and Kodor. Mr. Grove, in 1875, had quoted the tales told by the Urusbieh hunters of their great hunting-ground. He had written on his last page 'of a great tract of magnificent country, scored by deep valleys, watered by powerful streams, and covered by a mighty forest. It has no inhabitant whatever, so far as we could learn, and the solitude of the district is only disturbed when a few hunters

from the north venture into it after the game, in which it is said to abound. There would be difficulty, no doubt, in exploring

it, and danger from malaria; but some hardship might well be undergone, and some risk run, to see these magnificent untrodden glens.'

Such a description was in itself well calculated to stir curiosity. And all we heard in our travels had added to the mystery of the

Great Forest. Russian officials gravely repeated strange tales of a race of wild men, who had no villages or language, but appeared naked and gibbering in the depth of the woods, who lived on berries and were without fire-arms. One informant added precision to the tale by assuring us that these creatures were the offspring of *crétins* banished in old times out of Suanetia.

Fifty years ago an Englishman, a Mr. Spencer, one of those who instigated the Circassians in their struggle with Russia by holding out expectations which they had no power to fulfil, wrote a distressingly vague account of his passage through this region, where he described the chamois as looking down on the traveller from every crag, as squirrels might from English trees. We did not see a single wild animal.



PRINCE BEKERBY DADISH KILLIAN

But any practical or recent information was hard to come at until we reached Ezeri. There we succeeded, through Prince Atar, in obtaining the needful facts. Men on foot did pass occasionally to Sukhunn 'by way of Nenskra and Darl'; but the paths were steep, disused, hardly practicable. It was better, we were assured, to cross to the land of the Karatshai, east of Elbruz, and return to the Asian side by the Klukhor Pass.

None but hunters and outlaws knew the forest tracks, but two such guides Prince Atar promised to procure for us. Wild creatures they proved, true children of nature, barbarians in speech and gesture, yielding to every impulse and little accustomed to control. They had charge of two mules which carried our tent, luggage, and provisions for a week. One of these was nearly as unruly as its leaders, kicked furiously at every steep hill, and bit at any one who tried to guide it in the tangles of the forest.



PARI

Before starting, the Prince took me aside and made two separate requests—first, that we would keep together in the forest, lest some outlaw, ignorant of our quality as his guests, should be tempted to lay violent hands on a straggler; next, that we would not take the hunters down as far as Sukhum Kale, as they were in great terror of fever. In any other direction they were to follow our bidding.

The shadows were lengthening fast as we crossed the spur that encloses the Ezeri basin, and began to descend towards Pari. Pari had, in 1868, been the Russian Government post, and my

companions and I had been entertained by the Cossacks quartered there. The place has not changed; the old castle of the Dadish Kilians still lies in ruins; the house where we had lodged looks only a trifle more dilapidated. On the steep ascent beyond, one of our mules gave us the first foretaste of his temper by kicking off his load. Interminable delays followed, and we were glad to halt and pitch our tents at the next small hamlet, where the few inhabitants were very friendly, and supplied us with milk, bread, and eggs.

The next morning was fine and warm. We wandered round the steep hillsides, and in and out of the deep bays worn in the soft soil by the torrents. The last before Lashrash comes from a very small glacier high on the bold rock-peak which rises in the south-west bend of the horseshoe that holds the head of the Betshoglen in its hollow, and turns its convex side to the Nakra. It is a peak well worth climbing. The Laila range looks comparatively insignificant from this side; but the gorge of the Ingur, backed by Shtavler, the broad crest beyond the Nakra, so conspicuous throughout Suanetia, is imposing. There is a largeness about the landscape that is characteristic of the southern slopes of the Caucasus. It was very warm as we climbed up the last zigzag into Lashrash. We sat in the shade of a barn and bargained for provisions, while our men (as we trusted) looked for the third mule which had been promised us. The people were inquisitive and saucy, upsetting some eggs we had bought, and refusing to make good the breakages.

We could not get even milk at first. But Maurer went foraging, and discovered some good women who had milk and cheese to offer in abundance. We followed and found seats in a courtyard, where we were kindly entertained. None of the crowd about the barn pursued us. Why money should fail to procure what was to be had for nothing a hundred yards off; why we should be first mobbed and jeered at, and then quietly entertained—these are among the varieties of travel, common in the Caucasus, which serve as puzzles to the traveller.

In the mid-day blaze we walked up the bare slope that leads

to the crest overlooking the Nakra, where we hoped to leave my old track to the Dongusorun Pass. The descent was long and lovely, the path pleasant—past trickling streams, and among meadows and copses, where wild fruits delayed us. Frequent parties of haycutters were at work. We went down some 2000 feet to the bridge over the Nakra stream, which is about 3500 feet above the sea. There were log-huts and fields of Indian corn beside the water.

A rough track, which soon failed us, started up the opposite slope into the beech forest. The steep hillside was interwoven with roots. Such a bank one finds often in our own island. Imagine any steep, trackless English hanger turned into a mountain 5000 feet high, and that you have to drag two ill-tempered mules and a reasonable but inadequate jackass up it. But if there is one subject that is a weariness as much to the reader as to the traveller it is surely the behaviour of baggage animals.

Slowly we struggled up the mountain under the welcome shade of superb beeches and pines. In time the track entered a niche in the hillside, and we climbed beside a foaming torrent. On the edge of a snow-avalanche, in a garden of golden blossom and gigantic ferns, we made our next halt. The first climb had been steep, but the second proved steeper and harder. The laden beasts struggled upwards by tracks a man could hardly follow without using his hands. Where the ground was steepest fallen trunks often added to our difficulties. Still, on this first day, we made on the whole steady progress. We outclimbed the pines, and came into the beautiful upper fringe of birch and cream rhododendron; the view, long hidden, lay beneath, or rather behind us. We wandered knee-deep, sometimes waist- or shoulder-deep, in grass and flowers—first over moist level pastures, then across gentle slopes. On a broad platform, an hour short of the pass, we pitched our camp among the highest dwarf birches. The landscape opposite our tent-door was one of the noblest I have ever enjoyed from a bivouac. All Suanetia was spread out below. The gorge of the Ingur lay to our right; its sources were fenced in by high snow mountains. Near at hand rose the Laila, crowned by its triple crests, from between

which streamed its large western glacier; Ushba, a grim castle, frowned opposite; farthest away, but every peak clear, shone the peaks of the Central Group, in the midst of which Dykhtau showed its rocky comb behind the snows of the Zanner.

While we looked, dark clouds swept across the Ingur and settled on the Laika, which became a Sinai of darkness and forked lightning. We prematurely congratulated ourselves on the course of the storm. But we had hardly settled for the night when another storm, that had crept up unseen behind the hills from the south-west,



CAMP AFTER A STORM

burst on us. For the next hour our little shelter was assailed by the fury of the elements: first a gale; then a perpendicular downpour; then blinding sheets of flame and crackling discharges; then renewed onslaughts of wind, which rushed furiously against the side and ends of the tent. With the rain came enormous hail-stones, which struck hard blows, as if they would pierce our canvas, and filled every hollow in the ground with several inches of ice.

Our Suanetians had borrowed *bourkas*. But even the famous *bourka* was not enough for such a storm as this, and they pushed inside the tent-doors, screaming in broken Russian, like frightened

children: 'We are lost! lost! lost!' at each fresh blaze and volley of the sky's artillery.

Our canvas resisted the wind and weather, and we fell asleep comfortably to the patter of rain. When I untied the tent curtains at dawn a lovely and unexpected effect greeted me. The Laila stood out clear and cold against a sky swept of all its vapours; the peaks of Tetnuld and Shkara showed deathly white against



SHTAVLER

the black skirts of the retreating storm-cloud, still fitfully flashing, and its upper edge cut sharp against the pale amber of the sunrise.

A gentle and pleasant ascent over broad pastures brought us to the Utbiri Pass, a wide gap between the southern spurs of Shtavler, which is marked by three blocks of stone set on end. A herd of oxen was enjoying the pasturage about the pass (7875 feet, according to M. Levier). A bold glacier-streaked rock-peak, comparable to the Uri Rothstock, was seen to the west. In this direction the mountain view was interesting and picturesque, but without the peculiar sublimity of Suanetia.

A short glen led down towards the Nenskra, whose forest-depths were hidden; beyond it stretched a wide expanse of grassy heights and hollows, over which our future path must lie. How near, and yet how far, they looked, separated from us by the deep dark valley of primæval forest!

A fairly marked track led, not down the tributary glen, but under and then over its southern ridge. Among the first pines heavy rainclouds from the south met us, and we sheltered while our hunters went off to find some Abkhasian shepherds whom they saw afar off. They returned with fresh milk and a fine young goat. We declined the goat at the high price at which it was offered, and, the rain having ceased, went on our way, descending very steeply among beautiful timber and flowers. The forest grew denser, and the fallen trees and roots often checked the mules, while the branches were so thick that we could see little or nothing even of the sky. For some distance we followed the top of a curious ridge, possibly an ancient lateral moraine, running parallel to the torrent, but many hundred feet above it. In a dark hollow the donkey which we had trusted abandoned us. Its owner, it seemed, had not, as we understood, agreed to be at our service for our journey, but had only done us a turn for company's sake, and was now going on some mysterious business of his own down the Nenskra. All our goods were put on the two mules, and they were then invited to climb, poor beasts, a wall of rocks and pine-roots a laden man could hardly master. Naturally mules and baggage were very soon 'confusedly hurled' down to the bottom.

The goods were hauled up, and the tedious process of re-loading began for about the sixth time within two hours. I suggested to the ill-conditioned hunter, who was making difficulties, that he might carry something himself, whereon he flung the saddle-bags to the ground again and indicated that he would desert us. I put my hand on my revolver, while he drew his dagger and broke out in a torrent of words which signified that he would go with us no farther.

It was a foolish situation, for we neither of us meant business. Powell did his best successfully to soothe our savage, and we

started again and slid down between the pine-trunks to the lowest depth and the Neuskra torrent.

The stream flowed in a water-worn cleft between rocky walls linked by a quivering bridge. On the farther side the forest was very dense, and there was no track. We descended into the bed of a small tributary, beyond which we were met by a fence impassable for animals, and composed of fallen trees destroyed by fire. I waited in charge of the mules while our men made a way into the clearing beyond. Powell followed them, and found a log-lut



CAUCASIAN GOATS

and a field of maize. Three natives of uncertain antecedents—Abkhasians, I believe—were inhabiting this lodge in the wilderness.

Our men declared that it was too late to attempt the ascent, that the mules could not manage it unaided, and that next morning the foresters would help us for a small fee. So we camped by the water.

No two camps could have possibly been more dissimilar than this and our last. In place of the wild landscape and high open pasture, we were in a deep dell, surrounded by gigantic pines and tall alders, which formed so dense a canopy that the sky was

invisible, and the weather a matter of comparative indifference. We beat down the thick carpet of ferns and made a glorious fire, round which we toasted some of the cobs of maize our neighbours had brought us, and baked some thin loaves. While thus engaged, the noisy horseman came to me and made a speech to the effect that Englishmen and Suanetians were brothers, and that if he had drawn his dagger it was only because I had laid hands on my revolver. The little storm had done some temporary good, and for forty-eight hours, till we finally lost our way in the forest, his behaviour was less boisterous.

It was a grey dawn when we set out, and the patter of rain was heard on the tree-tops, though little came through to us for the first hour or two. Path for long there was next to none. We wandered, now along a torrent-bed, now in and out between the enormous prostrate tree-stems. Then came the great climb to the pasture region. It was steep beyond all Alpine conceptions of a horse-path; the animals got up it by hard climbing. At last we emerged from the glen, the sides of which we had been scaling, and followed the undulating crest of a spur towards the upper pastures. When these opened before us we halted under a grey-bearded pine, and sent a deputation to get milk and buy a sheep of a shepherd, whose flocks were not far off. As we were starting again one of our horsemen set fire to the lichens on our pine. In a moment the whole tree from top to bottom was a pillar of flame. The mischievous knave capered with delight at his handiwork. Fortunately the tree stood apart, and the conflagration soon fell, leaving the branches singed rather than burnt.

Our difficulties were now for the time over. The sloping pastures afforded an easy ascent to a high platform, under which lay a small clear tarn. Just before reaching it our walking mutton gave Maurer the slip. He stalked it unsuccessfully, and it finally went off over the hills at an easy pace in the direction of its fellows, followed by its late leader.

We had no resource but to wait for our comrade's return. The afternoon was fine, and the prospect beautiful. We were as exactly as possible on a level with our pass of the day before.

Ushba could again be seen behind it, and the Laila peaks were prominent beyond the Ingur. To the south spread high pastures dividing the dark forests of the deep valleys that converge to the gorge of the Ingur. On either side the defile was guarded by two clusters of bold peaks, probably limestone, in the hollows under which lay small glaciers, comparable to those of the Marmolata in South Tyrol.¹ The nearer group, that west of the Ingur, was united to our standpoint, or rather to a ridge still a mile in front of us, by a very long, smooth, grassy crest, the water-parting between the Ingur and Kodor basins. As yet we could see nothing of the latter, and the main chain north of us was hidden by a snowy block close at hand. Earlier in the day we had had glimpses of the glacier of the Nenskra, and but for clouds should doubtless have seen the snows of Elbruz over its head.

The hours passed, and when at last Maurer returned with his captive there was only daylight enough left for us to go on a few hundred yards to a sheltered hollow, where rhododendron branches could be collected to make a fire. The fuel was too scanty for serious cooking, and our sheep was reprieved. I may as well confess with what results. At starting next day the animal grew very restive; Maurer, in a moment of temper, cut the rope, and we saw our chops scamper off for the last time.

It was a cold, exquisite morning, with the eastern breeze that in the Caucasus is a sure sign of fine weather. Our men now confessed to knowing no more of the road. We followed a faint track to the nearest gap, which M. Levier says is known as the Jodisuk and assigns a height of 8531 feet. A new and glorious landscape of a sudden met our eyes. At our feet stretched for thirty to forty miles the basin of the Upper Kodor—once the fertile district of Darl—a valley as great as the Val Tellina, one vast forest fenced round by lofty mountains, not, indeed, such

¹ On the north side of the Caucasus the limestone rises in a continuous line, broken by gorges parallel to the main chain; on the south, in isolated blocks, more or less in a line, but not continuous. A similar arrangement exists on the two sides of the Alps.

giants as hang over Suanetia, but broad glacier-fields and abrupt, if blunt, granite crests and ridges; mountains bearing the same relation to those of the Central Group that the Titlis and Galenstock ranges do to the Bernese Alps. It was not so much any individual peak that fixed the eye as the glory of the whole landscape—the rolling leagues of forest, the broad hills bright in the early sunbeams, the flashes of light in the depths: here a cliff, there a sinuous reach of river, nowhere any sign of human habitation. The spiritual eye of poets anticipates the traveller. Surely Shelley has somewhere introduced into his *Prometheus Unbound* the Kodor, as it lay in its primal loveliness on that summer morning.

There was no visible track leading down to the glen at our feet, but a thousand feet below sheep were feeding. We found three communicative shepherds, Abkhasians, with a classical air and Phrygian hoods such as shepherds may once have worn on Ida. There was no direct way, they told us, from where we were down into the valley; we must return to the crest, and keep along a lofty spur level, or nearly so, for a long distance, which ran parallel to the main valley of the Kodor. We promised one of the shepherds a knife as a reward if he would take us down to the bridge over the river. He insisted on being paid beforehand, and, remembering the good faith of our foresters on the previous day, I rashly consented.

We remounted to the crest, the walk along which was enchanting. Flowers at our feet—golden crocuses and blue gentians—space and sunshine on every side; below, the rolling leagues of forest, hemmed in by a high fence of peaks and glaciers, except to the west, where the hills fell in long spurs towards the Euxine. As we advanced, the upper glen of the Kodor was added to the view. The forest ceased some miles below its source, a small glacier which flowed from under a blunt castellated rock-peak. The largest glacier in sight was a broad sheet of ice west of the Klukhor Pass, which we saw afterwards very clearly from the Black Sea. It is somewhat similar in character to the Adamello

glaciers, and very accessible. Between the Nenskra and the Seken—as the main source of the Kodor is called on the new map—rose a cluster of granitic summits.

After about two miles of this high terrace-walk the ground fell more rapidly; the first trees, noble firs and beeches, were met, and a few hundred yards lower we were buried in the forest again. The path disappeared, the ground was steep, but there was no difficulty for man or beast in reaching the banks of a stream, a slender tributary of the Kodor, which flowed through a long



THE MOUNTAINS OF THE KODOR FROM ABOVE THE DONGUSORUN PASS

glen on our left. We lunched in a lovely dale beside its water. I retired to bathe, and on my return found the shepherd had disappeared. We had already had to argue rather forcibly with him to induce him to keep his promise, and now he ran, leaving us to find, or miss, the bridge over the Kodor. The abrupt appearances and disappearances of Caucasians in their native wilds often reminded me of the ways of Homeric deities.

We were close to the main valley, and a level, well-marked path led us down its left bank, under the deep shadow of beech and pine, until it trended uphill, where a tributary stream had

laid bare a broad expanse with its floods. It was natural enough the path should cease in the torrent bed, but beyond it we discovered something of a forest track. Here and there we came on rude hunters' lairs. There was just encouragement to push on. 'Nyet doroga.' 'There is no road; the mules are lost—we are lost!' howled our Suanetians. 'Yest doroga.' 'Here is the road,' we exclaimed from time to time with a confidence we did not feel. We crossed with very great difficulty the deep bed of a second stream. We fought on through thorns and bracken, waist or shoulder deep. We literally hacked a way with axes and daggers through the brushwood, until we were brought to a standstill by ground too rough for animals.

At last, as dusk drew near, we came to the river brink, where a vertical cliff fell directly to the water. Further advance was impossible; to scale the hillside was a tiresome task for a well-girt, unladen man, out of the question for an ill-saddled, laden horse. We sent Maurer to use the remaining daylight in prospecting. He came back despondent. We camped in a dark dell, above a tangled copse of alders, where there was hardly room for a tent among the rank growths. It was not a nice camp, and I was very stiff and tired, not from distance, for we had only walked down-hill all day, but from the ceaseless worry of the pathless forest. There were insects flopping about in everything. However, we slept till dawn. Then the Suanetians were keen on bridging the river. Powell, too, favoured and energetically laboured to carry out the proposal. An hour or more was passed in cutting down a tree, flinging it nearly across the boiling torrent, and then seeing it carried away. That plan having failed, we resolved to return to the spot where the path had ceased the previous afternoon, and search thereabouts till some way over the river was found. The five-verst map indicated a crossing, and though it had proved thoroughly untrustworthy since we left Suanetia, it was possible that here in the Kodor it might be right, at least in this indication. The forest was so intricate that we found it no easy matter to retrace our steps; but we succeeded. In three hours we were back at the path. At first

we searched in vain for any crossing among a labyrinth of water channels and islets; but after some time, guided by a clearing, which was probably an old track half overgrown, we came on a bridge formed of a single monstrous trunk concealed behind a thick-grown island. How were the mules to get over? The Suanetians made a mad attempt to lead them over the trunk, but the wiser beasts declined, and secured with our Alpine rope they swam the swift waters most pluckily. While the luggage was reloaded we halted in a very delightful spot, under an enormous beech, beside the dancing Kodor, a bright stream to which glaciers do not contribute enough to discolour its waters.

What sort of track we should find on the right bank of the Kodor was now the question. After more than one steep little fall and rise in and out of the gullies of streamlets, a path barely discernible led along the brow of the high bank overhanging the river, and under the shadow of a vast beech-forest. As long as we were under the beeches our way was smooth and easy. But after two hours the track, such as it was, descended to the bed of the torrent, and was from time to time effaced by its vagaries or smothered in dense copses. Boughs flapped in our faces, while loose stones turned under our feet. It was very warm and wearisome. The junction of the valleys where we should join the paths from the Klukhor and the Nakhar seemed to recede as we advanced. At last the track went up through a barricade of fallen trunks that gave some trouble to our mules. We crossed a meadow, where the shoulder-high flowers and grasses were shaded by walnuts and wild fruit-trees, and encircled by raspberry-bushes. A rude hunter's shanty was the first trace of habitation. Another short climb, and we began to drop through the thickest hazel-copses. We had crossed the tongue of the hills, and were approaching the Kluich torrent.¹

¹ Readers, particularly botanists, who desire a more detailed and technical description of the country between the Nakra and the Kluich will find one in M. Levier's *A travers le Caucase*. MM. Levier and Sommier succeeded in 1890 in following in our footsteps to this point, whence they turned north across the Klukhor Pass. Following the new map, M. Levier calls the main source of the Kodor the Seken.

We came suddenly on its brink, where it flowed in swift eddies between high banks, a broad bridgeless stream, too deep for a man on foot to wade easily. While we were taking counsel a train of unladen baggage-horses came in sight on the opposite side, conducted by two natives, picturesque figures, in bright-coloured clothes, and with *bashliks*—draped like Phrygian hoods—over their heads to keep off the hot sunshine. We shouted to them to bring over their animals for us to cross on, and one came over. But hardly had he engaged in conversation with our wild guides, than the latter managed to convey some insult, which resulted in the horseman shouting out ‘Suanetian asses!’ in Russian for our benefit, and plunging back into the stream. This was more than I had patience for, and I jumped hastily into the water and arrested him. A little further parley sufficed to arrange matters, and we all rode over the water in turns. No sooner had we arrived on the other side than our wild men began to grumble again, and expressed their intention to go back. ‘We want to go home. We are lost; the mules are lost! Here is Kodor.’ That was about as far as their Russian carried them. We disregarded this talk, and got off again. Our troubles from the absence of path were now brought to an unexpectedly sudden end. We found a good narrow cart-road, obviously constructed by engineers, running along a broad and open valley. We rode for many miles over gentle slopes and level meadows, varied with wild-flowers and covered with fruit-trees—pears, golden and purple plums, walnuts, cherries, and raspberries. But nowhere was there a sign of any inhabitant. All this wealth of forest and pasture, of fruit and flower, was wasted on a few bears or the rare passer-by, the peasant from the Karatshai, who fills his sheepskin hat as he passes with the plums that drop from the branches and colour the ground beneath them.

Below a step in the valley, as the sun sank behind the western hills, we pitched our camp. It was a gorgeous evening, and the folds of the mountains were rich with southern bloom. High in the west some crags bore snow, but the landscape was no longer that of the central chain. The reach of the Kodor we

were in might answer with respect to the surrounding ranges to the basin of Sondrio with respect to the Bernina.

Next morning we rode on along a fairly well-made, though narrow, road. Before long an exquisite vista opened to the south-east up a long glen, densely forested, and closed by a glacier and a fantastic rock-castle (Agarva, 8353 feet), the last of the isolated limestone peaks that rise between the basins of the Tugur and the Kodor. A few horses were seen grazing; then a field of Indian corn came into view, and at last, of a sudden, a stone-built house of one storey and two rooms. This was the much-talked-of Shkalta, where we had been led to expect Cossacks, post-horses, and 'good accommodation for man and beast.'

The house was substantial enough, but its only occupant was an unfortunate Georgian who could hardly walk twenty yards, so reduced was he by malarial fever. There were no horses procurable; and now, suddenly, our Suanetians struck. The mules were hardly unladen when they roared out in more determined tones than ever, 'Home we go!' We represented that they were sent by their Prince to go where we ordered, at all events as far as the spot where we could find substitutes, and that they would have no present until we reached such a spot. But this time the men were in earnest. It was clear that they were in an honest fright; whether of fever, or of civilisation, or of the unknown generally, who shall say? At any rate, they acted promptly and with great decision.

I saw what was coming, and hastily resolved that it might be dangerous, and was certainly not worth while to oppose force if the men chose to ride off without money or food into the wilderness. Of course the presence of the Georgians' pack-horses aided us in coming to this conclusion. A minute or two later the Suanetians leapt on their mules' backs and rode off at a hand-gallop, shouting and screaming in triumph as they passed out of sight round the first corner. It was the last we saw of them. They had no food, for our meal was exhausted. Doubtless, however, they did not starve. The Caucasian, in the first place, can travel on less than most men; and they would first rob the maize-fields

and fill their pouches with cobs and plums, then beg milk and cheese from the shepherds, who live the whole summer through without tasting bread.

The peace that succeeded the departure of our grunting, grumbling savages was at first a relief; but our feelings became more mixed when the facts of the situation were fully revealed. Powell, knowing no native tongue, had been able hitherto to hold but very imperfect communication with the Georgians; else, indeed, our journey might have taken a different turning.

Now, through the sick solitary of Shkalta, who talked Russian, we learned that the Georgians had no intention, or indeed power, of descending farther, since they were under a contract with a working party of Russian engineers engaged in continuing the road over the Klukhor Pass into the Teberda, and were bound to start on their return the same night. Had we known this earlier, we might have gone to the Russian camp, and used it as a base for mountain excursions.

Our position was awkward. The Russian moved about listlessly, expecting his next fever bout; the Georgians lay on their backs, and scarcely deigned to utter monosyllabic gutturals between their yawns. There was nothing for it but to leave Maurer and the luggage behind us, and tramp on to Lata, five hours down the valley, in the hope that it might not prove a second Shkalta. We set out in the heat of the day, yet I never felt heat less at so low an elevation (about 2000 feet). Whether it was owing to the dryness of the air, or the beauty of the landscape, or the frequent shade of the western hill-side along which the path was cut, we did not suffer, and kept up a good pace, despite a heavy pack which Powell good-humouredly carried more than two-thirds of the way.

The straight upper basin of the Kodor ends at Shkalta. Henceforth the river turns to the south-west, and runs in a winding course through a narrow valley or open defile, wooded to perfection, for some fifteen miles, until, bending west again, it opens out as Lata is approached.

Two miles short of our destination we met a party of Suanetians mounting into the hills. The leader wore a very handsome dagger, which attracted our notice. He told us he was one of the Dadish Kilian's retainers, and Powell thought it a good opportunity to send a note to the Prince reporting the manner of our horsemen's departure. He had just finished writing it, and was holding it out to the Suanetian, when an evil-faced Mingrelian, who was walking with, but not one of, the party, suddenly stepped forward and, snatching the piece of paper, tore it into a hundred fragments. On the Suanetian remonstrating he drew his thin dagger, which glittered like a snake's tongue in the sunshine, and stood scowling. The Suanetian, evidently alarmed, interposed between him and Powell, and nothing more came of this curious incident. We could not understand, nor could the Russians to whom we told the story explain this man's unaccountable but obviously very real fit of passion, except by the suggestion that he had eaten



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too much of the intoxicating wild honey which is reported to be found in these valleys. Possibly the Mingrelian thought the paper contained some evil charm. It was written in French, and the natives had no clue to its contents.

At Lata, again, there is no village. The Station consists of two cottages within an enclosure, the shell of a ruined barrack, and a rough shanty where the Cossacks and natives attached find shelter. A topographer—not, however, one of those connected with the new survey—was living in one of the cottages, and as soon as he returned from his work entertained us hospitably. In

the meantime we were made at home by a good woman, the wife of a subordinate in charge of the post, whose husband was also absent. He had, she told us, but lately recovered from a bad fall, caused by his horse shying on suddenly meeting a bear which was using the road from Sukhum for his evening walk. But a few paces farther, and horse and rider would both have been thrown over the precipice.

We spent a day and two nights in Lata before we could recover our luggage and obtain horses for the long ride to Sukhum. The time did not seem too long, for we were comfortably housed and had much to think and talk over. An object long in my mind had been attained. The mystery of the great forest, which Grove, Moore and I had so often discussed, was at last solved. I had learned what truth underlay the strange tales current in the Caucasus. We had not met with the wild men of the woods living apart, without villages, clothes, or fire-arms, clad in skins and feeding on berries, concerning whom M. Jukoff had repeated the legends, but we had visited the secret lodges of the wilderness and their denizens. We had not been so fortunate as Mr. Spencer, who saw chamois looking down on him from every crag, as numerous as the squirrels in an English park; but we had had frequent proof of the proximity of bears. We had ascertained that the forest paths were not impassable—when found; but we had discovered the difficulty of finding them.

Between Suanetia and Lata we had spent six days. In the rapid summary of the last few pages I have given, I fear, but a very imperfect idea of this week in the wilderness. How is it possible for a traveller to impress on the minds of those who have never seen a Caucasian forest, or a field of Caucasian wild-flowers, any adequate picture of the reality? As I write there rises before me a series of familiar visions: the interwoven shade of gigantic pines and beeches and alders, dense thickets of laurel and azalea, fields of Alpine flowers which shake their blossoms over the traveller's head as he shoulders a track between their stalks; the luxuriant gloom and 'shady sadness' of pathless vales, the wide splendid landscapes unrolled from high pastures, the morning light glancing over

a hundred green ridges and resting on the pure face of distant snows, the scale and spaciousness of the scenery as a whole, and the delicate charm of each of its details.

What is to be the future of this Earthly Paradise? Its ancient and primæval inhabitants are gone. They have been exiled for a quarter of a century; their dwellings and their tombs are alike lost in the glorious vegetation that feeds nothing but bears and mosquitoes and fevers. A people that had lived the same life in the same place since the beginning of history has been dispersed or destroyed. The Abkhasians have vanished, leaving behind them no records, and hardly sufficient material for the ethnologist who desires to ascertain to what branch of the world's 'families' they belonged. Recent Russian writers can add little to the portrait and the epitaph furnished by Gifford Palgrave, who, when Vice-Consul at Sukhum Kale in 1876, was almost a witness of their last struggle. I borrow a page from the chapter on Abkhasia in his *Eastern Studies*:

'Of the early history of the Abkhasian race little is known, and little was probably to be known. More than two thousand years since we find them in Greek records inhabiting the narrow strip between the mountains and the sea along the central eastern coast of the Euxine, precisely where later records and the maps of our own day place them. But whence these seeming 'autochthones' arrived, what the cradle of their infant race, to which of the 'earth-families,' in German phrase, this little tribe, the highest number of which can never have much exceeded a hundred thousand, belonged, are questions on which the past and the present are alike silent.

'Tall stature, fair complexion, light eyes, auburn hair, and a great love for active and athletic sport might seem to assign to them a Northern origin, but an Oriental regularity of feature and a language which, though it bears no discernible affinity to any known dialect, has yet the Semitic postfixes and in guttural richness distanees the purest Arabic or Hebrew, would appear to claim for them a different relationship. Their character too, brave, enterprising and commercial in its way, has yet very generally a certain mixture of childish cunning and a total deficiency of organising power, that cement of nations, which removes them from European or even from Turkish resemblance, while it recalls the so-called Semitic of Western Asia. But no traveller in this part lays claim to the solution

of their mystery, and records are wanting among a people who have never committed their vocal sounds to writing: they know that they are Abkhasians and nothing more.¹

In the future, possibly, the solitude that was once Abkhasia will be re-peopled. As yet the Government is lukewarm and unpractical in its efforts. Emigrants, Greek or German, arrive but slowly, and their families too often suffer severely from the fatal fever. There is little in the surroundings, moral or physical, to encourage that energy which tames Nature to human uses. Nature is triumphant; not a virgin Nature, but a Circe who stands ready for all new-comers with a cup of Kolkhian poison in her beautiful hands.

Lata is notorious for fever. The Russian barracks were deserted partly on account of the mortality among the men quartered in them. Here my friends, the party of 1874, believed that they caught the illness which, in Moore's case, inflicted an injury that was never repaired.

We set out, 'all in the blue unclouded weather,' for our long ride of fifty-two versts to Sukhum Kale and civilisation. A short distance below Lata the Kodor forces its way through the last ridge of the Caucasus in a deep limestone cleft. The road is a groove cut boldly in the face of blindingly white cliffs; the views from it of the great woodlands stretching in every direction are superb. A very lofty rustic bridge, the first—unless we reckon the log by which we had crossed—over the waters of the Kodor, spans the ravine at its narrowest point.

The road here leaves the river and traverses uplands, where it takes a most extraordinarily circuitous course—like the Constantinople railway, and possibly for similar reasons—before it descends to the valley of a large tributary. On the bank we found a tiny villa, the country seat of some inhabitant of Sukhum, the trim surroundings of which had an odd effect in the wilderness. On a neighbouring brow rise the walls of Zebelda, once a military

¹ See 'Vocabularies of Five West Caucasian Tongues,' by the late Mr. Peacock, H.B.M.'s Consul at Batum, *Journal of the Royal Asiatic Society*, vol. xix.; M. Chantre's ethnological volumes; and the writings of recent Russian authors, MM. Schiefner and Uslar.

cantonment, now an enclosure inhabited by two Russian monks. They gave us the best they had in the way of entertainment, and amused us not a little by their absolute ignorance of the march of the Western world. While we lunched at a table under a spreading shade, our hosts, moving awkwardly about in their heavy robes, represented in 'living pictures' the frescoes of many an Italian cloister. All that was missing was the Fiend in the background, and Maurer's sunburnt face as he issued from the dark door of the kitchen soon supplied the want.

After a long ascent among hazel copses, we caught our first glimpse of the sea through a break between the hills. Soon afterwards the scattered fields and homesteads of the Greek colony of Georgievsk were passed on our right. It was the first village we had seen since leaving Suanetia six days before. We were still eighteen miles from Sukhum. The road henceforth was as well kept as an English county highway. For several miles it ran through a picturesque defile in a low range of cretaceous hills. The scenery was tame, of course, compared to that our eyes had grown accustomed to, but it had a homely and familiar charm. At one moment we were reminded of the eastern outskirts of Exmoor, at the next of those of the Apennines. At last we left the hills for the open strip of country near the coast, where the road was a pleasant lane among hedgerows and tall trees. It was dark before we reached the shore and began to skirt it. We rode on for several miles till we came to the historic stream of the Gumista: historic, for its floods once saved Sukhum from being sacked by the Abkhasians. The story has been told by Mr. Gifford Palgrave in his *Eastern Studies*.

The bridge—this is the last time I shall have to repeat the same form of words, for this is the last stream we crossed in the Tsar's Caucasian dominion—had collapsed and been swept away. Our horseman rode out into the waveless sea, in which the stars were reflected, while the distant gleam of the lighthouse floated to us across the waters. We followed him along the line of the bar, and reached the farther bank or shore without difficulty. Our last adventure was over; signs of civilisation thickened. Sweet scents

poured out of fenced gardens; the white walls of villas loomed through the night; we were nearly upset by a wild charge of revellers, racing home from a supper-party. Then came a vast barrack; broad roads with a few houses scattered about them; even the darkness could not conceal the unfulfilled ambitions of the builders of Sukhum, burnt by the Turkish fleet in 1877, and still a tiny town of 1300 inhabitants.

Ten minutes later we rode out on to a little quay and dismounted before the wide verandah of a bungalow, where officers were still supping. I was hardly off my horse when I was addressed by name and asked to join the company. The evening ended among the luxuries of civilisation, while the waves of the Euxine broke in phosphorescent foam at our feet.

Next morning I found myself on the deck of the steamer that had taken me away from the Caucasus in 1868, a Clyde-built boat, then the last addition to the Black Sea Company's fleet. Now she had fallen to the rank of the slow coasting steamer. Skirting the shores closely, we called off Redut Kale and Poti.

As we passed the mouth of the Ingur, we looked back to the hills which enclose the great forest from which we had emerged. High above them rose the snows of the fine group west of the Klukhor Pass. From the sea it appears to culminate in great *névé* slopes and snow-domes. The granite pinnacles seen from the Klukhor Pass or the Teberda are probably the buttresses that support this central mass.

Here is a region easily accessible, and absolutely a new field of exploration for mountaineers. They may land at Sukhum, where the Englishmen who reside there in charge of a station of the Indian Telegraph would doubtless help them in their start. The new road over the Klukhor may serve as a base of operations.

In constructing this road the Russians have restored one of the old highways of the Caucasus. So at least we must gather from the following curious passage, which I extract from the travels of a Venetian, Josafa Barbaro, written in A.D. 1487, translated into English about 1550, and republished by the Hakluyt Society in 1873:—

‘From the sea of Bachu unto the sea Maggiore the streight waie, as it were by line, is V^c miles. All which ground is full of mountaynes and valleys in some places well inhabited by certein Lordis of it (through whose terretories no man darr pass for fear of robbing), but for the more part it is disenhabited. And if any man wolde deternyn to passe that waie leaving Derbenth he should be forced to go through Giorgiana and than through Mengrelia on the coast of the sea Maggiore at a castell called Aluathi¹ where is a mountaigne of so great height that it shall behove him to leave his horse and to clymbe up afoote the rockes, so that betwene ascending and descending he shulde travaill two jorneyes and then entre into Circassia, of the which I have spoken in the beginneng, and that passage is only used by them that dwell neere it, besides the which in all the said distance there is no passage known by reason of the difficultie of the places.’

M. de Déchy has taken photographs in some of the northern valleys, and his views show peaks and scenery well worth attention. Still farther west lie the unknown wilds of the Zelentshuk, where Mr. and Mrs. Littledale, the adventurous pursuers of rare game, who have lately thrice traversed Central Asia, went some years ago in quest of the aurochs, an animal which seems, as a rule, to put at least one mountain between itself and its pursuers.

As the noontide haze gradually obscured the heights, my thoughts turned to some more general considerations. The chain of mountains that was receding rapidly from my view is undoubtedly destined to become a frequent goal of energetic Englishmen. What lessons for such explorers might be suggested by the experience of their foregoers, or by the catastrophe that had been the cause of my recent journey? Where may the Alpine experience of those who come as strangers to this new field of adventure prove inadequate, or even a source of danger?

To all who intend to wander among the peaks and glaciers of the Caucasus, or in other partially explored mountain regions, I would offer first this advice. Do not grudge time spent in reconnoitring. Carefully examine your mountains from some outstanding, and, if possible, fairly high station, before you attempt any novel

¹ Alua is found on Koch's Map of the Caucasus on the spot now called Lata by the Russians.

expedition. The most experienced climbers, and still more the best Alpine guides, are very liable to be misled by the aspect of a mountain seen from its own slopes or spurs. From such a standpoint neither the scale of the whole nor the relative proportion of parts can be accurately estimated: cliffs are foreshortened; the angle of snow-slopes is diminished; weak places suitable for attack are apt to lie concealed; above all, a false line of ascent may be adopted because its earlier part is temptingly free from obstacles. Again, experience has proved more than once that a pass likely to prove of any difficulty cannot be attempted without grave risk when the descent on the further side is unknown. It is extremely difficult to judge of a descent from above, and I have been more than once in serious danger from trusting too readily to first impressions in such cases.

Weather is another matter that requires to be taken into very special consideration in the Caucasus owing to the proximity of the Black Sea, from which clouds and storms drift up with extraordinary frequency and suddenness. To be caught in afternoon fog is consequently a common mishap, and travellers must be prepared for it. Another matter essential to the safety of the mountaineer in the Caucasus, or among any other mountains subject to hotter suns and greater and more frequent alternations of temperature than the Alps, is an appreciation of the rapid changes that take place in the condition of glaciers and snow-slopes. It must not be assumed that snow mountains all the world over can be dealt with on the same terms as the Swiss Alps. The changes in the Caucasus are more rapid, and the normal state of slopes after mid-day is far more dangerous. Snowfalls are frequent; melting goes on with extreme rapidity; all the conditions in which avalanches fall are present, and the slightest additional strain on the surface may produce one at any time. On steep slopes every precaution needful in the Alps is called for, and in many cases they ought not to be traversed at all. Ridges must be dealt with cautiously until the extent and strength of their overhanging snow-caves have been ascertained. If Alpine guides are of the party, the travellers, while profiting to the full by their technical skill and experience, must beware

of yielding too readily to their judgment. Even more than their employers, they will be under the influence of their home habits and experiences. They will not for some time make due allowance for an altered scale and changed circumstances. They will underestimate all distances and many dangers. They will show a tendency to dawdle in camp and not to make sufficiently early starts. They will be slow to appreciate the fact that many rock-faces and ice-slopes must not be ventured on after the sun has set in play the mountain batteries; that it may be foolhardy, however easy at the moment, for climbers to ascend a snow-slope which the sun or a warm shower may before they return convert into a sheet of ice with a torrent dashing down its centre. I feel it my duty to insist specially on this point: the very treacherous character, at any rate in certain seasons, of Caucasian snow. In certain seasons, I write, because much that was ice, or thin snow on ice, in 1889 was good snow in 1887, and this may prove again to be the case.

It is also essential, in my opinion, that the guides selected to take part in distant expeditions should be men who have gained experience in parts of the Alps far from their own homes, where the mountains have been new to them. A 'first-class guide' who has never been beyond his own district is often pitifully helpless as a traveller, as well as wanting in judgment and initiative on peaks strange to him.

It can hardly be needful to urge that no traveller should attempt high ascents without previous experience and training under skilled companions. On the other hand, the reports of local officials or natives as to what is possible or the reverse, what has, or has not been, accomplished by earlier climbers, must be received with the greatest caution. Nothing that is new is possible to the ordinary peasant, Tyrolese or Turk. The successes of a stranger were very slow to meet with local credence even in the Central Alps a few years ago. It is small wonder if some good people of Tiflis treated the tale of the first ascent of Kasbek, or even Dr. Radde's statement that he had found flowers above the snow-level, as the Russian villagers in one of Count Tolstoi's stories (*The Woodcutters*) treat the soldier who returns to tell them of

the eternal ice of Kasbek. 'When I began to tell them about Mount Kasbek, and how the snow did not melt there all the summer, they burst out laughing at the absurdity of it.' Critics to whom everything outside their own narrow experience is incredible are of little use as advisers, and their opinion may be safely disregarded. The mountaineer must go for suggestions to his fellow-craftsmen, plan his route as a whole on the map, and carry it out in detail by the help of his own trained powers of observation.

One further suggestion I must venture to offer to any of my comrades of the Alpine Club who may feel disposed to follow in my footsteps.

In the Alps, of late years, the mountaineer has grown more and more of a specialist. He has turned what used to be a form of travel into a branch of sport. The great oarsman is apt to think little of the scenery of the banks, and much of his own and his fellows' form and 'times.' Some of our climbers show signs of a similar tendency, both in their doings and their writings. They have become, more or less, the prisoners of their own pursuit in its most technical form. Climbers have specialised also in another way, preferring to study every crag in a single corner of Switzerland rather than to know the Alps as a whole. The scientific specialist has found his parallel in the climbing specialist. They are alike in exhibiting at times a belief in the unique importance of their several specialities, which is apt to provoke the critical appreciation we all keep in readiness for the hobbies of others. Both are, doubtless, excellent, if serious persons in their own sphere. But for the present this type of traveller seems to me out of place in the Caucasus. Mountaineers, when they come into the larger field of travel, must not expect that they will escape blame if they pose as gymnasts, and neglect their opportunities. Caucasian explorers, if they desire to obtain any general sympathy, must revert to the practice and methods of our founders—of men like Mr. John Ball, who has left in the *Alpine Guide* an invaluable example of how much one traveller can see and do for his own pleasure and the profit of his fellows, and Mr. Adams Reilly, who did so much for

mountain cartography. That we are more or less masters of the craft of mountaineering—the craft which has been developed out of the rude practices and implements of the crystal-hunters of Savoy and the chamois-hunters of Bern, need not make us narrow in our pursuits and interests. The scientific training and knowledge of Forbes, Tyndall, or Ball may be beyond the common reach. In the struggle and excitement of a first ascent it is often hardly possible to divert the attention from the immediate problem. That is a reason for repeating ascents with greater results and, perhaps, some kindly remembrance of the pioneers who have made the way comparatively easy.

But the uses of a great mountain chain are not to be limited to the satisfaction of the primitive instinct which impels every healthy child to climb up the nearest mound in order to roll down on the other side, or even to the exercise of the scientific faculties of those who look on ‘the glories of the world’ rather as a piece of machinery to be examined and explained than as a pageant suggestive of mysteries beyond. The Caucasus is an admirable Playground. It is also a well-stored Workshop for those investigators who give up their lives to the intricacies of physical research, or to ethnological and linguistic problems. But the ‘terrible Muses’ of all the ‘Logies’ have not yet fulfilled the poet’s vision by annexing Parnassus and its neighbour heights. Men may still, as in past ages, look to the mountains for their spiritual help. In the shining silence of the storehouses of the snow we may find a welcome interlude to the perpetual gloom of our northern cities and the din of a commercial civilisation. In the Cathedrals of Nature we may put away for a time most of our troubles and occupations, and even find some solace in the deeper sorrows of life.

In olden times the secret forces of the Universe seemed to take bodily form before the sojourner on the summits. They do so no longer. We cannot contest the argument put into the mouth of that strange figure, the Pythagorean Apollonius of Tyana—a contemporary of the Apostles—by his biographer, Philostratus, who wrote in the second century. The philosopher

is represented as descending with his disciple Damis from the heights of the Caucasus. Damis is ill-content with what he has seen, and complains as follows: 'There are some, they say, who use Pangaeus and others Athos as a School of Philosophy. But I, who have climbed to a height far above these, am coming down none the wiser.' Whereon Apollonius answers: 'Nor did they—for in such prospects we see the heaven a deeper blue, the stars larger, and the sun springing out of night, things equally manifest to shepherds and goatherds; but in what way that which is Divine concerns itself with the human race, or how it can be pleased by human service, or what is Virtue and what Righteousness and what Wisdom, these things neither Athos nor that Olympus which is celebrated by the poets will reveal to their climbers, unless the Soul itself can make the discovery. And the Soul, if it approach these matters pure and untarnished, will, in my judgment at least, soar much higher than even the Caucasus.'

We must accept the conclusion of the Philosopher. But if the heavens do not open in our day as they did to the seers of old, if we bring down no Commandments or Revelation from the Unseen World, we at least find ourselves lifted above the poisonous exhalations which rise out of the hollows and float about the lower hills. The air of the heights is an excellent medicine for the Soul; and thus fortified—in some fortunate moment—may it not,

'perchance, beyond
 A hundred ever-rising mountain lines,
 And past the range of Night and Shadow, see
 The high-heaven dawn of more than mortal day
 Strike on the Mount of Vision?
 So, farewell!'

APPENDICES



A CAMP AT A KOSHU

APPENDIX A

THE PHYSICAL HISTORY OF THE CAUCASUS¹

BY PROFESSOR T. G. BONNEY, D.Sc., LL.D., F.R.S.

THE Caucasus, as a mountain chain, corresponds with the Pyrenees more closely than with the Alps. It is rectilinear in form, trending with fair regularity about 30° north of west, from the Caspian to the Black Sea. But it begins and ends in a range comparatively low, rising, at some distance from either sea, into a great mountain mass. On the west, however, on the other side of the Sea of Azov, the limestone heights (4000 to 5000 feet) forming the southern part of the Crimea, seem to be a result of the same set of forces, the effects of which may be traced in the bed as well as on the eastern side of the Caspian. The Caucasus, in short, is but one of a group of folds, which have been formed like gigantic wrinkles on the face of the Earth on the northern side of the basin of the ancient Mediterranean, a sea far more extensive than the present one—folds which may be traced westwards to the Pyrenees, and eastwards even to the mountains of northern India. Thus the Crimean hills stand to the Caucasus in some such relation as the Cantabrian range does to the Pyrenees, with the difference, however, that they are cut off by the opening of the Sea of Azov instead of being in actual continuity.

The orographic structure of the Caucasus is, like that of the Pyrenees, comparatively simple. We fail to find a second crystalline range, parallel with that of the watershed,² like that which in the Alps is so conspicuous a feature from the eastern frontier of Switzerland to far away beyond the frontier of France, or the well-marked valleys, running parallel for long distances with the crests of folds, such as those of the Rhine and the Rhone: the rivers of the Caucasus in their outward journey follow generally a simpler, more direct, and less devious course than is common in the Alps; the various tributaries are more quickly collected into the main

¹ This study is chiefly founded on the map of the Russian Geological Survey, Abich's *Aperçu de mes Voyages en Transcaucasie en 1864*, and Favre's *Recherches Géologiques dans la partie Centrale de la Chaîne du Caucase*.

² There is, however, some hint of a similar structure east of the Adai Khokh group, and a line of minor folding may exist on the southern side like that (on the northern side) in the Pyrenees.

stream, which, as it were, hastens to escape from its mountain prison to the comparative freedom of the lowlands. The catchment basins of the Rion and the Ingur, in which the waters run roughly parallel to the chain, do not exceed 20 and 40 miles in length. On the north side the Baksan trends away from the main chain, the Chegem and Cherek flow more or less at right angles to it, and the Urukha alone north of the crystalline axis has anything approaching to a 'longitudinal trough.' The lower Caucasian valleys, like those in the Pyrenees, are generally deeper in proportion to their breadth than is usual in the Alps. Its principal peaks also overtop by some two to three thousand feet the summits in the latter chain, and the line of the watershed is correspondingly higher, for between the Nakhar Pass and the Mamison, a distance of about 125 miles, no gap can be found which is less than 10,000 feet above the sea.

Like most large mountain chains, the Caucasus exhibits a crystalline nucleus fringed on either side by sedimentary rocks of later date, which have been successively deposited upon it as upon a foundation, though not always in unbroken sequence or in perfect conformity. Here also the resemblance to the Pyrenees is continued, for there is not, so far as we are aware, any such clear evidence of pre-existing mountain ranges of more than one geological age in the present chain of the Caucasus as is found in the Alps at several places. This chain also exhibits one peculiarity quite without a parallel in its Central European rival. Elbruz, its highest summit, and Kasbek, which stands seventh on the list, are extinct volcanoes; all the other giants, however—such as Shkara and Dykhtau, each overtopping 17,000 feet, with Koshtantau, Janga, Tetnuld, and Gestola—are masses of crystalline rock, generally similar in structure and composition to their Alpine rivals.

The geological structure of the Caucasus can be most simply described by commencing with the central crystalline mass, which, though now the most elevated, was once the lowest part, and selecting some point rather to the east of Elbruz, so as to be clear of the volcanic materials of which that mountain is composed. This mass consists chiefly of granite and gneissoid rocks,¹ the first-named being largely developed. It varies from coarse to fine, is sometimes porphyritic, sometimes gneissoid—in places it is said to resemble closely the protogine of Mont Blanc—and as this sends veins into the slaty rocks, which will be described below, is probably much later in date than other parts of the crystalline *massif* in which it occurs.²

This zone of the coarser central crystallines attains its greatest breadth in the neighbourhood of Elbruz, where it measures over twenty miles from north to south. Here also it is exposed beneath the overlying newer rocks in a long strip which extends in a northerly direction. On the western side of that mountain it rapidly narrows to a breadth of some four or five miles, and thus continues, sometimes

¹ Porphyries also are mentioned; but these, if rocks with a more or less compact matrix are intended, are probably much later in date than the other crystalline rocks.

² The protogine of Mont Blanc, and sundry more distinctly porphyritic granites in the Alps, are later in date than the crystalline schists of that chain, since they are sometimes intrusive in them.

broadening out a little, for at least a hundred and twenty miles, coming to an end a little below the 41st parallel of latitude. Towards the east it can be followed, gradually narrowing, as far as Kasbek, where it plunges beneath the lavas of that peak, to the east of which it is concealed by the slaty rocks already mentioned, along which the line of the watershed is continued.

This central granitoid mass is bordered on the north by a zone of 'diorites, diabases, and porphyrites,' which generally varies in width from three to one and a half miles, but is interrupted for seven or eight miles towards the north-east of Adai Khokh. As these rocks are not indicated on the southern side of the chain, they must either occur there only very locally, or be wholly absent. Probably they are intrusive sheets or masses; they recall to mind the long strips of dioritic rock, which form a not unimportant geological feature on the southern side of the Western Alps. Passing over these, where present, we find, both north and south of the central axis, a belt of crystalline schists. This on the former side is well developed: it extends to the east of Kasbek for several miles beyond the central granitic mass; near and to the west of Elbruz the zone becomes broader, and must sometimes be rather more than ten miles across. But on the southern side of the chain the belt of crystalline schists is very narrow, only broadening in two places, and it comes to an end a little to the east of Adai Khokh. On this side, however, we find an important belt of non-crystalline slaty rock, which has no representative on the north. On the Russian map it is represented as beginning near the 41° parallel of longitude, and extending continuously eastward for almost the whole length of the chain. At first it is only a few miles wide—somewhat narrower than the zone of crystalline schists on the other side of the watershed—but on approaching Elbruz it broadens out rapidly, like the granitic mass, though in the opposite direction.

At Adai Khokh the line of the watershed bends sharply to the south and quits the crystalline rocks to run along the slaty *massif*, so that the schists are prolonged eastward as a parallel range as far as Kasbek. The watershed continues along the crest of the slaty series, until the latter sinks rapidly towards the Caspian Sea. Calcareous and arenaceous bands occur, but the rock generally is argillaceous. It is more or less cleaved, sometimes being almost a roofing slate, sometimes even indicating an approach to the mineral condition of a phyllite. These structural differences depend, no doubt, partly on the composition of the rock, partly on the amount of pressure to which it has been subjected. This has often been very considerable. The rocks are not only cleaved, but also commonly thrown into sharp and repeated folds on a grand scale, so as to exhibit sometimes, as in the range of Latpari, the so-called fan-structure. The lowest beds, in the vicinity of Tetnuld, are said to be quartzites, which appear to plunge beneath the mica-schists of the crystalline series; this, however, as pointed out by Professor Favre, is simply the result of an overfolding, which has bent back the older rocks until they seem to overlie and rest upon the newer.

The age of the deposit is a subject of controversy. Some, with Abich, consider it to belong to the lower part of the Jurassic system—probably the Lias; others,

with Favre, refer it to the Palæozoic era, and this is the view of the Russian geologists, who, however, have not attempted to fix the age more precisely. Here the palæontologist unfortunately can render but little help, for the rock seems to be as nearly as possible unfossiliferous. But in one locality—in the valley of Mestia—Professor Favre discovered a considerable number of plant remains which he refers (with the assent of M. Stur) to the genus *Bythotrephis*.¹ This occurs in the Ordovician and Silurian (Lower and Upper Silurian of Murchison), so that part, if not the whole, of these slaty rocks must have been deposited rather early in the Palæozoic era. But in 1889 Signor Sella found some fragments of crinoids on the summit of the Laila (13,400 feet)—a peak about thirteen miles due south of Ushba, and near the edge of the slate zone. The rock was a sandy limestone, containing some pebbles. The specimens, which he carried away, have been submitted to more than one expert. That they belong to the old genus *Pentacrinus* is agreed, but difference of opinion exists as to their geological age. Mr. Bather and Dr. Gregory think them most nearly related to the sub-genus *Balanocrinus*, which is found in the Cretaceo-Eocene rocks of New Zealand and of the Chatham Islands; the nearest European representative occurring in Lower Oligocene strata near Buda-Pesth; while Herr Merzbacher of Munich holds that they more closely resemble *Extracrinus subangularis*, a Liassic species. Whichever view be correct—and all speak with some hesitation, owing to the difficulty of determining a crinoid from stem-fragments only—the summit of Laila evidently is not formed of Palæozoic rock.

I venture to offer the following explanation of this apparently contradictory evidence, viz., that here and there fragments of newer are infolded among older strata. The latter probably were once greatly overlapped, if not actually covered, by the former, and as the one might obtain its materials from the other, the two rocks would not exhibit any marked lithological difference. The two masses, in the process of mountain-making, would be folded together, and the greater part of the newer one, in the course of time, would be removed by denudation; so that now the only record of it would be an occasional outlier, 'nipped in' among the masses of Palæozoic strata. Such a thing is not uncommon in the Alps. Here small patches of Triassic rock are rather frequently thus caught up in the crystalline schists; and in the upper valley of the Rhone slaty rocks of Carboniferous and of Jurassic age, differing little in lithological aspect, are infolded, sometimes almost in contiguity, so that it is not always easy to determine the age of a particular strip. The presence of pebbles in the rock of Laila, already mentioned, is a fact not without significance, for they are often indicative of the existence of a land-surface at no very great distance. The fact also that Secondary rocks exist, both to north and to south of the slate-massif, which form, as described below, well-marked zones, often very different from it in lithological character, and attaining to a great thickness, adds much to the improbability of any reference of that *massif* to the same geological age and these zones.

¹ He writes the name *Bythotrcphis*, which is an error in orthography. The plant is believed to have been a sea-weed.

A broad zone of Jurassic rocks runs along the northern side of the chain for its whole length: till some distance east of Kasbek it rests upon the crystalline schists: then passing rapidly over the belts both of these and of the dioritic rocks, it overlies, for the remainder of its course, the slaty palæozoics. Fossils seem to be not unfrequent. These prove that it must afford a fairly complete representation of the whole Jurassic system from the Lias upwards. At the base conglomerates are said to occur, and the lower part of the mass seems to consist largely of slaty or shaly beds, with some sandstones. Higher up are important masses of limestone, and this rock predominates through the upper portion of the Jurassic system, forming a line of conspicuous mountainous escarpments parallel with the central chain, as in many parts of the Alps. Near the Adai Khokh group its summits occasionally rise to an elevation of over 11,000 feet,¹ but farther west, to the north of Elbruz, the highest (Bermamout) is only 8500 feet. Palæontological evidence proves these rocks as a whole to have been deposited beneath the sea, but in their lower part beds containing abundant plant-remains may be found, which indicate, as in the case of the Lower Oolite of Yorkshire, the occasional presence of land. On the southern side of the chain the Jurassic rocks are much less extensively displayed. Towards the eastern end they make their first appearance to the south-east of Kasbek. For a considerable distance only the lower half of the system is exposed, but after a time the existence of the Upper Jurassics is indicated by outcrops at some distance to the south, and ultimately it appears in due sequence. But from the south-west of Kasbek, diabases, dolerites, and basalts are frequently met with breaking through these secondary rocks, and they ultimately form a zone parallel with the main chain. Also parallel with this are indications of a second line of uplifting, of which, however, a bare mention must suffice for the present.

North and south of the chain, belts of Neocomian and of Cretaceous rocks occur in due sequence, but a study of the map makes it fairly clear that the Neocomian may sometimes overlap its predecessor and be itself overlapped in turn by the Cretaceous. Both rocks may be followed on the northern side along the whole length of the chain, but on the southern they become interrupted to the east of Kutais, and finally disappear beneath later deposits to the north of Tiflis. The different subdivisions have been recognised by their fossils as in Europe, and limestones with flints appear on the horizon of the English chalk.

As in the Alps, the division between the Secondary and Tertiary series seems not to be sharply drawn, the Cretaceous deposits passing insensibly into the Eocene. The latter system is better developed on the southern than on the northern side. According to Professor Favre's description, the rocks present a general resemblance to those of the same age in the Alps, and beds containing *orbitolites* and the familiar *nummulites* have been observed.

In passing from Eocene to Miocene we quit the region of the mountains for that

¹ Karion-khokh (11,165 feet), Mysour-dagh and Kion-khokh (11,230 feet).

of the foot-hills and of the plains. Between these two periods, in an interval of which, as might be expected, no deposit remains as a record, the Caucasus became a mountain chain. The history is very similar to that of Switzerland, but here the deposits of the Miocene age appear to be more distinctly marine than in that country, where fresh-water beds predominate. Masses of conglomerate occur among them as on the Alpine border, showing that the destructive forces of nature had already made a fierce attack upon the new-born chain, which, according to Professor Favre, must have formed a mountainous island in a shallow sea. Then, after a considerable interval, another epoch of energetic earth movements must have commenced, as in the Alps, which probably continued through most of the Pliocene period. Next came the great extension of the glaciers, with its usual results, and the formation of those masses of gravel, sand, and river mud, which cover the wide valleys of the Kur, the Ingur, and the Rion, and spread over so large an area to the north of the Caucasus. In this region also, on the eastern side, beds occur over a considerable district, which indicate that at an epoch, in a geological sense recent, the Caspian Sea was much more extensive than it is at the present time. The earlier part of the Quaternary period was signalised by great volcanic activity in the region of which the Caucasus forms a part. To this, according to Professor Favre,¹ the huge cones of Elbruz and Kasbek may be referred, together with the Red Mountains, and a *massif* south-west of the Krestovaya Gora, the 'important volcanic masses forming the upper part of the valley of Ksan and the plateau of Kely.' These outbursts were in part anterior, in part posterior, to the Glacial Epoch, and in this respect the history of the Caucasus corresponds with that of Armenia, and finds no parallel in either the Alps or the Pyrenees.

The geological facts, of which a brief outline has been given, seem to indicate the following phases in the building of the Caucasus. As in so many other like districts on the earth's surface, the preparation begins at some very remote age with the formation of a wide-extending mass of crystalline rock—schists, gneiss, granite—of great antiquity and of unknown history—which, however, probably at last rose for a time above the water. As this mass again sank during the Palæozoic era, great wide-spread beds of mud were deposited in a sea which probably was not very deep; and the general absence of conglomerates and the only occasional presence of sandstones (quartzites) leads to the inference that any land which still remained in comparative proximity to the present site of the Caucasus was by no means mountainous. How long this process continued, at what time in the Palæozoic era it ceased, we cannot tell, for no evidence bearing on these questions seems as yet to have been discovered. The Mesozoic era had more than begun before a new chapter opens in the history of the Caucasus; for this chain, so far as we know, has nowhere incorporated, even locally, any such beds of Triassic age as are found in several districts, though not universally, in the Alps. Probably the process of deposit was arrested in the Palæozoic era by some rather important disturbances of the earth's crust,² because land evidently

¹ *Loc. cit.* p. 99.

² Such disturbances occurred in the Alps both before and after the Carboniferous period.

existed, at any rate during the early part of the Jurassic period, in more than one district on the site of the Caucasus.¹ This is shown, not only by the plant-remains already mentioned, but also by the fact that on the northern side, east of Kasbek, the base of the Jurassic system passes transgressively over the outcrops of the crystalline schists and the Palæozoic slates. A long and fairly steady period of subsidence has now set in, as in the case of the Alps and the Pyrenees; though there is evidence, in the presence of important masses of limestone, that the waters of the sea were cleaner, if not deeper, at one time than at another. This period of deposition, during which several thousands of feet of rock were accumulated,² terminated at much the same time as in the Alps and the Pyrenees; then a wide zone of the earth's crust, extending from the Atlantic right across Europe and almost to the farther side of Asia, became subject to severe compressions, by which this and several other mountain chains came into being. An interval followed of comparative repose; the new-born Caucasus rose as a long and lofty mountainous island above the waters of a shallow, perhaps island-studded, sea; its summits probably were capped with snow, its flanks certainly were furrowed by torrents and wasted by the atmospheric forces. The Miocene period (using the term rather in its older sense) was one of denudation and of forming fresh deposits on the flanks of the new chain. Then at its end the great earth-thrusts once more began to act. The central chain was affected—to what extent we do not know—the marginal deposits were uplifted, so as to form sometimes not inconsiderable hills. These later movements appear to have fractured the earth's crust in this part of Asia over a larger area than the former set, and to have afforded means of egress to the molten material imprisoned beneath. They did not, however, succeed in converting the Caucasus into a chain like the Andes of Ecuador, though Elbruz and Kasbek indicate an attempt in that direction; an easier vent appears generally to have been found on the southern side of the chain, and a large tract south of a line running from Poti, through Tiflis, along the valley of the Kur, is almost buried beneath the masses of volcanic rock which were poured out during this epoch.

Thus the chain of the Caucasus is a fold, or rather a connected group of folds, more than 700 miles in length from sea to sea. At the two ends its structure is comparatively simple; it forms, roughly speaking, an isoclinal fold,³ such as commonly occurs at the extremities of an elongated dome, but towards the more central part it exhibits much greater complication. This is mainly on the southern side of the watershed. On the northern side the outcrops of the Mesozoic and early Tertiary deposits are broader, and they dip with fair regularity and at a comparatively low angle towards the north. But to the south of the crystalline axis, the rocks of which

¹ On the southern side of the Caucasus, from near the longitude of Kasbek to about a degree west of Elbruz, the earliest part of the Jurassic period seems to have been characterised by great volcanic activity.

² The age of the nummulitic deposits appears to have been one of very marked and perhaps irregular subsidence, for according to Abich these deposits exhibit marked unconformity with the older rocks, resting sometimes on Palæozoic strata, sometimes on different members of the Cretaceous system up to the highest group. In Daghestan shallow water conditions appear to have prevailed, and a deposit occurs closely resembling the Flysch of the Alps.

³ One where the beds dip away from the central line at angles approximately equal.

have often been crushed into schists,¹ the Palæozoic deposits evidently have not been only greatly compressed, but also bent into huge folds. Professor Favre's section² from the north of Bezingi southwards through Tetnuld to Kutais indicates a series of acute and gigantic flexures, which have produced the southern overfold of the crystalline schists, the fan-structure of the Palæozoic rocks in the Dadiash range, and a second overfold whereby these rocks appear to plunge beneath the Jurassic deposits in the valley between this range and that of Tatouséle. The whole mass of the Jurassic strata in the latter range evidently is tremendously contorted, and all this side of the Caucasus is characterised by faults which probably are often overthrusts. Nor is this all. On the northern flank of the Rion valley, the upper Jurassic rocks overlie the Neocomian; the dip both of these and of the Cretaceous strata is northward, and that valley is chiefly excavated in much-contorted Miocene deposits. These lie in a trough of the Cretaceous, the northern arm of which affords another instance of overfolding. On its southern side the Neocomian beds, after their reappearance, are for a while comparatively undisturbed, but crumplings again appear in the lower hill region on approaching Kutais, together with masses of volcanic rock.

One question remains to be considered. In what direction did the forces act by which these huge crumples of the earth's crust were produced? Were the thrusts from the north or from the south? It is a question not easy to answer, but the evidence seems to me to suggest the answer—From the north. On this side of the watershed—speaking mainly of the more central and disturbed parts—the Mesozoic and early Kainozoic strata exhibit a lower and a more uniform dip. These are directly succeeded by the lofty and sometimes greatly crushed crystalline axis of the chain. As no part of the Palæozoic slaty rock—which is so largely developed on the southern flank of the watershed—appears on the northern one until it actually forms the axis to the east of Kasbek, we must presume the existence of a considerable overlap of the Jurassic beds, and not improbably of a certain amount of overthrust faulting. But it would seem as if the Palæozoic mass, before the first Jurassic rock was deposited, had more completely overlapped the crystalline schists on the southern than on the northern flank. South of the central watershed, as has been already indicated, the strata, both Mesozoic and Palæozoic, are compressed, crumpled, faulted, and frequently overfolded, the apices of the folds pointing generally southwards. Such a structure is likely to be the result of thrusts which have acted from the north. The reason why it has produced this effect may be explained by examining the geology of the region which lies to the south of the Caucasus, between the Caspian and the Black Sea. Here, in the Mesques and Gouriel mountains, a considerable mass of granite, together with some gneiss, makes its appearance—presumably a part of the old crystalline floor already mentioned—and the thickness of the Mesozoic strata which rest upon it, if one may judge from their outcrops indicated on the Russian geological map, should be less than in the neighbourhood of the Caucasus—while there is no indication of any Palæozoic strata.

¹ For the effects in one or two cases see a paper by the writer, *Proc. Roy. Soc.*, vol. xlii. p. 318.

² *Recherches Géologiques dans la Chaîne du Caucase*, Pl. i. Fig. 1.

Granite also makes its appearance in many places beneath the great lava-masses south of the Kur valley. These facts suggest that the crystalline plateau-like *massif*, which, as already mentioned, underlies Armenia, was prolonged northward, gradually shelving down towards the present site of the Caucasus. This *massif* in Tertiary ages would be overlain towards the south by no great thickness of stratified rock, so that here the earth's crust would have been strong, while to the north the comparatively incoherent sedimentary deposits would have been thick, the crystalline floor deeply buried, and the perfectly solid (upper) part of it comparatively thin. Thus, when the pressures began to act, the great mass to the south would offer a stout resistance, while the weaker zonal mass to the north would be squeezed like a bale of carpets between a piston which was being slowly pushed forward and an immovable barrier. This mass accordingly would be thrown into great folds, the nearest of which would at last yield along the line of greatest weakness, and the crystalline rock in this part would be more or less pushed over against the rocks towards the south, since these were supported by a foundation which gradually became stronger in that direction. This process, as I conceive, was again repeated at the end of the Miocene period,¹ and its effects were probably most intense in that part of the chain which had been already fissured.

The most striking indication of a second distinctly later set of movements, is afforded by the relation of the slaty range, south of the sources of the Ardon and Terek, to the crystalline range on its northern side, which extends from Adai Khokh to Kasbek. The first, though it forms the watershed, varies in height from about 11,000 to 12,500 feet; the second rises to elevations of 15,000 or 16,000 feet, yet it is severed by the gorges of the Ardon and the Terek, the floors of which are, roughly speaking, some 4000 feet above the sea. It seems impossible to explain such a structure as this, unless we suppose that the crystalline axis of the northern range had originally attained no great prominence, perhaps was even concealed beneath overlying slaty rock, and that the highest part of this rock then lay to the south, so as to be the origin of the watershed which still exists. Then, after the above-named rivers had already carved out for themselves well-defined valleys, a second set of uplifts affected the chain, adding to the height of the crystalline ranges farther west, and perhaps producing the most marked effects in a zone slightly north of the actual watershed, so that here, in the eastern region, where the slaty rocks formed the crest, the underlying crystallines were pushed up till they forced their way through them, and finally even overtopped the watershed. So slow, however, must this rise have been, that the rivers were able to deepen

¹ From what has been already stated, it will be seen that the crystalline axis of the chain drops very distinctly as we go eastwards from Kasbek; indeed, the alluvium of the valley of the Kur (on its northern side) actually rests on the slaty Palæozoic rocks, the Secondary and early Tertiary rocks being concealed (it may be presumed) beneath it; and the minor (southern) parallel axis, which runs behind Kutais, rather north of the Suram Pass, has almost, if not wholly, died away. I find that Professor Suess (*Antlitz der Erde*, vol. 1. sect. viii. p. 606) in the main takes the view which I have stated; he, however, lays considerable stress on the apparent discordancy between the eastern and western parts of the chain.

their valleys and continue their former courses with little or no interruption. The ranges of the Caucasus, in fact, seem in this part to be related like those of the Oberland and the Lepontine Alps, and to require a similar explanation. The position of this second uplift suggests at first sight that the later thrusts, at any rate, acted from the south. At the same time, if either the old movements or the recent denudation had happened to have weakened the earth's crust along a narrow zone slightly to the north of the present watershed, yielding might have occurred along this, and the main mass of the chain farther south might have remained comparatively quiescent.

In the central and western part of the Caucasus, where crystalline rock in the one rises to a height of over 17,000 feet above sea-level, and in the other continues almost to the end of the chain, the principal group of flexures seems to be on a grander scale than in the eastern, where Palaeozoic rock occupies the same position. Moreover, in the central part, some distance south of the axis, there are, as already mentioned, signs of a second and minor line of folding, while towards the east this seems to be replaced by an actual depression, now occupied by the valley of the Kur, the alluvial deposits of which, on its northern side, actually rest upon the Palaeozoic slates, without the intervention of Secondary or early Tertiary rocks. This structure perhaps may be explained by the northern extension of the crystalline foundation of the Armenian plateau, to which attention has been called. If we represent the outline of this by a curve, such as the quadrant of an ellipse, and suppose the pressure from the north to be applied by a rectilinear block of rock, moving with its edge parallel to the major axis of this ellipse, and the interval to be occupied by a mass of softer material resting on a thinner crystalline floor, this mass obviously would be narrowest at the western and broadest at the eastern end. Thus, as the thrusts were continued, the materials in the western part would buckle up in a sharp fold, to the south of which ultimately a second relieving fold might be formed, while towards the east the folds might be less sharply accentuated, the crystalline axis of the major one might gradually sink down, and the minor fold even be replaced by a slight depression, along which the Kur now takes its course to the Caspian Sea.

The flexures thus formed in the upper and more solid part of the crust would act upon the more plastic material beneath, and tend to drive it also southwards. Some of this material, if it became fluid, might be extruded through any chance fissures in the crystalline *massif*, as it apparently was at Elbruz and Kasbek, and more frequently in the district immediately to the south, while a large quantity might be pushed upwards under the foundation of the Armenian plateau, so as to elevate this region with moderate regularity, to expose it to a fairly uniform strain, and thus to produce occasional faults and fissures, leading to volcanic outbreaks at numerous points over its surface. Much of this, no doubt, is speculation. The origin of mountain chains is a subject more or less controversial, and these generalisations are founded upon very sparse and imperfect information, but, so far as I can form an opinion, they seem to me the most probable interpretation of such facts as have been ascertained.

APPENDIX B

TOPOGRAPHICAL AND TRAVELLERS' NOTES AND CLIMBERS' RECORD

THE following pages contain a tabulated list of the chief peaks and passes of the Central Caucasus, as well as of the principal gaps that may in future serve as passes to mountaineers. The heights of the peaks and passes, and the dates of all new expeditions above the snow-line, with the names of the travellers who took part in them, are in each case given. The general plan of the arrangement is from West to East.

APPROACHES TO THE MOUNTAINS.

FROM THE CAUCASIAN BATHS.

- (A) To Urusbieh *viâ* Piatigorsk and the Baksan.
- (B) To Urusbieh *viâ* Kislovodsk and the Malka.

FROM KOTLIAREVSKI.

- (C) To Urusbieh *viâ* Naltshik.
- (D) To Chegem *viâ* Naltshik.
- (E) To Bezingi *viâ* Naltshik.
- (F) To Balkar *viâ* Naltshik.

FROM VLADIKAVKAZ OR TIFLIS.

- (G) To Stir Digor (Uruk) *viâ* Alagir and Sadon.
- (H) To the Mamison Pass *viâ* the Ardon Valley.
- (I) To Kasbek *viâ* the Georgian Military Road.

FROM GORI.

- (J) To Saramag (Ardon) *viâ* the Bakh-fandak or Roki Pass.

FROM KUTAIS.

- (K) To Gebi (Raacha) *viâ* the Mamison Road.
- (L) To Kal (Suanetia) *viâ* Alpana and Zageri.
- (M) To Ezeri (Suanetia) *viâ* Suglidi and the gorge of the Ingur.

FROM SUKHUM KALE.

- (N) To Suanetia by Darl and Nenskra.

N.B.—The times given in the following routes are based on the speed at which *troikas* are usually driven on the roads, and at which pack-horses travel on the bridle-paths. Travellers riding without luggage, or pedestrians not hampered by baggage trains, will be able in many cases to travel more quickly.

ROUTES FROM THE CAUCASIAN BATHS.

Travellers bound for Piatigorsk leave the Vladikavkaz Railway at Mineralnaia Vodi, and take a branch line that unites the four Caucasian Spas, Piatigorsk, Gelesnovodsk, Essentuki, and Kislovodsk.

ROUTE A.—*From Piatigorsk to Urusbieh by Baksanski and the Baksan Valley.*
Distance, about 130 versts. Time, 2 days.

A *troika* may be taken about 78 versts to a point 10 versts beyond Atashuki. The road lies through Goriachevodsk, and after 32 versts crosses the Malka near Ashabova.

About 20 versts farther the Baksan is reached at Baksanski. Ascending the Baksan for 15 versts, Atashuki (Atashutan) is passed, and from 10 versts above this point to Urusbieh there is a fair bridle-path along the Baksan.

ROUTE B.—*From Piatigorsk to Urusbieh by Kislovodsk and the sources of the Malka.*
Distance, about 120 versts. Time, 2½ to 3 days.

Rail to Kislovodsk. Here horses must be obtained for the rest of the journey.

The track traverses the hilly country to the south of Kislovodsk, following generally the watershed between the Malka and the Kuban till within a few versts of the northern base of Elbruz. It then turns eastward, crosses two grass-passes, and descends the Kiurtium Glen to Urusbieh. (See Chapter xxi.)

ROUTES FROM KOTLIAREVSKI.

Kotliarevski, on the Vladikavkaz Railway, is the nearest station to Naltshik.

Troikas can be procured at the post-house close to the station. The distance to Naltshik is 48 versts (about 5 hours). Horses are changed at the half-way post-house of Daiutovski.

ROUTE C.—*From Naltshik to Urusbieh by Baksanski and the Baksan Valley.*
Distance, about 100 versts. Time, 1½ to 2 days.

The road allows driving for the first 50 versts to a point about 10 versts beyond Atashuki.

Twenty-six versts across the steppe from Naltshik the traveller reaches Baksanski, and from this station the journey is continued by the track up the Baksan Valley as in Route A.

ROUTE D.—*From Naltshik to Chegem.*

Distance, about 60 versts. Time, 1¼ to 1½ days.

After riding (or driving) 12 versts, the river Chegem is struck at Chegemski.

Beyond this there is only a bridle-path, which ascends the valley to the village of Chegem.

ROUTE E.—*From Naltshik to Bezingi.*

Distance, about 40 versts. Time, 1 long day.

Pack and saddle horses must be hired at Naltshik for the whole distance.

The track runs along the left bank of the Naltshik stream for a distance of some 12 versts, then crosses to the right bank, and traversing undulating, densely wooded country, eventually descends into the Western Cherek Valley and enters a limestone gorge. There is a good path on the left bank of the stream to the chief village of Bezingi, known as Tubenel.

ROUTE F.—*From Naltshik to Balkar.*

Distance, about 50 versts. Time, 1½ days.

The track crosses low hills and descends to the Cherek river. Ascending the valley, it passes the junction of the Western Cherek with the main stream and then enters the famous Cherek Gorge, on emerging from which it ascends the left bank of the stream to Kunnium, the highest of the Balkar villages.

Karaul is 4 or 5 hours' ride higher up the valley.

ROUTES FROM VLADIKAVKAZ.

ROUTE G.—*From Vladikavkaz to Stir-Digor (Uruk) by Ardonsk, Alagir, Sadon, and the Songuta Valley.*

Distance, about 130 versts. Time, 2½ to 3 days.

By hiring a *troika* or phaeton at Vladikavkaz and making an early start, it is possible to drive in one day to Sadon (87 versts). Here horses for the rest of the journey must be obtained.

On leaving Vladikavkaz the road runs north-west across the steppe (crossing numerous streams) for 35½ versts to Ardonsk. It then ascends the Ardon through Alagir and Biz to the mouth of the Sadon Glen.

Here the Mamison road is left, and a short distance up the side glen the mining village of Sadon is reached. Hence a bridle-path runs up the Sadon Glen, crosses a grass-pass at its head, and descends on the western side to Kamunta in the Songuta Valley. The Songuta is descended to its junction with the Uruk, and the latter stream ascended to the village of Stir-Digor.

A more direct route from Kamunta is to cross two grass-passes, descending on the west to Gular and Zinago (in the Karagom Valley), about 7 versts from Stir-Digor. (See Chapter vi.)

ROUTE H.—*From Vladikavkaz to the Mamison Pass.*

Distance, about 124 versts. Time, 1½ to 2 days.

A phaeton or *troika* can be taken the whole distance.

As far as the mouth of the Sadon Glen the route is the same as the preceding one (G). About 5 versts farther St. Nikolai and the mouth of the Zea Glen are passed. The road passes through the picturesque Kassara Gorge to the junction of the eastern and western branches of the Ardon at Saramag, and then ascends past the village of Teeb to the Mamison Pass.

The village of Gurshevi lies on the Mamison Road, 15 versts beyond the Pass, and Glola 8 versts farther.

ROUTE I.—*From Vladikavkaz or Tiflis to Kasbek by the 'Georgian Highroad.'*

Distance from Tiflis to Vladikavkaz, 201 versts. Time, 2 days; or by travelling all night, 24 to 30 hours.

The journey may be made by diligence or by posting.

The best place to stay the night is Mleti.

The stations and distances are as follows:—

	Versts.		Versts
Balta,	12½	Passanaur.	18½
Lars,	17¼	Anaur,	21
Kasbek,	14½	Dushet,	16¼
Kobi,	17½	Zulkan,	17¾
Gudaaur,	16	Mskheti,	14¾
Mleti,	14½	Tiflis,	22½

After leaving Lars station the Darial Gorge is entered, and about half-way between Lars and Kasbek stations the mouth of the Devdorak Glen is passed on the right.

The Krestovaya Gora Pass (7973 feet) is crossed between Kobi and Gudaaur. From Mleti the road follows the river Aragva to Mskheti and then the Kur to Tiflis.

ROUTES FROM GORI.

ROUTE J.—*From Gori (Batum-Tiflis Railway) to Saramag on the Ardon, by the Liakhva Valley and the Bakh-fandak or Roki Passes.*

Distance, about 120 versts. Time, about 3 days.

A *troika* may be taken 29 versts up the Liakhva to Tskhinval, and probably to Patsa, where the stream forks. Horses should be hired here, and the eastern branch of the stream (Patsadon) ascended to Jomag (6100 feet). A few versts north-west of this place the Bakh-fandak Pass (9574 feet) crosses the watershed east of the Zikara Peaks. Farther east lies the Roki Pass (9814 feet), which has been surveyed for a railway. The descent is made on the north side into the Nardon Valley, the path following the stream to Saramag on the Mamison Road. (See Hahn's *Aus dem Kaukasus*: Leipzig, 1892.)

ROUTES FROM KUTAIS.

ROUTE K.—*From Kutais to Gebi by the Mamison Road.*

Distance, about 140 versts. Time, 2 days.

Phaetons or *troikas* can be taken to within 10 or 12 versts of Gebi. Horses should be ordered at the post-station on the right bank of the Rion at Kutais the evening before the start.

The Mamison road passes up the right bank of the Rion through Namokhovani and Mekhvan to Alpana, where the route to Zageri and Suanetia branches off to the north. Turning eastward, the road still follows the course of the river to Sori and Oni, at one of which villages the night may be passed.

About 20 versts beyond Oni the track to Gebi (12 versts) leaves the Mamison road; but, if horses have not been sent on from Oni, it is necessary to drive on 4 versts to Glola in order to hire them.

ROUTE L.—*From Kutais to Kal (Suanetia) by Zageri and the Latpari Pass.*

Distance, about 135 versts. Time, 3 days.

As far as Alpana (52 versts) the route is the same as to Gebi (K). The Mamison road is here left. A new road leads across the low watershed separating the Rion from the Skenis Skali and descends to Zageri, where the night may be passed.

On the second day the Skenis Skali river is ascended by a fair bridle-path on the right bank to Lentekhi and onward to Cholur. The night may be spent here.

On the third day the Latpari Pass is crossed to Kal, which lies in the Ingur Valley at the northern foot of the pass.

Before leaving Kutais a telegram should be sent to Zageri ordering horses (Merun or Anton Gugava can be recommended). Zageri is the best place for hiring horses for the journey to Suanetia.

Distances.—From Alpana to Zageri, 18 versts; to Lentekhi, 21 versts; Cholur, 10 versts.

There is a horse-pass from near Sori in the Rion Valley to Lashketi on the upper Skenis Skali. (See Bernoville's *Souanétie Libre*.)

ROUTE M.—*From Kutais to Ezeri (Suanetia) viâ Sugdidi and the gorge of the Ingur.*

The starting-point is Sugdidi (see Mourier's *Guide*). At least three days are taken to reach Ezeri by what for one day's journey is a rough foot-track liable to be broken by floods and swept by stonefalls.

ROUTE N.—*From Sukhum Kale and the Kodor by Darl and Nenskra to Suanetia.*

Carriage-road of the Klukhor Pass to the junction of the Klulich and Kodor, beyond disused paths and trackless forest.

Lata, sixty versts from Sukhum. Fair quarters in official building. Locality fever-stricken. Avoid exposure in early morning.

Shkalta, thirty versts farther—a good house, the last on the road. Hence to Chiubikhevi in Suanetia will take *at least* two and a half days, or three from Lata.

The new road to the Klukhor Pass is left, and the Klulich torrent forded. The

right bank of the Kodor (or Seken) must then be ascended. A track is just discoverable among brushwood close to the stream: it then rises under beechwoods to descend again to the bridge—a single log (1889)—at spot indicated on five-verst map. Horses must be swum. After passing the first affluent on left bank, follow top of ridge dividing its glen from Kodor Valley. Keep high in a westerly direction, crossing several spurs, till ridge overlooking Nenskra Valley is reached. The Nenskra forests are practically pathless, and the trees so thick that the sky is not seen for hours. A very long, steep plunge through forest to a practicable bridge indicated on five-verst map. Close to it is a maize field, and a hut at times inhabited by outlaws or hunters. Abkhasian shepherds may be found on the high pastures between the Kodor and the Nenskra capable of giving guidance. From the bridge a sharp climb leads to a track ascending the east side of the valley for some distance. After a time it mounts over pastures, and crosses a spur whence the Utbiri Pass, leading to the Nakra, comes into view. Both passes command magnificent views. Broad pastures, then very steep descent through forest to Nakra, on the farther side of which the Dongusorun Pass track is joined.

[*The Klukhor Pass.*—Information is wanting as to the present condition of the Klukhor Road. There is no doubt that it is practicable for horses, but it is improbable that a carriage can pass it.]

INNS, GUEST-HOUSES, ETC.

This chapter need not be a long one. His own tent is the traveller's best inn in the Caucasus.

In the towns there are good hotels—

Hôtel de France, at Batum.

Hôtel de Londres, Hôtel du Caucase, and others, at Tiflis.

Hôtel de France, at Sukhum Kale.

Hôtel de France, at Kutais.

Hôtel de France, at Vladikavkaz.

At Piatigorsk and Kislovodsk also there are excellent hotels. For further information as to inns, see Mourier's *Guide au Caucase*.

The post-stations at Kasbek, Mleti, and Passanaur on the Darial road are comfortable. Except in these places no beds will be found.

North of the chain clean bare rooms may be obtained at Alagir and St. Nikolai, on the Mamison road.

At Naltshik the post-station is very wretched, but private rooms may generally be found; at Urnschieh and Chegem the guest-houses are tolerable and the chiefs hospitable.

At Bezingi and Balkar the chiefs are poor, and travellers may do best to find lodgings and cater for themselves. At Bezingi the storekeeper at the top of the village has a clean room.

At the heads of the Baksan and Bashil Valleys, and beside the Karagom Glacier, are substantial log-huts.

The ordinary Kosh, or shepherd's quarter, is a mere temporary shelter or an overhanging rock.

On the south side of the Mamison at Namokhovani, Alpana, Oni, and other places, there are small but fairly clean post-stations, at most of which tea, wine, bread, etc., can be obtained, and on the Raeha side of the Mamison Pass (three versts below the top) a new roomy guest-house has been built. At Gebi, at Lentekhi, and Cholur on the Latpari route, and in Suanetia at Kalde, Ipari, and Mestia, are guest-houses—sheds with one or two bare rooms—where a traveller can lodge. The priest's house at Mujal and the schoolmaster's at Ushkul offer better quarters.

At Betsho all the accommodation is occupied by officials, and supplies are apt to run extremely short. Prince Atar Dadish Kilian, at Ezeri, is very hospitable to recommended guests, but the village is not well placed as a centre for mountaineers.

N.B.—The names and heights, when their source is not otherwise stated, are taken from the new one-verst map.

ELBRUZ DISTRICT

The boundaries of this group are the horse-track from Urusbieh to Utshkulan round the northern skirts of Elbruz, the Ullukol source of the river Kuban, the Khotikam Pass, and the main stream of the Baksan.

It is three days' journey by the horse-track north of Elbruz from Urusbieh to Utshkulan.

Elbruz (Russian and literary use), *Mingi-tau* or White Mountain (Turkish).

The mountain consists of two volcanic craters connected by a saddle. These peaks are surrounded on the south-east and north by snow plateaus or gentle slopes; on the west the mountain is more precipitous.

Elbruz is best climbed from the ridge west of the Terskol torrent, a tributary of the Upper Baksan. This ridge can be reached in one long day from Urusbieh, more generally in two, either by the Terskol glen or by climbing the hillside west of the glen. Good sites for a bivouac are found at a height of about 11,000 feet. From this point both peaks of Elbruz were first climbed by English parties.

West Peak (18,470 feet).¹—On July 26, 1874, Messrs. F. Craufurd Grove, Horace Walker, and F. Gardiner, with Peter Knubel of Zermatt, starting from a bivouac on the Terskol ridge, traversed the snowfields to the base of the east peak. Bearing to the left, they reached in seven hours a point near the saddle between the two summits. The climb to the west peak up steep but easy snow and rock took them

¹ The exact point marked with these figures is about 700 yards distant from the highest part of this summit-ridge, which has not been visited by the Russian engineers, and is not delineated exactly on the one-verst map. The difference between the two summits is not improbably exaggerated.

two and three-quarter hours. The descent to camp occupied four hours. [*Alpine Journal*, vol. vii. pp. 102 and 113; *Frosty Caucasus*, p. 208.]

East Peak (18,347 feet).—On July 31, 1868, Messrs. Douglas W. Freshfield, A. W. Moore, and C. Comyns Tucker, with François Dévouassoud of Chamonix and two Urusbieh hunters, Sotaef Achya and Japojef Jatchi, traversed the great snowfield, and struck straight up the slopes and rocks of the east peak, reaching the rim of the crater some way below the highest point, which lies on the western curve of the horseshoe crest. A lower rock-tower, which stands at its northern end, was also visited. The ascent occupied eight hours and a quarter; the descent to camp four hours. [*Alpine Journal*, vol. iv. p. 164; *Travels in Central Caucasus*, p. 357.]

Route from the Irik Valley.—This glen joins the Baksan some two and a half hours above Urusbieh. In 1888 M. Golovievsky, of the Russian Survey, and Baron Ungern Sternberg, with a party of Cossacks, reached the point marked on the one-verst map Irik-chat-kara Pass (12,286 feet), where they slept. Thence they crossed the snow-plateau in an almost due easterly direction and joined the English route on the south side of the east peak. On this occasion the saddle only was attained. The descent was made by the north side. This was, therefore, the first passage of the Elbruz Saddle. [*Alpine Journal*, vol. xiv p. 239.]

Route from the Kiurtiun Valley.—Mr. H. Woolley, with C. Jossi and J. Kaufmann of Grindelwald, left Urusbieh on August 28th, 1889, and ascended the Kiurtiun Glen for about six hours. Having followed the main stream as far as a horse could be taken, they halted for the night at the mouth of a ravine running in a north-westerly direction.

The next morning, after ascending this ravine for an hour, they gained the almost level north-eastern *névé*, crossed it in two hours to the base of the east peak, and traversed the northern slopes of the mountain to a chain of lava rocks which run up towards the saddle between the two peaks. On these rocks they spent the night at a height of about 15,500 to 16,000 feet. Starting at 5 A.M. next morning, they gained the saddle at 7 A.M. and the western summit at 8.45 A.M. [*Alpine Journal*, vol. xiv. p. 450.]

The Elbruz Saddle (17,450 feet), may serve as a pass from the Baksan to the Malka. It was reached in 1888 from the south by M. Golovievsky and Baron Ungern Sternberg, and in 1889 from the north by Mr. Woolley.

None of the above expeditions involve mountaineering difficulties, but owing to the size of the concealed crevasses a long rope is desirable. The mountain is terribly exposed and shelterless. The Government, or the Scientific Societies of Tiflis, would render a service to science and mountaineers by erecting a hut near the saddle.

Sultran-kol-bashi, 12,493 feet (Grove's *Tau Sultra*).—This peak furnishes a convenient view-point. It may be reached in six and a half hours from Urusbieh. The route lies up the western of the two glens that unite above Urusbieh.

A path leads through a wood to the upper pastures. The way to the summit lies west of a frozen tarn and up an easy glacier. It was first climbed by Grove's party in 1874. Many other spurs of Elbruz will doubtless be found to be easily accessible and serviceable as view-points by future travellers. [See *Frosty Caucasus*, p. 202, and *Alpine Journal*, vol. vii. p. 102.]

Khotikam Pass (11,634 feet)—used by natives—foot-pass, three days from Urusbieh to Utshkulan, said to have been crossed in 1889 by Baron Ungern Sternberg.

From the Terskol Kosh, near the source of the Baksan, a tract mounts along the left bank of the Azau Glacier, which is crossed to the rocks that separate its two branches and form the base of Khotitau (12,131 feet). The route lies up stony slopes to the edge of the *névé* of the north branch, which is crossed in a north-westerly direction to the gap between the peak of Ullukam Bashi (12,690 feet) and the southern spurs of Elbruz. A steep descent over rocky slopes leads down into the Ullukol Glen on the west side. Further details are wanting. M. de Déchy has described and photographed the scenery at the sources of the Kuban. [See Royal Geographical Society's Collection, and Chapter xxi.]

THE NAKHAR RANGE

The Klukhor Pass (9240 feet) is described in the text and the Nakhar (9415 feet) in Grove's *Frosty Caucasus*. The latter is a rough foot-pass: four days from Utshkulan to Shkalta. No information is forthcoming as to the passes between the Nakhar and the junction of the Elbruz spur with the main chain. A pass is marked on the five-verst map at the head of the valley of the Gvandra, but its indications are not always trustworthy. On that map the main chain west of Ushba is misplaced several miles, and the glaciers are generally omitted. Cartographers and travellers are again warned not to rely on it for any natural features above the forests and beyond the frequented tracks of men.

THE BAKSAN SOURCES GROUP.

The boundaries of this group are the Jiper-Azau Pass and Nenskra Valley on the west, and the route of the Chatuintau Pass on the east, the Baksan Valley on the north, and the Mulkhura torrent and Ingur on the south.

Jiper-Azau Pass (10,717 feet; Déchy, 10,911 feet).—A native foot-pass from the Baksan to the Nenskra Valley. Crossed by M. de Déchy with Urusbieh men in August 1885, and by Mr. Littledale in 1886. The route leaves that to the Khotikam Pass at the foot of Khotitau, and leads south straight up the easy Azau Glacier to the crest of the chain, which is crossed about half a mile east of the junction with the watershed of the spur of Elbruz.

[*Azau Pass* (11,528 feet).—A snowy gap at the *west* head of the Azau Glacier lies north of the watershed and serves as a pass to the Ullu-Ozen Glen, joining the route of the Khotitau Pass, where the two headwaters of the Kuban join.]

The track marked on the one-verst map makes a long circuit along the slopes west

of the Nenskra Valley before descending to cross the stream at a height of about 7000 feet. M. de Déchy reached the same point by descending at once on to the lower portion of the glacier and finding a way over rough ground near the torrent.

Here the direction previously taken is crossed at right angles by a track well known in Suanetia and considered practicable for horses, leading from Utshkulan in the Karatshai, east of Elbruz, to the Nakra Valley, by two passes. The route from Utshkulan mounts the valley of the Kuban to the main source of that river. Very little snow has to be traversed, although the *Jiper Pass* of the one-verst map has a height of 10,801 feet.

The traveller to Suanetia follows the track of the lower of the Utshkulan route passes (Izkhuat Pass, Déchy), *Bassu Pass*, 9954 feet, which leads from the Nenskra to the valley of the Nakra. It presents no difficulty, and but small glaciers are crossed.

The Nakra Valley is reached somewhat below the point where a large glacier descends from Dongusorun opposite. Here the track of the Dongusorun Pass is joined. It is two long days' journey from Terskol Kosh to Chiubikhevi, the lowest village in Suanetia. [Déchy's *Suanétie Libre, Extrait du Bulletin de la Société de Géographie Hongroise*. Budapest, 1886. Private information and maps.]

Mr. Littledale crossed the Jiper-Azau Pass in 1886 with native hunters, and descended the Nenskra Valley as far as the forest settlement passed by Mr. D. W. Freshfield and Captain Powell in 1889 on their way from Suanetia to the Kodor. [*Alpine Journal*, vol. xv. p. 244.]

There are no prominent peaks on the watershed between the Jiper and the Dongusorun Passes. The highest, at the junction of the spur dividing the Azau and Dongusorun basins, is 12,593 feet.

Dongusorun Pass (10,493 feet).—Cattle and horse pass, used by natives. Terskol Kosh to Chinbikhevi in Suanetia by Nakra Valley, a day and a half. It resembles the St. Théodule in the amount of glacier crossed. The crevasses and steep slopes on the north side are sometimes dangerous for animals. This is the lowest of the Baksan Passes, and the easiest over the main chain between the Edena or Pasis Mta Pass (between Karaul and Gebi) and the source of the Baksan. [Mr. Freshfield's party in 1868: *Central Caucasus*, p. 341; *Alpine Journal*, vol. iv. p. 163.]

Little Dongusorun, 14,014 feet (unascended), bears to the great peak the relation the Little Matterhorn does to the Breithorn. It is certainly accessible from southwest. [See Sella's Photographs, Royal Geographical Society's Collection.]

Dongusorun, North-west Peak, 14,553 (*Dongusorun-Ceget-Kara-Bashi* of one-verst map); *Central Peak*, 14,603 (*Ozengi-Chat-Bashi* of one-verst map).—In conformity with native usage, the Surveyors have called almost every peak on the crest overlooking the Dongusorun glen 'Dongusorun'—something or other. Carried beyond a certain point, such a system becomes too confusing for practical purposes.

Herren Merzbacher and Purtscheller, with Kehrer and Unterweger of Kals (Tyrol), on August 20th, 1892, started from a bivouac on the eastern slopes of the Dongusorun Valley (8400 feet). Climbing by steep rocks and snow to the north

base of the mountain, they forced a way up very difficult rocks on or near the north ridge to the snowcap. Passing over the north peak they gained the central peak, which is connected with it by a broad snow ridge, in nine hours from their bivouac.

This route being considered too dangerous for descent the party found a way, first down snow-slopes, then among crevassed glaciers towards the west. The watershed west of Little Dongusorun was gained by crossing into the next glacier basin to the north-west, but descent into the Dongusorun Valley seeming too difficult, it was determined to follow a glacier into the head of the Nakra Valley, which was reached at 10 P.M. [*Mittheil. des D. und O. Alpenvereins*, 1892, No. 3, p. 28.]

South-east Peak (14,547 feet).—On August 17, 1888, Messrs. W. F. Donkin and H. Fox, with K. Streich and J. Fischer of Meiringen, left at 3.20 A.M. a bivouac on rhododendron slopes above a waterfall at the head of the glen on the south side of the Betsho Pass. Climbing slowly up easy snow and rocks they reached the peak at 11.30. There is no apparent difficulty in traversing to the central peak, unless when the ridge is ice. They descended to camp in four and a half hours.

It is obvious that Dongusorun is an easy mountain on the south and west, but that the climb from the north is a *tour de force*.

Betsho or Gulski Pass (11,074 feet).—Urusbieh by Ozengi Valley to Betsho in Suanetia. (The first name seems preferable, as the Gul glen has no connection with the pass, and confusion may be created.) A much-frequented native foot-pass. A detachment of Cossacks which once attempted the passage lost all its horses but one, but laden donkeys have crossed safely.

After ascending the Baksan Valley for about four hours from Urusbieh, the Ozengi Glen is entered and followed for two hours to the end of the Ozengi Glacier. A faint track leads first up the moraine and then over steep shaly slopes on the eastern bank, till the level of the upper plateau of the glacier is gained. This is crossed in a southerly direction to the foot of snow-slopes leading up to the col, which is reached in nine hours from Urusbieh.

The descent on the Suanetian side is first by slopes of snow, which are crossed as far as a crevassed glacier, and then by the rocks on its left bank to the valley: the left bank of the torrent, the Dola Chala, being followed the whole way to Betsho.

The descent lies through a fine gorge to the point where the torrent from the west glacier of Ushba is crossed (with difficulty in afternoon). Thence a good path leads through most beautiful woods to Mazeri. [M. de Déchy, with Alexander Burgener and P. Ruppen, August 31, 1884: *Alpine Journal*, vol. xii. p. 97.]

Time.—Urusbieh to Betsho, about 17 hours' walking. Laden natives take three days.

East of the Betsho Pass the watershed rises rapidly to a flat-topped snowy eminence, from which the spur dividing the Ozengi and Shikildi Valleys diverges. A couple of hundred feet lower, on the Shikildi side, a snowy gap connects the

western *névé* of the Shikildi Glacier with a glacier descending into the glen south of the Betsho Pass. This is known to Urusbieh hunters as the

Akhsu Pass (about 12,500 feet).—Mr. D. W. Freshfield and Captain Powell, with K. Maurer and a Urusbieh porter, starting from the Shikildi Kosh (five hours from Urusbieh) at 5 A.M. on August 12th, 1889, ascended the stony Shikildi Glacier to the junction of its east and west branches, and without serious difficulty reached the pass mentioned above in six hours. Care must be taken to bear continuously to the right or west, and not make for the gaps visible south till the highest snow-basin has been gained. The view of Elbruz and Dongusorun from the snow-dome west of the pass is very fine: that from the gap itself is limited. The descent by the steep, narrow Akhsu Glacier and snow-beds to the foot of the Betsho Pass is easy, but dull. Betsho was reached in seven hours' fast walking from the pass. [*Alpine Journal*, vol. xiv. pp. 441-443.]

The snowy gaps east of the last pass would lead to the north tributary of the glacier (nameless on one-verst map) at the west base of Ushba. There is no record of their passage, but several of them appear to be practicable. The range now rises in a rocky comb of great steepness, crowned by the twin towers called by Signor Sella *Little Ushba* (one-verst map *Chatuintau*, 14,175 feet). As the pass at the extreme east head of the Shikildi Glacier is known at Urusbieh as the *Chatuintau*, I reserve this name for the summit near it, nameless on the map, which has sometimes been called Shikildi or Mestia Tau.

Beyond *Little Ushba* an extremely steep and possibly impassable tributary of the Shikildi Glacier leads to a snow-plain and saddle, in the centre of which rises a blunt rock-tooth. [See M. de Déchy's and Sella's photographs.] The snow-crest west of the tooth probably overlooks the heads both of the west glacier of Ushba and of the Chalaat Glacier: in other words, the Ushba spur abuts against its centre. From the gap east of the tooth very steep snow-troughs run down to the head of the Chalaat Glacier. It is possible that passes may be forced here across the chain east and west of Ushba, but the expeditions would be formidable, and the side by which it is proposed to descend should be reconnoitred carefully before any attempt. It may be found practicable to cross from the Chalaat Glacier to the western glacier of Ushba. It may prove easier to do this by crossing the watershed twice than by crossing the Ushba spur, which rises very steeply from the watershed.

East of the saddle, the shoulder of *Chatuintau* (14,315 feet), Sella's *Mestia Tau*, Mikhailovsky's *Shikildi Tau*, rises in a beautiful snow-ridge. This mountain, nameless in map, has two distinct peaks, one a snow-pyramid and the higher a rocky mass. The latter stands, like the Ortler, just off the watershed. It may be reconnoitred from Gulba, or the pass under it, crossed in 1893 by Mr. Woolley and his friends. The ridge falls to the north in a rock-precipice to the *Chatuintau Pass* (about 12,000 feet), marked on five-verst map as *Jalsky Pass*—perhaps a corruption of *Mujalsky*. It is known at Urusbieh, but rarely used, and not yet crossed by travellers.

The route to this pass leads up the east tributary of the Shikildi Glacier past the site (left) of the great rock-fall, the stones of which are still being carried down by the glacier, and under the cliffs of Little Ushba to the broad saddle at the end of the deep trench in which the Shikildi Glacier lies. The final ascent is over rocks.

On the south side it may probably be best to keep to the left of the upper ice-fall, and go down the rocks to the lower branch of the Chalaat Glacier, continuing the descent by its left side.

SOUTHERN SPURS. SHTAVLER SPUR

This ridge divides the Nakra and Nenskra, both tributaries of the Ingur. It leaves the watershed between the Jiper and Dongusorun Passes, east of the Elbruz Spur.

Kuarmash (12,101 feet), a tent-shaped snow-peak, is well shown in Déchy's photograph from Jiper-Azau Pass. South of this lies the Izkhuat or Bassa Pass. (See above.)

Shtavler, one-verst map; Sella's *Otur* (13,146 feet).—This fine summit is conspicuous throughout Suanetia, and must rival the Laila in its view. It is undoubtedly accessible by the north ridge from either the Nakra or Nenskra Valleys.

The *Utbiri Pass south of Shtavler* (about 7875 feet), was crossed by Mr. D. W. Freshfield and Captain Powell on their way to the Kodor in 1889.

The route leaves that of the Dongusorun Pass beyond the village of Chiubikhevi, and first descends to the Nakra torrent, then climbs steeply through a magnificent forest to the rolling pastures which stretch back to the pass, marked by three stones. In the descent the track soon traverses a ridge into a glen south of that falling from the pass, and by bearing constantly to the left, often through pathless woods, a hunter's settlement may be reached. A track goes down the Nenskra Valley to the Ingur. [*Alpine Journal*, vol. xiv. p. 444; xv. p. 241.]

ZALMIAG SPUR

This spur runs due south from a point just west of Dongusorun along the east side of the Nakra Valley, and then bends sharply east, dividing Lower Suanetia from the head of the Dola-chala Valley. At the angle stands the solitary and shapely rock-pinnacle apparently known as *Zalmiag* (13,094 feet). Its other eminences are relatively insignificant.

A Pass may doubtless be made (about 11,000 feet, one-verst map) over the glacier south of Dongusorun from the true head of the Betsho Valley, which opens west, a mile below the foot of the Betsho Pass, to the Upper Nakra.

Three broad snow-saddles east of *Zalmiag* afford routes from the head of the Betsho Valley to Lower Suanetia. The easternmost, lying at the head of the glacier due south of the foot of the main glacier of the valley, is known to the natives as the *Bak Pass* (10,220 feet). It leads on the south side to Pari.

Zulmiag (13,094 feet) may be attacked from a bivouac above Chiubikhevi, or better from the Betsho Valley by its east ridge. It is likely to prove a sharp climb and to afford a magnificent panorama.

Bak Peak (11,739 feet).—This summit, east of the Bak Pass, is conspicuous from the ascent to the Betsho Pass. It is a good view-point, easy of access. It was first ascended by Messrs. Collier, Solly, and Newmarch in 1894. They started from the Betsho Valley and ascended a lateral glen above Mazeri. [*Alpine Journal*, vol. xvii. p. 265.]

USHBA SPUR

This spur leaves the watershed behind the high snow-saddle east of Little Ushba. After a few hundred yards it rises suddenly towards the north peak of Ushba.

Ushba, North Peak (15,400 feet).—Mr. Cockin, with U. Almer, on the 28th September 1888 left a bivouac above Betsho, near the foot of the Gul Glacier (reached by a good path), and ascended by the steep glacier and the snow and ice slopes above to the gap between the two peaks (1.10 p.m.). These slopes are often in an impracticable condition, and always more or less exposed to falling stones. Keeping near, but mostly to the right of the ridge, they reached the northern peak at 3.45 p.m. It is possible that the north peak is accessible from a saddle at the head of the west glacier of Ushba.

Southern Peak (15,409 feet, unascended).—Possibly accessible from the saddle between the peaks by a difficult traverse on the west face of the mountain and the south-west ridge. Alexander Burgener favoured an attack by the south face and this ridge. But falling stones would probably have to be reckoned with, and the precipices that gird the top appear most formidable. [See note of 1894 party in *Alpine Journal*, vol. xvii. p. 266.]

It is possible the cliffs of the east face may be surmounted by a long, complicated, and arduous climb. In appearance they are not unlike those of the Meije, but on a grander scale.

A narrow, steep-sided saddle at the foot of the south-west ridge of Ushba may afford a passage from the Gul Glen to the west glacier of Ushba. The snow-slopes on the west side appear, however, to be steep, and the rocks on the Gul side are very steep. They have, however, been climbed at one spot.

Mazeri Peak (12,800 feet?).—This broad and high rock-ridge is conspicuous from the whole of the Betsho Valley. It forms part of the crest south of the west glacier of Ushba, and is probably difficult but not inaccessible from the south. [See Sella's Photographs.]

GULBA SPUR

This spur abuts against the north peak of Ushba. The dominant point of this short ridge (about 12,500 feet), called Gulba by Mr. D. W. Freshfield, was climbed by him with Michel Dévouassoud and J. Désaillood on July 29, 1887, in four

hours from the foot of the Gul Glacier. The upper level of the Gul Glacier is gained by the rocks and snow-beds on the east of the ice-fall. The ordinary route would lie up steep *névé*-slopes and *round* the north-west buttress of the peak to a snowy recess behind it, whence its rocks may be easily scaled. A sharp climb leads up to the ridge of the mountain by which the two tops, separated by an ice-gully, are gained. The eastern is the highest. Betsho was regained in four hours—very quick glissading and walking. An easy pass east of Gulba leading from Betsho to the Chalaat Glacier was crossed in 1893 by Mr. Woolley's party. [*Alpine Journal*, vol. xvi. p. 524; vol. xvii. p. 265.]

NORTHERN SPURS

On the ridge projecting from the watershed west of the Dongusorun Pass, between the glen of that name and the source of the Baksan and above the Terskol Kosh, rises a summit obviously easy of access, called by S. Sella *Ceyet-Kara-Bashi*, but on the one-verst map *Dongusorun-Bashi* (12,355 feet). This confusing denomination should not be adopted.

A buttress of Dongusorun, called by S. Sella *Ciat-Bashi* (*Kogutai-Bashi*, one-verst map, 12,537 feet), west of the Ozengi Valley was climbed by his party in 1889. [*Bollettino del Club Alpino Italiano*, vol. xxiii. No. 56.]

THE SUANETIAN GROUP

The boundaries of this group are on the west the route of the Chatuintau Pass, on the south the Mulkhura torrent, on the east the route of the Zanner Pass, and on the north the Baksan and the horse-track from Urusbieh to Beringi.

The path up the Adylsu leaves that from Urusbieh to the Shikildi Kosh below the junction of the Shikildi torrent, and crosses to the right bank of the Adylsu. This stream carries the drainage of at least three glaciers—the Jantugan, Bashkara, and Ullukara.

The first conspicuous summit in the main chain east of the Chatuintau Pass is a fine rock-dome, called *Bshedukh* (14,013 feet). From the saddle on its southern shoulder a glacier descends west towards the Shikildi Glacier. Another steep glacier flows from the peak north into the Adyl Valley. The one-verst map in this portion is not accurate in its representation of the heads of the glaciers. The Leksur Glacier appears to occupy much of the space given to the head of the Chalaat Glacier.

It is separated from its sister peak, *Ullukara* (14,112 feet), a snow-dome supported by very bold, rocky buttress-ridges—well seen from the Upper Baksan—by a high gap, formidably defended by the ice-falls of the Adylsu Glacier on the north, and steep rocks and gullies on the south, or Leksur Glacier, side.

Beyond these fine peaks the range sinks somewhat, and a glacier falls from it into the Leksur basin, while the Bashkara Glacier descends precipitously to the north. A two-headed peak—the Kuamli of S. Sella; *Bashkara* (13,916 feet), and

Jantugan (13,093 feet), is followed by a broad, deep depression, from which to the south flows the central branch of the Leksur Glacier, now intervenes. The lowest gap (the westernmost) is the *Adylsu Gap*, (11,389 feet). It appears easy of access by the *Jantugan Glacier* on the north; on the south is an ice-fall which may best be overcome probably by its left side, and may prove a serious obstacle.

Farther east is a pass leading from the Leksur Glacier to the Adyr Valley, known to hunters. The name obtained for it by Mr. D. W. Freshfield was the *Gorvash Pass* (11,718 feet). It does not appear difficult on the north side. On the south the descent, principally by rocky slopes, looks steep and rough. The next peak, *Gumachi* (13,482 feet), is seen on the east from the head of the Adyr Valley.

Latsga, East Peak (13,803 feet); *West Peak* (13,790 feet).—This fine summit, a long rock-wall, is conspicuous from Urusbieh at the head of the Adyr Valley. Round its east flank lies the route of the

Adyr or Mestia Pass (12,012 feet), well known to natives—a glacier-pass of the nature of the Lysjoch—first crossed by travellers in 1887 (M. de Déchy and Mr. D. W. Freshfield). It is free from difficulty on both sides.

Mount the Adyr Glacier or the slopes on its (true) right bank, bending east, with the ice, until long broken banks of rocks and steep slopes lead up south to the snowfields east of *Latsga*. Turning south-west from the highest rocks, traverse gentle snowfields to the broad saddle, which commands a superb view over the Leksur basin. In descending to the main glacier, bear to the right to avoid crevasses. At the junction of the ice-streams take to the left-hand slopes for half an hour, returning lower down to the ice to avoid the deep ravine of the torrent from a glacier lying under the *Murquam* of S. Sella (see *post*). Beyond this the ice is finally left, and a track is found along the east slopes to the open valley. [*Alpine Journal*, vol. xiii. pp. 355 and 502; *Proceedings of the Royal Geographical Society*, June 1888, p. 338.]

Fast walkers might reach Mestia in a long day from the Kosh, four hours above Urusbieh. Natives like to make a day and two halves of the journey from Urusbieh.

The extreme head of the Leksur Glacier is a snow-basin, south-east of that leading to the Mestia Pass. There is no difficulty in crossing the watershed to the Bashil Glacier, and the descent of the latter lies on its true right bank. [See *Alpine Journal*, vol. xiv.] This route may be called the *Leksur Pass*. Mr. A. F. Mummery, with H. Zurfluh and a Bezingi porter, on July 19th, 1888, left a bivouac near the upper limit of trees in the Tuiber Valley (two hours above Mujal), and keeping on the true right bank of the torrent reached the Tuiber Glacier. Leaving on their right the Tuiber route, they ascended easy snow-slopes to the second gap west of the Tuiber, a pass leading on to the Leksur Glacier (12,000 feet). Ascending this glacier to its extreme head, a few feet of rocks led to a second pass from which the Bashil Glacier was reached by a steep slope of snow and ice. The ice-fall of the Bashil Glacier was turned by its left bank, where extreme difficulty was experienced: it was subsequently seen that the right

bank was perfectly easy. The highest Kosh was reached at 6.30 p.m. [*Proceedings of the Royal Geographical Society*, June 1889, p. 354; Mummery's *My Climbs in the Alps and Caucasus*, p. 305.]

According to the new one-verst map, two separate peaks, *Sarikol Bashi* (13,965 feet), and *Bashil Tau* (13,615 feet), stand here about a mile apart, separated by a deep gap. On the map the lower peak is placed near the junction of the spur, separating the Tuiber and Leksur Glaciers, with the main chain, the higher on the watershed between the Bashil and Leksur basins. It appears probable that an error, of a character familiar to those acquainted with the early cartographical history of the Mont Blanc group, has been here committed, and that *Sarikol Bashi*, which appears on the verge of the least trustworthy sheet of the new map, is a duplication of *Bashiltau*.

Bashiltau is a very fine peak—on the south side all rock, on the north sheeted in snow and ice, recalling the *Dent Blanche*: it has a massive rock-tower on its east ridge.

A gap, probably the *Bashil Pass* of the natives, intervenes between this peak and the great block north of the *Tuiber Pass*, called *Zugheri* by S. Sella, and *Skala Bodorku* (13,720 feet) on the one-verst map. Its highest point is north of the watershed, which here turns south suddenly, and is crossed by the

Tuiber Pass (11,760 feet), well known and used by natives with cattle as the highway from *Bezingi* and *Chegem* to *Mujal* in *Suanetia*. A battle is said to have been fought on it 'long ago,' and old arms, spears, etc., were recently discovered on the moraine on the *Suanetian* side. [M. de Déchy in *Suanétie Libre*.]

M. de Déchy was the first traveller to cross this pass in 1886. In 1889 and 1895 Signor Sella and Mr. Dent crossed with horses.

Leaving the *Kosh* near the end of the *Tuiber Glacier*, the right lateral moraine is ascended to the almost level upper plateau of the glacier. Hence a slope of 500 feet leads to the pass. On the north side a snow-slope of about 1600 feet gives access to the highest plateau of the *Kulak Glacier*. After taking to the left-hand moraine to avoid *séracs*, the glacier is descended to a lower plateau, and then the right moraine followed to the valley. [*Bollettino del Club Alpino Italiano*, vol. xxiii. No. 56.]

South-east of the *Tuiber Pass*, and between the *Tuiber* and *Kitlod Glacier*, stands a bold rock-peak (13,328 feet), dwarfed by its gigantic neighbour.

Between it and *Tiktengen* a practicable pass leading from the *Kulak* to the *Kitlod Glacier* can be made by mountaineers.

Tiktengen (15,267 feet, unascended): two tops, of which, according to the one-verst map, that north of the watershed is the higher. The difference in height is very small, and the distance between them not great. This noble peak is best seen from the *Gara-uz Valley* on the north side, of which it is the most striking feature, resembling in outline the *Schreckhorn*. From the southern glaciers it appears as a broad rock-screen. A point on the west ridge, estimated at 250 feet below the top, was gained, from a camp on the left bank of the second ice-fall of the *Zanner*

Glacier, by Messrs. Woolley, Cockin, Solly, and Newmarch in 1893. Further examination will no doubt result in the discovery of a practicable line of ascent from the south. [*Alpine Journal*, vol. xvi. p. 525.]

East of Tiktengen a long, fairly level ridge divides the Upper Zanner basin from that of the Shaurtu Glacier. Here a fine pass (12,796 feet) remains to be made. If the right point in the ridge is struck, no serious difficulty will probably be found by experienced climbers on either side. The south is the easier.

Zanner Pass: Upper Pass (12,967 feet).—From Bezingi by Bezingi Glacier to Mujal (Suanetia). Messrs. D. W. Freshfield and Déchy, with F. and M. Dévouassoud and J. Désailloud, on the 7th August 1887, an hour and a half after passing the lower ice-fall of the Zanner Glacier, struck up the rocks forming the west bank of the upper ice-fall: some of the party found an easier route by the east bank. Owing to mists and the delay of porters the crest was not reached till 6 P.M. A steep descent by rocks and snow led to a small basin of *névé*. Having crossed this, they descended in the dark long slopes of loose stones north of Kelbashi, till they found a site level enough for a camp. Next morning they ran down to the Bezingi Glacier. [*Alpine Journal*, vol. xiii. pp. 364-65, and xiv. pp. 1-9.]

Lower Pass (12,859 feet).—This is the easiest route, and the ancient native pass. It lies a mile farther south-west, and the ascent to it from the Bezingi Glacier is up the left bank of the main western branch of that glacier. There is little difference in height or distance, but the old pass avoids the snow-wall and is quite free from difficulty. An active party may reach Mujal in one day from the Missess Kosh.

SOUTHERN SPURS. SVETGAR SPUR

This spur may best be understood by reference to the map.

It is shaped roughly thus:



It is not necessary here to catalogue all its peaks. West of Bashiltau, the pass crossed by Mr. Mummery (on his way from Mujal to the Bashilsu), leads to the *névé* of the Leksur Glacier, and affords a route from the Tuiber Glacier to the Bashil in conjunction with the Leksur Pass. (See above.)

West of the next summit in the ridge is a gap accessible from the south, but probably precipitous on the Leksur Glacier side. The glacier leading to it is distinguished on the one-verst map as the *Tot Glacier*.

Beyond this, where the ridges meet, is the fine double crest, conspicuous from the Mestia Pass, called Svetgar (13,482 feet) on the one-verst map. [See Déchy's Photograph, *Alpine Journal*, vol. xiii. p. 504.] It was attempted in 1894 by Messrs. Collier, Newmarch, and Solly from the saddle north-west of the peak, and may probably be

climbed in more favourable conditions and by keeping more to the rocks on the south-west of the first ridge. [*Alpine Journal*, vol. xvii. p. 266.]

The rock-peak which terminates the ridge south of the Leksur Glacier is called *Margyanna* (11,704 feet) on the one-verst map.

No heights are given on the one-verst map on the cross-ridge running north and south between this peak and *Bangurvyan*, 12,544 feet (S. Sella's *Latraldash*), but judging from photographs of Déchy's and Donkin's, a fine accessible peak, Sella's *Murquam*, divides two broad and easy snow-saddles, leading from the affluents of the *Tuiber* to the (*Murquam*?) glacier, the stream from which flows down towards the lower end of the *Leksur Glacier*.

Bangurvyan stands on the lower intersection of the cross-ridge, with two lesser peaks to its east. [See map.] All these summits are accessible from *Mujal*. In September 1890, S. Sella made the first ascent of the highest of these peaks from a camp near the small glacier above *Mujal*, which lies east of the peak. [See Photographs; *Bollettino del Club Alpino Italiano*.]

The two summits (12,145 feet and 11,844 feet) in the ridge east of the one-verst *Bangurvyan* have not been climbed. A rocky western spur, known to S. Sella as *Kasagur* (*Latraldash* of Survey, 11,056 feet), was used as a point of observation by the surveyors.

KITLÖD SPUR

Kitlod Pass (12,607 feet, Russian Survey).—Messrs. Cockin, Newmarch, Solly, and Woolley (July 26, 1893) left a bivouac on the right bank of the *Zanner Glacier* between the first and second ice-falls at 1.30 A.M., and ascended the glacier above the second ice-fall to the point where it forks. Here they left the *Zanner Pass* route, and turning to the north walked up easy snow-slopes to the pass, which was gained at 7.15 A.M. They descended on the west by gentle slopes of *névé* to the *Kitlod Glacier*, the ice-falls of which were passed by keeping first near the right bank, and then crossing to the left. Three hours from the pass the junction with the main *Tuiber Glacier* was reached, and the path on the left bank of the torrent was followed to *Mujal*. [*Alpine Journal*, vol. xvi. p. 525.]

NORTHERN SPUR. URUSBIEH SPUR

A glacier-clad ridge runs out at right angles to the main chain west of *Latsga*. Close to the watershed, it is easily traversable by the *Koi-Arghan-Aush Pass* (11,484 feet). The ascent from the *Adyrsu* is doubtless by one of the glaciers which fall from the west into the head of that valley.

After a sudden bend back to a direction parallel to the main chain, the ridge, rising to a thick cluster of bold rock-peaks, divides the *Adyrsu* from the *Baksan*.

The highest of these peaks, *Kurmuichi* (13,314 feet), though very steep on the north, is apparently easily accessible from the *Adyrsu*, and must afford a superb and very interesting panorama of this portion of the chain.

CHEGEM OR URUBASHI SPUR

A long ridge, glacier-clad for at least twelve miles, stretches from a point slightly east of the Mestia Pass, first to the north and then to the north-east, dividing the Baksan basin from the waters that flow towards Chegem.

Close to the main chain, at the east head of the Adyr Glacier, steep snowy gaps, about 13,000 feet, well seen from the north side of the Mestia Pass, overlook on the other side the Bashil Glacier: whether they are practicable is unknown. To the north of the Adyr Glacier rises a very fine, broad, snowy peak, well seen from above Urusbieh. [See Mr. Woolley's Photographs.]

Adyrsu Bashi (14,673 feet).—It appears accessible by steep snow-slopes from the north-west. From its northern flanks it sends down feeders to an important glacier, nameless on map. This ice-stream and its affluents fill a large basin, the waters of which join the Adyrsu two and a half hours above Urusbieh, through a narrow defile. It lies in a gently sloping trench, closed at its head by a steep rock and snow wall, which protects the only low and conspicuous gap in this lofty and otherwise continuous chain.

Urubashi Gap (12,348 feet).—This is too steep for native use, but will doubtless be made a way for mountaineers. Nothing is known of its east side; the descent would lead on to a tributary of the Bashil Glacier. North of the gap rises a snowy eminence (14,210 feet), which may easily be reached from '*Freshfield's Pass*' (about 13,500 feet), as the point in the ridge crossed by Mr. D. W. Freshfield and Captain Powell, with K. Maurer and A. Fischer, on August 9th, 1889, may be provisionally called.

The ascent to this pass from the nameless glacier is up screes and across ice-gullies. On the east side gentle snow-slopes lead down on to a large glacier. Its ice-fall is best turned on its true left. The glacier ends on the verge of a steep hillside above the highest Kosh in the Bashil Valley, which is situated about two miles higher than the chief Kosh (a large hut, 6840 feet), and about a mile below the main glacier at the head of the valley. The first party, crossing in the opposite direction, reached the pass in six hours from the highest Kosh, and descended in six and a half hours to Urusbieh. [*Alpine Journal*, vol. xiv. p. 440.]

There are no conspicuous peaks in the main ridge for some distance.

An important spur, branching east from this part of the ridge, divides the Jailik Glacier from the south-east glacier traversed by Mr. Freshfield's party. On this stands the fine peak, apparently unmeasured, seen in S. Sella's Elbruz panorama behind the watershed to the right of the two summits subsequently mentioned.

Donkin's Pass, 13,030 feet (Donkin's measurement).—Mr. Donkin and Mr. Fox, with Streich and J. Fischer, on August 22nd, 1888, left a camp near the nameless glacier. They mounted to the level of the glacier, then by rocks (an hour's climb), gained the snowfield of its eastern tributaries, whence an hour and a half over snow brought them to the pass. Three-quarters of an hour step-cutting in 'a wonderfully steep bank' led down to the Jailik Glacier, which they descended on

its right side. Four glaciers flow in on the left, the first led to a lower gap—next to the north—which might be an easier route than that taken. (May lead to Tiutiu Glen.) The descent through the glen of the Jailiksu from the pass to the great Kosh (6840 feet) in the Bashil Valley occupied six hours. [Fox's private diary.]

Jailik Bashi (14,868 feet) is the loftiest summit on this spur, and surpasses all the peaks between Ushba and Tiktengen in the main chain. [See Sella's panorama from Ciat Bashi.] It is a very formidable but fascinating peak, and deserves attention.

It is apparently at this point that the range bifurcates, separating the glaciers of the Tiutiu Valley, which lie in its fork, from those of the Bashil and lower Adyrsu. There are in this part of the chain several summits between 13,500 and 13,800 feet, and extensive glaciers, but the peaks are less bold in form.

The next conspicuous gap leads probably from the Adyrsu to the Tiutiu Glen.

Tiutiu Bashi (14,497 feet), a double-headed peak, is remarkable, seen from Elbruz, for the precipice on its north side. The northernmost of these peaks—13,930 feet—Adyrsu Bashi of one-verst map, but properly *Sullukol Bashi*, was climbed by Herren Merzbacher and Purtscheller, with Kehrer and Unterweger of Kals, from the Sullukol Glacier. Starting on August 25th, 1891, from a camp in the Sullukol Valley, three and a quarter hours from Urusbieh, they reached in an hour and a half the moraine of a western tributary of the Sullukol Glacier. Ascending the glacier in an easterly direction, they reached at nine o'clock a rocky spur. At eleven they reached the crest of the chain over snowfields, and turning left gained before mid-day by the ridge, without serious difficulty, a summit, recognisable by its dwarf tower-like top. The descent was made by the snow-slopes and glaciers north of the peak in three and three-quarter hours. [*Mittheilungen des D. und O. Alpenvereins*, 1892, No. 4, p. 39.]

The only known pass (12,537 feet) from the Bashil to the Tiutiu Glen is by the northern of the three eastern glaciers of the Bashil. Baron Ungern Sternberg has informed me that he crossed it in 1889 with natives and a Tyrolese guide (Hofer of Kals), and that Jailik Bashi bore due S.: Tiutiu Bashi, S., 43° W. from the Pass.

Owing to the unfortunately faulty detail of the sheet of the one-verst map for this district, it is as yet difficult to lay down its orography with precision. A revised sheet is promised, and some notes by M. N. Jukoff have been here used.

The Sireen Pass (11,257 feet) crosses the ridge which unites the Adyr range to the isolated limestone group west of Chegem and north of the Bashilsu. Its highest summit is Kom (12,374 feet).

Mr. Grove's party in 1874 explored the fine gorge of the Jilkisu for four and a half hours above the village. According to native report, its head opens out into a basin—a garden of wild fruit, shared with bears by the inhabitants of Chegem who make excursions there. Wild goats also abound. There is said to be a way from the Jilkisu to the upper Bashilsu. Photographs of the panorama from the culminating point of the limestones would be valuable.

Horse-road from Urusbieh to Chegem and Bezingi.—It is a dull ride of two days from Urusbieh by Osrokova on the Baksan to Chegem. Mountaineers do well to send heavy luggage only by this road, and to take one of the glacier passes. From Chegem to Bezingi is a four hours' ride.

KARGA-SHILI TAU SPUR

Dividing the Chegem and its affluents from the Western Cherek.

Salynan Bashi (14,700 feet).—The rock of which this ridge is composed is a very friable shale, and falling stones are frequent and dangerous.

Messrs. Cockin and Holder, with U. Almer and C. Roth, left the Missess Kosh at 4.55 A.M. on September 3, 1888, crossed the Bezingi Glacier, and followed the moraine on the left bank to the foot of the slopes leading to the Zanner Pass. After ascending these for some time they crossed a basin to the foot of a snow-*coulloir* running up to a depression in the west ridge, which was gained at 10 A.M. Ascending the ridge they reached the summit—a snow-dome—at 11.30. Descending by the same route, they regained the Kosh at 5.10 P.M. [*Alpine Journal*, vol. xiv. pp. 92 and 194.]

Salynan Chiran Pass (13,622 feet).—From the Bezingi Glacier to the Shaurtu Glacier and Chegem, September 11, 1888, Mr. J. G. Cockin, with Almer and Roth, went from the Missess Kosh to the pass and back in nine hours, including a long stay on the top. [*Alpine Journal*, vol. xiv. p. 198.]

Messrs. D. W. Freshfield, C. T. Dent, and Captain Powell, with K. Maurer and A. Fischer, left the Missess Kosh on August 6, 1889, and ascended by the left bank of the Salynan Glacier to the pass in seven hours. They had some difficulty, and much step-cutting, in passing the first ice-fall on its true left. The final climb was easy.

The pass was left at 1.30 P.M.; on the west side the descent lay at first over loose, steep rock-slopes, followed by precipitous cliffs and gullies. After some difficult climbing, much exposed to volleys of falling stones, the great ice-trough falling from Salynan Bashi was gained, and steps cut in such partial shelter as could be gained on its right-hand edge to the *Bergschrund*, which was not crossed till 7.30 P.M. Descending by lantern-light the crevassed *névé* of the Shaurtu Glacier to the junction of its two branches, they left the ice for the mountain-side to the right, where a succession of snow-banks led them past the ice-fall to a hollow under the moraine, where they halted for the night at 10.30 P.M. Next morning three hours' walking beside the moraine brought them to the junction of the Shaurtu torrent with the stream from the Tuiber, whence it is five hours to Chegem. [*Alpine Journal*, vol. xiv. p. 439.]

There appears to be no easy descent from this range towards the Shaurtu Glacier. The ridge running north is very formidable for some distance. It is attainable, however, from the west by the Tiutiurgu Glacier, and a descent to the foot of the Bezingi Glacier may be practicable.

At the extreme head of the Tintuurgu Glacier and at the meeting of the ridges which enclose the Bulungu Glacier, which flows north, rises *Shorashk-kirtoran* (14,160 feet), a snow-peak.

THE CENTRAL GROUP

The boundaries of this group are—On the west, the Zanner route from Mujal to Bezingi; on the north, the horsepath from Bezingi to Balkar; on the east, the Pasis Ma route from Balkar to the source of the Rion; on the south, the path from Mujal to Ipari, the river Ingur, and the track from Ushkul to the source of the Rion.

The horse-pass from Bezingi to Balkar occupies a day, and the ascent on either side is long and steep. The summit is a rolling pasturage, whence in clear weather there are fine views of Koshtantau and Ulluauz Bashi. Otherwise the route, lying among the friable and featureless shale ridges which border on the granite, is not picturesque. [See Grove's *Frosty Caucasus*, p. 121.]

There are two routes from Bezingi to Balkar—one by the Dumala glen and over the Dumalavsek; the other, more direct, over a higher pass (Bezingivsek, 10,111 feet), lying more to the north, and commanding more extensive views. These routes unite on the east side.

Gestola (15,932 feet).—Messrs. Dent and Donkin, with Alexander Burgener and B. Andenmatten, on the 27th August 1886 left a bivouac on the left bank of the Bezingi Glacier (at the southern foot of the screes of Kelbashi) at 3 A.M. Quitting the route to the Zanner Pass, they crossed the glacier to the foot of the snow and ice slopes leading to the watershed. This was reached at 9 A.M., and was followed for a short distance; it then became necessary to quit it for the southern face. After a considerable traverse, the ridge was regained and followed more or less closely to the summit (1.15 P.M.). Owing to the steps having melted out, and the snow on the ice-slopes below the point where the ridge was first struck having been softened by the sun and become very dangerous, extreme difficulty was experienced in the descent, and the camp was not regained till past midnight. [*Alpine Journal*, vol. xiii. pp. 220-42.]

Katuintau: the Saddle Peak (16,296 feet).—On August 24th, 1888, Messrs. Holder and Woolley, with U. Almer and C. Roth, left Missess Kosh at 2.25 A.M., and walking up the Bezingi Glacier, arrived at 4.35 at the foot of the rocks, which are conspicuous in views of the mountains from Missess Kosh. They attacked these rocks at the point which faces down the centre of the Bezingi Glacier, and inclining to the left ascended them for about an hour and a half, when they reached a ridge of shattered red rocks well above a steep glacier to the east (down which avalanches fall from the ice-cliffs above). Here they changed their direction, turning to the right (S.W.), and having followed the ridge until it became merged in the face of the mountain, cut steps up the steep ice-slopes (inclining always to the west

in order to avoid the ice-cliffs above), until 12.25, when they reached the snow-plateau sloping downwards toward the base of the cone of Gestola.

Ascending in a south-west direction, they reached at 1.10 P.M. a higher plateau, from which an ice-slope led in forty-five minutes to the *arête*. They followed this towards the south, and reached the summit at 2.25 P.M. Leaving the summit at 3.5 they regained the Kosh at 10.10 P.M. [*Alpine Journal*, vol. xiv. pp. 91 and 167].

The name Katuintau is one of the oldest in Caucasian records, being found in this place in Koch's map (Berlin, 1850), and is here retained for the higher summit, although the New Survey calls it the Adish Peak.

Adish Gap (14,819 feet).—In 1893 Mr. Woolley's party ascertained the possibility of reaching the upper *névé* of the Adish Glacier from the south by a very laborious rock-climb on the spurs of Janga. A pass is therefore not impossible, but its extreme length and the steepness of the ground on both sides would render the risk of being benighted very serious.

Janga, West Peak (16,569 feet).—Unascended.

Janga, East Peak (16,527 feet).—On September 12th, 1888, Mr. Cockin, with U. Almer and C. Roth, left the Missess Kosh at 2.45 A.M., and walked up the Bezingi Glacier till 6.10, when they breakfasted near the rocks at the base of Janga, and then turned to the right up the ice-fall and *névé* filling the recess between Janga and Shkara. On reaching the foot of the steep narrow glacier which descends from the depression between the two mountains, they took to the rocks on the west side at 8.43. After about three hours' climbing they reached the top of these rocks, then cut steps up to the ridge of the mountain, and followed it in a west direction to the summit, which they gained at 2.46 P.M. Leaving the summit at 3.12, they arrived at Missess Kosh at 10.30 P.M. [*Alpine Journal*, vol. xiv. p. 199, and xvi. p. 483.]

Janga Gap (uncrossed).—Mr. Cockin's ascent showed the possibility of reaching from the north the gap between Janga and Shkara. But in 1893 the climb to this point from the Kalde Glacier was, in the judgment of experienced climbers, rendered too dangerous by the risk of ice-avalanches.

Shkara (17,038 feet).—Mr. Cockin, with U. Almer and C. Roth, left a sleeping-place at the foot of the rock-ridge which descends from Mishirgitau to the Bezingi Glacier at 4.55 A.M. on September 7th, 1888, crossed the Bezingi Glacier, and ascended the side glacier which is enclosed between the great buttress of Shkara and the northern ridge which connects the peak with the Dykhsu Pass. Having reached the almost level plateau of *névé* near the head of the lateral glacier, they left the latter on its true right bank and cut steps for two hours up snow-slopes to the crest of the ridge, which was gained at 10.25 A.M. After halting here till 11.12 they followed the ridge—for the most part a narrow *arête* of hard snow or ice, necessitating continual step-cutting—till 3.42 P.M., when the summit was reached.

The descent to the sleeping-place occupied about six hours. [*Alpine Journal*, vol. xiv. p. 197; xvi. p. 477.] In 1890 M. N. Jukoff, of the Russian Survey, with Cossacks, starting from a bivouac on the Bezingi Glacier, reached the Dykhsu Pass at 9 A.M. He states that by following a ridge that falls from Shkara towards the pass, they gained in four hours, without serious difficulty, a point measured as 14,994 feet. [*Proceedings of the Royal Geographical Society*, February 1892, p. 114.]

Nuamkuam Pass (about 13,398 feet).—Between Shkara and Nuamkuam. From Ushkul to Karaul.

On August 13, 1893, Messrs. Cockin and H. Woolley quitted a camp at the lugur sources, ascended the left moraine of the Nuamkuam Glacier until above the lower ice-fall, and then crossed the glacier, reaching the right bank at the foot of the upper ice-fall.

After ascending, first the snow-slopes and then firm granite rocks on the right bank for an hour, they halted for the night on the rocks overlooking, and about half-way up, the ice-fall. Starting next morning at 4.15, they traversed good granite ledges till they reached the basin or cirque of *névé* enclosed between Nuamkuam and a spur of Shkara. About half-way round the semicircular ridge, which forms the main watershed and encloses the basin, is a notch, below which the rocks descend to within 200 or 300 feet of the *névé*. Cutting steps up to the rocks, and climbing the latter, they gained the pass at 8.40 A.M.

The pass was not crossed; but the descent on the north side to the Dykhsu Glacier appeared to be feasible. [*Alpine Journal*, vol. xvi. p. 525.]

On August 8, 1895, Mr. H. Woolley, with K. Maurer, starting from the Dykhsu Kosh, gained the crest of the same ridge from the north side. On account of the unfavourable condition of the snow-slope they were obliged to attack the ridge more to the west, and consequently struck the crest at a point a considerable distance to the west of the gap gained from the south in 1893. [*Alpine Journal*, vol. xvii. p. 593.]

Nuamkuam (13,975 feet, unascended).—East of this summit, at the head of the Zena Valley, the crest of the chain is apparently at one point easy of access from the south side. On the north, however, it is protected by very formidable slopes, the descent of which should on no account be attempted. [See Signor Sella's and Mr. Woolley's Photographs.]

Ailama: Koreldash (14,854 feet).—Mr. H. Woolley, with C. Jossi, left the Dykhsu Kosh (at the junction of the Khrumkol with the Dykhsu Glacier) on August 19, 1889, descended the Dykhsu Glacier to the ice-fall of the Ailama Glacier, ascended the left bank of the latter, and near its head crossed to the foot of Ailama. Two ribs of rock run up the north face of the peak.

Having passed the night at the foot of the western rib, the party started next morning at 4.45, climbed first up the rocks of this rib, and then cut steps straight up the northern face of the mountain, crossing several crevasses and gaining the

summit, a snow-dome, at 10.7 A.M. The descent was commenced at 11.45, and Dykhsu Kosh was reached at 6.30 P.M. [*Alpine Journal*, vol. xiv. p. 448.]

Zurungal Peak (13,916 feet); *Nameless Peak* (13,300 feet).—Two rock-peaks, bold in form, and projecting from the chain to the southward, rise beyond Ailama on the rim of the Ailama Glacier. They tower in high cliffs over the glen of the Zeskho. [See *Alpine Journal*, vol. xiii. pp. 371 and 373, and S. Sella's Panoramas.]

Fytnargyn (13,789 feet, unascended).—S. Sella attained a point on the ridge about 600 feet below the top; but his object being mainly photographic, he did not complete the ascent, which may be made from the Agashtan Glacier. [*Bollettino del Club Alpino Italiano*, vol. xxiv. No. 57, 1890.]

Fytnargyn Pass (11,131 feet).—From Balkar to Zeskho Valley.

On August 17, 1890, Messrs. Mummery and W. J. Petherick, with two Karaul porters, left Karaul at 7 A.M., and ascending by the Fytnargyn or Agashtan Glacier, reached the lowest point on the watershed at its head at 3 P.M. The slopes on the southern side are steep and slightly crevassed, but offer no difficulty. The descent of the Zeskho Valley, owing to the absence of any path, took much time, and the huts in the Zena Glen were not reached till 3 P.M. the next day.

The *Sharivsek* crosses at a higher point (11,564 feet), a little farther to the east. [See Sella's Panoramas.]

This is the most frequented native pass across the chain west of the Mamison. Well-marked zigzags climb from the Goribolo pastures the rocky slopes of the main chain nearly to its crest. A traverse west, over snows feeding the Skenis Skali, leads to the broad watershed. The natives often prefer to avoid this traverse by descending, crossing the source of the Skenis Skali, and climbing the slopes west of it to the pass. The descent lies over the slightly crevassed *névé* of the Shtulu Glacier, and then by the slopes on its left into the glen of the Akhsu, which soon joins the stream descending from the direction of the Shtuluvsek Pass. It is two days with animals, a day and a half on foot, from Gebi to Karaul. [Grove's *Frosty Caucasus*, pp. 76-97.]

The little group of passes in this part of the chain are a consequence of its easier slopes and those of its geological character. Ailama and Laboda are both granitic; but between them the watershed is composed of crystalline schists—of which the Gezevsek group is composed. They slope steeply to the south, gently to the north, and being extremely friable, furnish great moraines. Hence a curious phenomenon common in Arctic, but rare in glaciers of the temperate zones, was noticeable in 1889. The glacier at the western foot of the Shtuluvsek had retreated, leaving behind it a mass of ice buried, but protected from dissolution, under rocky debris.

The Edena Pass (11,270 feet), the ancient Pasis Mta, lies east of the last-named. The ascent is direct from the source of the Rion by the ridge west of the Edena Glacier, and the descent on the north by the right bank of the Shtulu Glacier. It is less used by natives than the Sharivsek. The name Gezevsek is given to this pass on the one-verst map; but as the same name is retained for a pass leading from

the Rion to the Urnkh, which has long borne it, it seems necessary to suggest an alternative and distinct title.

The route from the Goribolo pastures, or even from the hut near the Rion sources, through the Skenis Skali forests to Ushkul, might possibly be accomplished on foot in two days: with horses it takes three, owing to the absence of tracks and the difficulties of the ground on the ridge west of the Skenis Skali and in the Zeskho Valley. The scenery is throughout romantic, and the Zena Glen one of the most beautiful in the Caucasus. This, however, can easily be made the object of a day's excursion from Ushkul. The track is the same as that to the Shariysek as far as the Skenis Skali. The point at which the Goribolo ridge is crossed is known as *Iutsistveri* (9562 feet).

Gebi horsemen force their animals over the ridge at the head of the first west tributary of the Skenis Skali to the Zeskho Valley. Mr. Phillipps-Wolley went down the Skenis Skali Valley and to the junction of the streams. [*Savage Svánétia*, vol. i. p. 240.]

SOUTHERN SPURS. TETNULD SPUR

This ridge strikes off from the main chain near the south base of Katuintau, and divides the *névé* of the lower Zanner basin from that of the Adish Glacier. To cross it would be a formidable task. The face of Tetnuld that descends to the gap is steeper than the ridge by which the mountain has been climbed.

Tetnuld (15,918 feet).—Mr. D. W. Freshfield, with F. and M. Dévouassoud and J. Désailoud, left a camp (about 9000 feet) on the right bank of the Nageb Glacier, which at its lower extremity joins the Zanner Glacier, at 12.45 A.M. on the 6th August 1887. Turning the lower ice-fall by avalanche debris and moraine, they forced their way through some formidable *séracs* to the great central plateau of the glacier. Another long slope of *séracs* gave access to a narrow snow-terrace, which brought them to the southern ridge at 9 A.M. This ridge was then followed without difficulty, but with much step-cutting, to the summit (1.15 P.M.). The camp was regained at 7 P.M. The *séracs* were avoided in the descent by taking a course to the left of the rocks that break the middle ice-fall. [*Alpine Journal*, vol. xiii. pp. 363-4, 517-21.]

On the 3rd August 1891, Herren Merzbacher and Purtscheller, with J. Kehrer and F. Unterweger of Kals, starting from a bivouac above Adish at 11,700 feet, joined Mr. Freshfield's route near the top of the glacier, and reached the peak without step-cutting in 6 hours and 45 minutes, returning to camp in 3 hours and 30 minutes. This is the natural and shortest line of ascent, when the people of Adish are not unfriendly.

NORTHERN SPURS. DYKHTAU SPUR

Koshtantau-Dykhtau Spur.—From the northern base of Shkara a comparatively low ridge divides the deep trench parallel to the main chain occupied by the Bezingi and Dykhsu Glaciers, and unites the unbroken turreted wall that overlooks

Suanetia to the bolder pinnacles that crown the great horseshoe which almost encircles the Mishirgi Glacier. This horseshoe may best be described, without reference to its connection with the main chain, by taking the peaks in their order from Ukin on the north-west round to the summits over the so-called Missess Kosh.

A very unfortunate confusion has arisen as to nomenclature of the two highest summits. [See *Proceedings of the Royal Geographical Society*, May 1890.] English mountaineers have hitherto adhered to the names given them in the five-verst Russian map, and accepted for twenty-five years in English and German geographical literature. The authors of the new Survey have revised the names on the strength of local usage. That the old names were not in accordance with local usage is undeniable. But it seems impossible to show that the peak of 17,052 feet, the Dykhtau of the new map, which stands entirely away from the Dykhsu Glacier, has any proper claim to the name finally given it.

It would, however, be useless to dispute further the decision of the Surveyors, now that it has been definitely embodied in the new maps of the Survey. Henceforth the Koshtantau of English literature must be called Dykhtau, and the English Dykhtau, Koshtantau. This course has been adopted in these volumes.

We deal first with the comparatively low ridge which links the outlying peaks to the main chain.

Dykhsu Pass (12,719 feet).—From Bezingi, by the Bezingi and Dykhsu Glaciers, to Karaul and Balkar. Mr. Mummery, with Zurfluh and a Bezingi hunter, on the 12th July 1888 left the Missess Kosh at 4.30 A.M. They kept up the middle of the glacier, and ascended the slopes to the pass without difficulty (10 A.M.) Some steep snow-slopes lead on to a large and nearly level glacier, a tributary of the Dykhsu. To avoid the ice-fall by which this joins the main stream the party struck on to the rocks on the right, and descended by a fairly easy route to the Dykhsu. A suitable place for a camp having been found close to the foot of the ice-fall, the Bezingi hunter was sent on to Karaul for provisions, reaching it the same afternoon. [Mummery's *My Climbs in the Alps and Caucasus*, p. 235.]

Sella's Pass (about 14,000 feet).—North branch of the Bezingi Glacier to Khrumkol Glacier. Signor Sella reached this pass from the west. It is circuitous, but apparently not difficult. The upper *névé* of the Khrumkol Glacier is not correctly shown on the one-verst map. [Sella's Panorama from Fyturgyn; *Bollettino del Club Alpino Italiano*, vol. xxiii. No. 56.]

Taking the horseshoe from its north-west extremity, the first summit worth notice is *Ukin* (14,266 feet). Mr. D. W. Freshfield and J. Désaillood on the 12th August 1887 left a camp in the Ukin Glen (9000) at 2 A.M., and having climbed into the small glacier basin west of the peak, cut up frozen snow-slopes to the north ridge. This was easy for some distance till broken by a tower, which was turned by a ledge on the climbers' left, and at 9.30 A.M. the summit was reached by easy rocks. The party descended without difficulty the east slopes of the peak on

to the Ukiu Glacier, and returned by it to their bivouac and Bezingi the same evening. [*Alpine Journal*, vol. xiv. p. 10.]

Ukiu Gap.—The gap between Ukiu and Ulluauz Bashi may doubtless be crossed. On the north side it is easily approached by sloping glaciers. [Signor Sella's Photograph.]

Ulluauz Bashi (15,351 feet).—Signori V. and E. Sella, with G. Gilardi and two porters, on the 6th August 1888 left a camp on the left moraine of the Ulluauz Glacier. Having ascended the glacier some distance, they turned up its north-west tributary, and subsequently ascended by easy snow-slopes to a point overlooking the Kundium Mishirgi Glacier. Leaving the two porters behind at this point, Signor Sella and Gilardi attacked the rock-buttrass of the peak. On reaching the ridge, they were soon compelled to leave it for the ice-slope on their right. Higher up it was regained and followed to the summit. [*Bollettino del Club Alpino Italiano*, vol. xxiii. p. 270-4].

Malatau, (14,952 feet).—This is a lower peak on the same crest as Ulluauz Bashi, unascended but accessible.

Mishirgi Pass (13,630 feet, Donkin's measurement), between Koshtantau and Ulluauz Bashi. From the Ulluauz Glacier to the Kundium Mishirgi Glacier.

Messrs. Donkin and Fox, with K. Streich and J. Fischer, on August 27th, 1888, reached this pass by the route subsequently taken by the Signori Sella in climbing Ulluauz Bashi, and by step-cutting up a steep ice-wall. They descended some little distance on the Kundium Mishirgi side. The lower region of that glacier was explored by Mr. D. W. Freshfield in 1889. The unattempted upper ice-fall of the Kundium Mishirgi may present some difficulty. [*Alpine Journal*, vol. xv. p. 26.]

Ulluauz Pass (14,300 feet). From the Ulluauz Glacier to the Tiutiun Glacier.

Messrs. Donkin and Fox, with K. Streich and J. Fischer, crossed this pass from the north on August 30, 1888, and bivouacked on the rocks of the southern slope, a few hundred feet below the pass, with the object of attempting Koshtantau. [*Alpine Journal*, vol. xiv. p. 432, and xv. p. 28.]

On July 29, 1889, Messrs. Dent, Freshfield, and Woolley, and Captain Powell, with K. Maurer, A. Fischer, and C. Jossi, completed the pass from the south. Leaving Karaul on July 28, they descended the Cherek Valley to the mouth of the Tiutiun Glen, which they ascended as far as the Kosh near the right moraine of the Tiutiun Glacier. Starting next morning at 4.30, they ascended the rocks on the right bank of the glacier for an hour or so, then crossed the ice-fall to its left bank, leaving to their right a broad gap communicating with the Ghertui Glacier, and, keeping near the rocks on the left margin, ascended to the undulating *névé* above the ice-fall. After walking westward for an hour and a half up the trough of *névé*, they arrived at the foot of the broad snow-trench running up to the pass, which is a depression on the east ridge of Koshtantau. Climbing up steep rocks on the east margin of the *couloir*, they gained Fox and Donkin's bivouac at noon. The pass

is reached in forty-five minutes from the bivouac by climbing steep rocks and traversing a snow or ice slope. [*Alpine Journal*, vol. xiv. pp. 433, 437; xv. p. 30].

Kashtan Crest (14,860 feet).—Accessible from the Ulluaux Pass: a fine view-point, unascended.

Kashtan Pass (about 11,500 feet).—This pass is gained by the rock and snow-slopes east of the Kosh at the foot of the Ulluaux Glacier. It was crossed by Baron Ungern Sternberg in 1889, and the view was photographed by Signor Sella in the same year. The Baron described the descent into the Kashtan Glen on the Balkar side as steep and exposed to stones, but the pass is frequently used by native hunters. *Kayashki-su-bashi* (12,750 feet), north of it, is the last snowy summit in this part of the chain.

N.B.—There is no doubt that the name of Koshtantau is derived from this Kashtan Glen. I leave to the Surveyors the responsibility of a distinction they have deliberately made.

Koshtantau (16,880 feet).—On August 8, 1889, Mr. H. Woolley, with C. Jossi and J. Kaufmann, left Karaul at 5.30 A.M., and following the route taken by the search party to the Ulluaux Pass, ascended the glen, crossed the Tintium ice-fall to its left bank, and advancing up the *névé* of the same glacier halted for the night on rocks at the foot of the *couloir* running up to the Ulluaux Pass. Starting next morning at 3.50, they continued westward till they reached the foot of the ice-slopes running up into the angle formed by the south and east ridges of Koshtantau. Cutting steps up these slopes and taking advantage of two ribs of rock jutting through the ice, they gained at 10 A.M. the southern *arête* at the point where the snow-ridge is broken by a crest of rocks. At 11 A.M. the rocks were passed, and Kaufmann remained behind. The others ascended along the snow-ridge to its junction with the east ridge, a point marked by a great rock-tower. Climbing to the left (W.) round the base of the tower, they gained at 1.15 the foot of the ice-slope rising from the east ridge to the summit, which was reached at 3.47 P.M. The descent to the sleeping-place occupied about 5¾ hours. Karaul was regained on the afternoon of the 10th. [*Alpine Journal*, vol. xiv. p. 447, and xv. p. 173.]

Tintium Gap.—Uncrossed and not to be recommended.

Two very steep ice-gullies at the head of the *névé* correspond to long rock-chimneys on the Khrumkol Glacier side.

Tintiumtau.—South-west of the *névé* stands a fine snow-peak (15,113 feet), which partially masks Koshtantau from many points near Karaul. It is probably accessible from the south.

Beyond this the spur rises again to a summit, *Karatau* (12,830 feet), which appears easy of direct access from Karaul and made for a panoramic point. The crest between the Khrumkol and Dykhsu Glaciers is almost equally well placed.

Khrumkol Gap (about 13,000 feet).—This conspicuous gap in the Mishirgi horseshoe, south-west of Koshtantau, is defended by steep rocks on the south side, and on the

north could only be reached by a long traverse across the snow and ice slopes under Koshtantau from the highest snowfields of the Kundium Mishirgi. To attempt a direct descent would be disastrous.

From this point to beyond Dykhtau the precipices are continuous on the Mishirgi side.

Khrumkoltau (14,637 feet, unascended), a bold rock-peak, sometimes described as Mishirgitau, rises above the upper branch of the Khrumkol Glacier.

Mishirgitau: Eastern Peak (about 16,350 feet).—From the east this mountain appears part of Dykhtau. On August 5, 1889, at 5.30 A.M., Mr. H. Woolley with C. Jossi left a bivouac on rocks in the lowest depression of the ridge which separates the Khrumkol from the Dykhsu Glacier, and ascended the Khrumkol Glacier in $2\frac{1}{2}$ hours as far as the foot of the snow-*couloir* which runs up the south face of Mishirgitau to the gap between the west and the east peaks. Ascending first by the gully, and then by the rocks on its east margin, they gained the col at 1 P.M. After a halt of about thirty minutes they turned to the east, and reached the eastern peak (a narrow snow-ridge) at 2.30 P.M. The west summit (a rock-pinnacle) appeared to be about fifty feet higher. [*Alpine Journal*, vol. xiv. p. 446, and xv. p. 176.]

Western Peak (16,408 feet, unascended).—The ridge rising from the Dykhsu Pass, and dividing the *névé* of the Khrumkol and Bezingi Glacier abuts against this peak. S. Sella thinks it may afford an access to it.

Dykhtau by southern face (17,052 feet).—Koshtantau of five-verst map and English literature.

Mr. Mummery, with H. Zurluh, on the 24th July 1888 left a camp on the *séracs* above the upper Bezingi Glacier at 2.30 A.M., and ascended beds of winter snow and a small glacier to the gap between the peak and its great western buttress. They then turned on to the south face, and bearing to the right reached the belt of red rock which seams the face at 7 A.M. A short distance farther they reached a long *couloir*, but finding it full of ice it was soon quitted for the rocks on its eastern side. Still bearing to the right, a secondary ridge was gained. After being twice forced off it to the left, it became possible to cross to the right into a deep crack which led to the summit ridge a few feet from the highest point (11 A.M.). From the point where the secondary ridge was struck to the summit the rocks were very formidable, and compare in character and steepness with the Chamonix Aiguilles. The descent was begun at 11.45 A.M., and the tent regained at 4.30 P.M. [*Proceedings of the Royal Geographical Society*, vol. xi. pp. 351-9; Mummery's *My Climbs in the Alps and Caucasus*, pp. 258-284.]

By northern ridge.—Messrs. Cockin, Holder, and Woolley, with U. Almer and C. Roth, left the Missess Kosh at 2.30 P.M. on August 19th, 1888, and ascended the Missess Glacier, which is contained between the north and north-west ridges of Koshtantau. About 2000 feet up the glacier is divided into two branches by a

Bergli-like rock-ridge. Turning up the north branch, the party gained at 5.30 P.M. a comparatively level plateau, and passed the night on rocks on its north margin at a height of about 10,750 feet.

Starting next morning at 4.45, they ascended the glacier and *névé* slopes above it in about three hours to the col or depression at the foot of the north *arête* of the mountain. Leaving this col at 8.45, they ascended the *arête* to the summit, which was gained at 2.5 P.M.

The descent to the sleeping-place occupied about 8 hours, and on the morning of the 21st Missess Kosh was regained by going down a wide rock-gully a little to the north of the Missess Glacier. [*Alpine Journal*, vol. xiv. pp. 90 and 185.]

On the same ridge to the north are the Missess Gap at the foot of north *arête* of Koshtantau (untraversed), and Missess Tau (unascended, 14,490 feet).

THE ADAI KHOKH GROUP

The boundaries of this group are: On the west the Pasis Mta path, on the south-east the Rion and the Mamison Road, on the north the path from Sadon to Stir-Digor, the Uruk and the Shtuluvsek.

Gezi (12,699 feet).—This bulky, and on the north heavily glaciated mass, feeds the sources of the Rion, the Cherek, and the Uruk. Its summit may doubtless be reached without serious difficulty by mountaineers from the west foot of the Shtuluvsek.

South of it, projecting between the headwaters of the Rion, stands *Edeu* (12,663 feet).

It is certainly possible to find a pass from the Mosota Glacier, which supplies the source of the Uruk, to the glen of the first tributary of the Rion, filled at its head by the Zopkhito Glacier. In the next cluster of summits the main chain recovers its dignity and boldness of form.

Laboda (14,168 feet), *Ziteli* or *Tana* (13,930 and 14,028 on different sheets of new map), Vastak Khokh of five-verst map. This fine cluster of peaks, four in all, of which Laboda, the north peak, is the loftiest, are the Wetterhörner of the Caucasus. They rise in tiers of precipices on the east of the head of the Uruk opposite the ascent to the Shtuluvsek.

On August 1st, 1895, Messrs. C. T. Dent and H. Woolley, with K. Maurer and S. Moor, left a camp in the Stir-Digor Valley, crossed the ridge which extends eastward from Laboda by the low depression marked 6762 feet in the one-verst map, and descending slightly, reached the Tana Glacier. Proceeding up the middle of the glacier to the foot of the rock-ridge which separates the two main branches of the glacier (marked 8596 feet in one-verst map), they ascended by the rocks till above the south ice-fall, and bivouacked on the south side of the ridge. On August 2nd they went up the south branch of the glacier almost to its head,

skirted the rocks of the east *arête*, and finally gained the summit by a snow-ridge which runs up from the south-east. [*Alpine Journal*, vol. xvii. p. 593.]

Two of the summits are accessible from the snowfields above the Novo Kavis cirque, well seen from Stir-Digor. The others are seen from the Goribolo, and may perhaps be reached by the southern glaciers.

Gezivsek (11,473 feet).—This is described as a horse-pass by Klaproth, A.D. 1823, apparently from hearsay. The Gurdzivsek is now preferred by the people of the country. The path from Stir-Digor mounts slopes east of the glen above Kussu (no name on the one-verst map), and finally a short, steep *uvé* to a gap west of a rocky dome (Zikhvarga).

The descent to Gebi is said not to be difficult. It lies over the Kirtisho Glacier and down the Choshuri Valley. No traveller has crossed this way.

Beyond this peak the first conspicuous summit is *Zikhvarga* (13,380 feet, one-verst map: Holder's Tsforga).

Messrs. Holder and Cockin, with U. Almer, left Gebi on August 19, 1890, and keeping to the eastward through birch-woods and over fields and pastures, reached a southern spur of Zikhvarga. Leaving their camp at 2.45 A.M. they kept along the ridge connecting this spur with the summit, but after two and a half hours it was found better to descend to the glacier on their right (eastward), keeping for the most part to the true right of this glacier, and having ascended through the ice-fall without much difficulty, they took to the rocks and ascended to the final ice-slope and the lower or eastern summit (11 A.M.), previously ascended by Signor V. Sella. After an hour's rest they went along the ridge in forty minutes to the western or highest point. [*Alpine Journal*, vol. xv. pp. 515-16.]

Eastern Peak.—Signor Sella, with three Italian porters, left a camp in the Karagom Valley on the 30th July 1890, and followed the Gurdzivsek route to the steep slopes leading up to the pass; here they bore well to the right, and striking the eastern ridge of the peak high above the pass, they followed it to the summit. [*Bollettino del Club Alpino Italiano*, vol. xxiv. p. 274.]

Gurdzivsek (10,976 feet).—The route to this pass from the Uruk is by a well-traced path up the right side of the Karagom Glacier, and then across it to the opening of the Gurdzivsek glen, the (true) left bank of which is followed to the glacier, which is easily ascended to the pass at its head. The descent on the south side, mostly by rocky slopes, leads to the Cheskhura Valley, whence a high spur has to be crossed to reach Gebi.

Messrs. D. W. Freshfield, Moore, and Tucker, with F. Dévouassoud, left Chiora at 1.30 A.M. on the 10th July 1868, and reached in ten and a half hours a conspicuous gap at the head of the Burdjula Glacier, more than two versts east of the Gurdzivsek. The descent on to the glacier on the north side was by an excessively steep snow-*couloir*, 2000 feet high, only practicable when the snow is in very good condition; below this the ordinary native route practicable for sheep was reached. [*Alpine Journal*, vol. iv. p. 161; *Central Caucasus and Bashan*, pp. 245-52.]

Burdjula (14,294 feet).—Messrs. Holder and Cockin, with U. Almer, left a camp at Notsanzara above the Rion Valley at 2.35 A.M. on the 23rd August 1890, and followed first an ancient grass-grown moraine, and subsequently the right bank of the torrent, to the westernmost of three small glaciers. Having ascended this for some distance, they reached a rib of rock dividing it from the next glacier. This was ascended, and in forty minutes the undivided glacier above the rib was gained. Crossing the *Bergschrund*, they ascended over rocks, loose stones, and snow to the south-eastern ridge of the mountain (8.5 A.M.). After forty-five minutes' halt they began the ascent of the ridge, which proved to be a good rock-climb, taking nearly three hours (11.45 A.M.). On the descent they kept to the eastern face of the mountain, regaining the camp at 5.55 P.M. [*Alpine Journal*, vol. xv. pp. 518-20.]

Signor Sella, with Italian porters, left a camp under the Burdjula Glacier soon after midnight on the 30th August 1890. Having crossed the glacier, they ascended by rocks to the western snow-ridge. This they followed without much difficulty to the summit. [*Bollettino del Club Alpino Italiano*, vol. xxiv. pp. 297-300.]

Karagom Pass (11,900 feet).—Stir-Digor, by Karagom and Bokos Glaciers, to Glola.

Messrs. D. W. Freshfield, Moore, and Tucker, with F. Dévouassoud, left a bivouac at the lower end of the Gurdzivsek Glen at 3.30 A.M. on the 11th July 1868. They mounted by the grass-slopes on the left bank of the Karagom Glacier to near the foot of the great ice-fall, the ascent of which lasted six hours, and was estimated at 4000 feet. Above, slightly inclined and very soft snowfields led in four hours to the pass. The ice-fall of the Bokos Glacier proving impassable, the party returned to the pass, and, traversing some slopes to the east, crossed a snowy head which projects above the top of the ice-fall to the rib of rock forming the division between the Bokos and the next valley to the eastward. An easy descent on its eastern side was discovered. Lower down the party traversed back over rough slopes to the Bokos-skali and camped at the first trees. [*Alpine Journal*, vol. iv. p. 161; *Central Caucasus*, pp. 254-66.]

Beyond the broad saddle of the Karagom Pass the topography of the watershed of the Karagom Glacier is intricate. A low ridge, behind the apparent watershed as seen from the Rion Valley, curves back to a point a little behind the double-headed peak (14,874 feet on the map), where it abuts against the much bolder crest which forms the east limit of the Karagom basin, and is collectively known as Adai Khokh. The peaks north of the double summit, including Adai Khokh itself, lie off the watershed, but for convenience of description they are here taken in their order from north-west to south-east.

Karagom Peak (14,805 feet).—A double-headed rock-peak. Its north face, draped in glaciers, forms the most striking feature of the scenery of the Karagom Glacier. The Sandur Ridge breaks off from its eastern and higher peak.

Nameless Summit (14,602 feet).—An insignificant crag. Broad gaps right and left of it, easily accessible on the Karagom side, should both lead to the Songuta Glacier. These two summits are accessible also from the Sandur Pass (see *post*).

Adai Khokh (15,274 feet).—Messrs. Holder and Cockin, with U. Almer, left their camp at Notsanzara at 12.30 A.M. on the 26th August 1890. They reached the watershed at 5.5 A.M. Crossing the great snowfields to a mass of rock, they ascended this to its summit (8 A.M.), and then descended its eastern face to the snowfield below. They crossed this to the lower ice-fall (9.20 A.M.), and then in fifty-five minutes cut up the face of the mountain to a plateau, where they halted for half an hour. Starting again at 10.45 A.M., they made for the *Schrund* immediately under a well-marked depression in the ridge. Crossing the *Schrund* at 11.10 A.M., the ridge was reached at 11.30 A.M. They followed this ridge, snow at first, and then stones, to the summit (12.50 P.M.).

On the return, instead of crossing the mass of rock rising out of the great snowfield, they kept to the south of it, and subsequently worked back to their morning's track. Owing, however, to crevasses and *séracs*, this course involved considerable loss of time. [*Alpine Journal*, vol. xv. pp. 521-2.]

South of Adai Khokh is a broad gap, easy on the west, defended, according to Mr. Mummery, by steep but practicable slopes on the east or Zea Glacier side, which forms the natural connection between the two great glaciers of the group.

South of this gap the watershed abuts against the north spur of the forked peak (14,812 feet), which consequently is on the main chain. There is a deep narrow gap between it and the next summit, connecting the Zea and Bubis *névés*.

Bubis Khokh (14,497 feet, unascended).—A beautiful double-peak, conspicuous from the Rion Valley. The formidable gap at its east base separating the Bubis Glacier from the Zea has not been crossed.

Khumkhakhi Khokh (14,063 feet, one-verst map).—This bold rock-peak stands at the junction with the main chain of the short ridge separating the two heads of the Zea.

M. de Déchy, with Alexander Burgener and P. J. Ruppen, left a bivouac at the foot of the Zea Glacier at 7 A.M. on the 23rd July 1884. The passage of the upper ice-fall of the glacier proved formidable, and it was not till 5.45 P.M. that the party were able to find a suitable site above the upper plateaus of the glacier. Starting at 5.30 A.M. the next morning, they climbed on to a ridge, partly by rock, partly by a snow-*couloir*. The ridge itself proved formidable. A lower peak was crossed, and the actual summit was not reached till 1.30 P.M. They regained their sleeping-place at 7 P.M. Owing to the melting of snow-bridges they were unable to follow the route through the *séracs* taken in the ascent, and the camp at the foot of the Zea Glacier was not reached till 6 P.M. on the third day. [*Alpine Journal*, vol. xii. pp. 91, 209-19, 314-20.] There is some uncertainty as to which peak was gained.

Zea Pass (about 12,000 feet).—From the Mamison Pass to the Zea Glacier and St. Nikolai.

Messrs. D. W. Freshfield, C. T. Dent, H. Woolley, and Captain Powell, with Jossi, Kaufmann, Maurer, and Fischer, left the Hospice south of the Mamison Pass at 2 A.M. on July 19th, 1889. Having ascended to the Mamison Pass, they

left the road at the first zigzag on the northern side, and ascended past the source of the Ardon. They reached the crest by easy glacier about 8 A.M. The pass is a few hundred yards east of the point where the granite chain ceases to be the watershed. It is shown in the plate (*Alpine Journal*, vol. xii. p. 217), lying east of a rock-tower on the skyline. The *névé* of the Zea Glacier was found to be cut off by 400 feet of *very steep* rock and ice, the descent of which took four hours. The descent of the three ice-falls of the Zea Glacier proved easy, and the foot of the glacier was reached at 6 P.M., and St. Nikolai at 9 P.M. (The upper ice-fall of the Zea Glacier is in some seasons formidable.) [*Alpine Journal*, vol. xiv. pp. 436-7.]

The *Mamison Pass* (9282 feet) is the second carriage-road over the main chain. It was passable for carriages in 1889, but no adequate provision had then been made for its maintenance, and in default of this it can hardly remain permanently passable for wheels, even for three months in the year. There is no postal service beyond Sadon on the north or Oni on the south side. Were the road in good order, three days should suffice from Vladikavkaz to Kutais: five are more likely to be taken. There are rough *dukhans* or roadside inns on the south side, and good sleeping quarters at Ardonsk and St. Nikolai on the north. The scenery of the Kassara Gorge is very fine, and the view from the Mamison Pass (improved by ascending a few hundred feet to the south) extends to Shkara and Ushba. The Upper Rion is beautiful, and the whole drive to Kutais pleasing.

NORTHERN SPURS. KALTBER SPUR

North-east of watershed, dividing Zea Valley from Saramag Valley.

For some distance east of the Mamison Pass this ridge is exceedingly formidable on the north side.

The only conspicuous summits are *Kaltber* (14,462 feet, unascended), which rises at the head of the Saramag Valley, and another (13,331 feet) at the head of the Arnag Glacier. A pass may probably be made from this glen to Rekom, and the peak ascended. The scenery and view would well repay the attempt.

THE SANDUR SPUR

separates the lower Karagom basin from the Skatikom Glacier. It is a long and fairly level rock-ridge, 12,000 to 13,500 feet in height. Signor Sella in 1890 reached a practicable pass across it from the head of the west Skatikom Glacier, but did not descend to the Karagom. [*Bollettino del Club Alpino Italiano*, 1890, vol. xxiv. No. 57].

THE ZEA KHOKH SPUR

This ridge extends along the north side of the Zea Valley, dividing it from the ice-streams that flow north towards the Kamunta Valley. It presents to the view a bristling fence of granite teeth. Three of these, east of the head of the Songuta Glacier, reach heights of 14,094, 13,825, and 14,259 feet.

The summit projecting on the east of the Zea snowfields, and conspicuous from the lower Zea Glacier, should afford a good view-point for reconnoitring purposes.

THE BOGKHOBASHI GROUP

This granite group is geologically part of the main axis of the chain. The watershed opposite its west portion, from the Agashtan Glacier, probably as far as—but not including—Laboda, is composed of black, friable schists. The upper gorge of the Urukh is therefore analogous to the Kassara and Darial Gorges.

No traveller has as yet explored these mountains; their extremities only have been touched.

The natural limits of the group are defined on three sides by the courses of the Cherek and Urukh and the track of the Shtuluvsek. On the north a horse-track from Stir-Digor to Balkar, of which we have no description, crossing several ridges and valleys, but preferred by the natives to the Shtuluvsek, forms a convenient limit.

The Shtuluvsek Pass (Shtuli-vsek in early maps), 10,857 feet, is a horse-track open for two months in the year only. It is a day and a half's journey from Stir-Digor to Karaul. (See Chapter vii.)

A point, visible from Karaul (11,500 feet), on the long ridge projecting from Giulchi towards the Cherek, was climbed in July 1888 by Mr. D. W. Freshfield, with A. Fischer: five hours up, one and a half down. It is a magnificent view-point.

Giulchi, 14,680 feet [see plate in *Central Caucasus*, p. 411, and Sella's Photographs], is a fine mountain, very precipitous towards Karaul, but probably accessible by the glacier on its south-east face, that is drained by a torrent forded at the west foot of the Shtuluvsek. It culminates in two snow-points and a rock-peak of almost equal height.

It may be accessible on the north side, of which nothing is known to climbers.

A deep gap accessible from the south by the glacier descending east of the Shtuluvsek would afford a pass into the glen of the torrent which joins the Cherek in the Balkar basin.

Sugan Bashi (14,730 feet), the highest point of the group, is probably attainable. It is a massive and imposing summit, rising where the Shtuluvsek ridge meets the northern range. A glacier from its south-east flank, above which rise two other summits of almost equal elevation, feeds the tributary of the Urukh, along which the track to the Shtuluvsek passes.

A high saddle joins it to the next summits, *Doppakli* (14,420 feet), and *Nakhshbita Khokh* (14,406 feet), a bold rock-wall.

Beyond this a continuously lofty and precipitous rock-screen, surmounted by bold, but not very prominent, craggy eminences stretches above the Urukh.

The summit at its east extremity, opposite the Karagom Glacier and above Stir-Digor, is known as *Dashi Khokh* (12,500 feet). This was climbed in 1890 by S. Sella for the sake of the panorama. [See Photographs; also *Bollettino del Club Alpino Italiano*, 1891, vol. xxiv. No. 57.]

THE OSSETE RANGE.

The Watershed from the Mamison Pass to the Krestovaya Gora.

The Caucasian chain undergoes a sudden change east of the Mamison Pass. The granitic range, that has almost continuously served as the watershed, is cleft by gorges, and the southern and northern rivers are divided by the continuation of the parallel slate-ridge, which culminates south of Suanetia in the Laila peaks. It is naturally less lofty and abrupt; the peaks are inferior, and the passes mostly under the snow-level, while the glaciers are few and small.

The district will hardly prove attractive to mountaineers for some time to come, but its peaks, lying close to the Mamison road, are worth a mention. There are no references to it in mountaineering literature.

Several bold peaks marked on the map, of which *Kozi Khokh* (12,059 feet) is the highest, rise south of Glola and Gurshevi: the pass east of *Kozi Khokh* may furnish a short cut (?) from Oni to the Ardon.

Khalatsa (unascended, 12,915 feet) is a fine dome-shaped snow-peak, well seen from the ascent to the Mamison Pass. The passes on either side of it (*Sedo Pass*, 9856 feet) lead along the valley of a tributary of the Rion to Oni. The ridge dividing the tributaries of the Rion and the Kur, the waters of the Black Sea and the Caspian, abuts against the west summit.

Zikara (unascended, 12,570 feet) is flanked by glaciers.

The Zikara Pass (10,479 feet), a footway crossing glacier, leads over its eastern shoulder.

Brutsabdzeli, a bold rock-peak (12,040 feet), projects south from the watershed. It has made a great impression on some of the travellers from Tiflis who have passed this way.

Behind and beyond is the *Bakh-fundak Pass* (9569 feet), a frequented horse-path, the forest and rock scenery on the south side of which is said to be very fine. It mounts the valley of the Liakhva on the south, and descends to the eastern branch of the Nardon. It was formerly a frequented route connecting the Ossete communities on either side of the chain.

The farther range, above the Nardon source, bears no glaciers, but sinks to no lower passes. The most frequented is the *Roki Pass* (9814 feet), which has been surveyed for a railway. The chain rises round the extreme head of the Terek to a cluster of peaks, of which the highest—*Zilga Khokh*—stands a little south of the point where the ridge dividing the Terek and Nardon joins the watershed.

Zilga Khokh, the highest point (12,646 feet), was ascended by General Chodzko in the Fifties while engaged on the five-verst map. The surveyors camped near the top.

From this point to the *Krestovaya Gora* (7973 feet) there are no peaks that call for mention here, and only one pass, the *Urustaltevsek* (9053 feet), leading from the valley of the Liakhva to that of the Terek. South of the chain (it is said on a limestone plateau) lies Lake Keli, the largest sheet of water in the whole region here described.

THE KASBEK GROUP.

The mountains between the Ardon and the Terek.

The Kasbek Group is a section of the central granitic chain, cut off from the rest by the Kassara and Darial Gorges. It is almost completely surrounded by the sources of the Nardon and the Terek, and sends all its waters to those streams and their affluents. The upper valley of the Terek above Kobi, where the highroad descends into it from the Krestovaya Gora, is a treeless and monotonous tract. The eastern sources of the Nardon rise in a number of secluded basins, separated by high grassy ridges and ravines. Three valleys run north from the crest towards the steppe, the *Genaldon*, *Lagzdon*, and *Fiagdon*.

The Genaldon Valley leads to a great glacier which flows from the united snow-fields of Kasbek and Gimarai Khokh. The huts at its head, used by the Ossetians, who here and elsewhere indulge in the most primitive form of mineral baths, have been found a convenient base for the ascent of both peaks. [See *post.*] The Lagzdon leads to the western glacier of Gimarai Khokh, and the Fiagdon to a horse-pass, the only one across the group between its two chief glacier systems. The lower parts of these valleys are finely forested. In their upper portions they are wild and barren, but thickly inhabited, the villages lying behind the shelter of the outer limestone chain. The Fiagdon appears to traverse a narrow and long defile between the peaks of Arkhon and Suirkhuborzon. This valley and the Kolota Pass at its head deserve to be explored and described.

Between the Kassara Gorge and the Kolota Pass rises a small glacier group, crowned by bold rock-peaks hitherto unexplored.

The chief summits are *Tepli* (14,510 feet)—this peak is conspicuous from the Mamison road; *Arkhon* (13,958 feet); a nameless peak (13,555), which rises in tiers of cliffs above St. Nikolai in the Kassara Gorge.

The Kolota Pass (10,633 feet), used by animals, leads from the headwaters of the Fiagdon to Abaiti-kau or Zakka, the highest villages on the Nardon.

The minor peaks of the Kasbek Group have been hitherto neglected. The principal are on the west, Suirkhuborzon (13,637 feet), Ziti Khokh (12,957 feet), and Chau Khokh (14,336 feet).

Nearer Kasbek, on the ridge between it and Gimarai Khokh, are two peaks of 14,790 feet and 15,092 feet respectively.

South of Gimarai Khokh are two peaks of 14,406 feet and 14,672 feet, all nameless on the new map.

Gimarai Khokh (15,672 feet).—On October 4th, 1890, Herr Merzbacher, with J. Kehrer and J. Unterweger, of Kals in Tyrol, left the huts (7644 feet), at the mineral springs at the head of the Lagzdon Valley, and ascended the moraine for $1\frac{3}{4}$ hours to the edge of a very fine amphitheatre of glaciers, and in $2\frac{1}{2}$ hours more reached the foot of a steep ice-slope leading to a snow-dome on a ridge west of the summit. They climbed along this ridge for $1\frac{1}{4}$ hours, when their way was barred by a steep ice-bank in the ridge. One and a half hours were spent in cutting steps to

the saddle beyond it. The ascent of the final peak, by a steep ice-wall and difficult rocks, took $2\frac{1}{2}$ hours, the summit being reached at 9.50 A.M. in 9 hours 20 minutes, including halts, from the huts. The descent occupied 4 hours 45 minutes. The rocks of this peak proved to be of crystalline schists and basalt, whereas Kasbek itself is composed of lava. [*Mittheil. und des D. Œ. Alpenvereins*, 1892, No. 6, p. 65.]

Kasbek (16,546 feet) one-verst map, *Mkuinvuri* in Georgian.—By the south and north faces, and passage of the Kasbek Saddle, July 1, 1868, Messrs. D. W. Freshfield, A. W. Moore, and C. Comyns Tucker, with François J. Dévouassoud of Chamonix, left a bivouac six hours above the post-station on the left bank of the Ortsveri Glacier, which flows under the southern face of the peak. [*Alpine Journal*, vol. iv. p. 160; Freshfield's *Central Caucasus*, p. 196.]

Ascending the glacier by easy crevassed slopes, they reached the base of the ice-wall connecting the two peaks in 3 hours 45 minutes. The wall was in a bad condition, fresh snow lying on it, and its descent would have been extremely dangerous. Climbing carefully, they reached the saddle in 4 hours. Hence easy banks of frozen snow led to the top of the eastern and higher peak, $9\frac{1}{4}$ hours from the bivouac.

After returning to the saddle, they descended without difficulty by snow-slopes to the *névé* north of the peak, and bore to their right to the commencement of a rocky ridge, the northern limit of the Devdorak Glacier. Keeping near the crest of the ridge, past a conspicuous rock-castle, they left it to run down the slopes on their left which overhang the Chach glen, and following the Amilishka torrent, reached its junction with the Devdorak torrent in $7\frac{1}{2}$ hours from the peak. On the following day they returned to the station in $3\frac{1}{2}$ hours. [*Travels in Central Caucasus*.]

Variation.—On July 12, 1889, Mr. H. Woolley, with C. Jossi, J. Kaufmann of Grindelwald, and A. Fischer and K. Maurer of Meiringen, starting in the morning from Vladikavkaz, bivouacked on the Devdorak side of the rock-ridge mentioned above at about 9000 feet, about $2\frac{1}{2}$ hours above the lower end of the Devdorak Glacier. By a rough scramble they reached the rock-castle in 4 hours and the top of Kasbek in $11\frac{1}{2}$ hours from the bivouac, to which they returned in about 6 hours the same evening. [*Alpine Journal*, vol. xiv. p. 445.]

By the East Face.—In September 1887 Signor Lereo made a direct ascent of Kasbek—the second ascent of the peak—by the face seen from the post-station. They climbed the great buttress from its north base, reached its ridge some way below its brow, and then went straight up the face. [*Bollettino del Club Alpino Italiano*, September 1887, and marked Photograph, Royal Geographical Society.]

In 1889 this ascent is said to have been repeated in a single day of $16\frac{1}{4}$ hours from the post-station by Herren E. Ruckdesehel and G. Hirsch, with F. Hofer of Kals. The total ascent from the station to the summit is not less than 10,900 feet. [*Mittheil. des D. und Œ. Alpenvereins*, No. 13, p. 160; 1889, No. 6.]

From the Mineral Springs in the Genaldon Valley on the north-west.—On September

30, 1890, Herr Merzbacher, with J. Kehrer and J. Unterweger, of Kals in Tyrol, starting from the huts at the mineral springs, climbed, chiefly by the rocks north-east of the glacier to the edge of the great snow-basin in 6 hours 20 minutes, and then climbed by a succession of snowy basins and steep slopes to the saddle, reaching the top in 12 hours from the huts. The descent occupied 5 hours.

Herr Merzbacher considers that these 'times' were only rendered possible by the hardness of the snow, and that earlier in the summer a much higher bivouac would be necessary. [*Mittheil. des D. und Ö. Alpenvereins*, 1892, Nos. 5 and 6, pp. 52 and 64.]

In the ridge connecting Kasbek with Gimarai Kliokh are two nameless snowy summits of 15,050 feet and 14,798 feet, both unascended.

West of the higher peak a pass is probably to be found from the mineral spring to the Terek Valley, close to Kobi, and another between the lower summit and Kasbek to the Ortsveri Glacier and Kasbek post-station.

The ascents of Kasbek have demonstrated the possibility of a pass from the mineral spring to the Devdorak Valley.

Chutu Khokh (14,336 feet).—A nameless double peak (15,015 feet), unascended.—These summits lie north of, and in the vicinity of, Gimarai Khokh.

THE LAILA GROUP

The range of mountains between the upper courses of the Ingur and Skenis Skali.

The track through the gorge of the Ingur.—Only a footpath, rough for one day, and liable to be broken by floods and swept by stone-falls. The starting-point is Sugdidi. At least three days are taken in reaching Betsho. [See Phillipps-Wolley's *Savage Svanetia*, vol. ii. p. 174.]

A track barely practicable for horses leads along and over the extreme spurs of the Laila, east of the Ingur, from Sugdidi to Lower Svanetia.—It was traversed in 1889 by the sons of the late Prince Murat (long a resident at Sugdidi) in five days.

There is a track nearer the snows of the Laila which crosses the Leshuil Pass (9972 feet) from Lentekhi to Lower Svanetia.—Half-way is a lodge belonging to the Dadish Kilians, where horses are kept in summer. The track appears to be accurately shown on the five-verst map.

Two fine summits, Larakhanis-Chabi, crown the glacier-clad western extremity of the Laila chain, which does not become the Svanetian watershed between the Ingur and Skenis Skali until it approaches the *Laila Pass* (about 11,800 feet). This beautiful glacier pass, easily combined with an ascent of the peaks, offers the most tempting route for mountaineers approaching Betsho from the south.

According to the five-verst map, the ascent on the south side would be from Lentekhi by the Kheledula Valley, and then over a lateral ridge to the head of the Lashkadura Valley. [The head of the Lashkadura Valley does not, however, reach so far west as shown on the old map, and a direct descent into the Kheledula

is doubtless possible.] On the saddle between the rocks and ice which forms the pass there was in 1889 a small tarn. From this point the ascent of the three highest summits of the Laila may easily be made. Mountaineers, in place of returning to the pass or the glacier flowing from it, may from the north summit follow the ridge overlooking Suanetia to a broad saddle, and then bearing to the right of the crest, but in a W.N.W. direction, descend by S. Sella's route to the high Kosh on the ordinary track. In this way the second pass is avoided.

Laila : Northern Peak (13,046 feet, Merzbacher).—Mr. D. W. Freshfield and Captain Powell, with K. Maurer, in August 1889.

From the highest Kosh on the north side of the lower pass, leading to the Laila Pass, they were led by native companions over this lower pass into the glen through which the stream from the Laila Pass flows to join the Ingur. Leaving them near the foot of the Laila Glacier, they struck off left by a small glacier to the crest overlooking Suanetia. The route subsequently taken by S. Sella to this point is shorter, and avoids a descent of at least 1500 feet. The crest was followed over *névé* to the north peak, climbed without difficulty by a steep slope of rotten shale.

Central Peak (13,157 feet, Merzbacher ; 13,400 feet, Russian Survey).—Signor V. Sella in 1889 reached this peak without difficulty from the north summit in thirty minutes. [*Bollettino del Club Alpino Italiano*, 1889, vol. xxiii. No. 56.]

Southern Peak (13,105 feet, Merzbacher).—Herren Merzbacher and Purtscheller in 1891 traversed the two first-named peaks to the third, reaching it in half an hour from the central summit. [*Mittheil. des D. und O. Alpenvereins*, 1892, No. 2.]

The descent from the pass is over a considerable glacier, the concealed crevasses in which are much dreaded by the Suanetians. After leaving the ice on its right bank, and crossing the stream from the small glacier on the right, by which Mr. Freshfield's party climbed the north peak, a sharp ascent (one hour) leads to the lower pass, a gap in the ridge north of the valley, the stream of which joins the Ingur nearly at the same point as the Nakra. A very steep, zigzag path leads down to the highest Kosh, whence (it is said) Lentekhi can be reached in the day. Lower down a good path leads through beech-forests to the bank of the Ingur, whence Betsho (right) or Ezeri (left) may be gained in about two hours.

Beyond the Laila peaks the snowy crest of the range maintains for several miles a high elevation, and is not crossed by natives. The first eminence is known as

Mashkin (about 12,700 feet).—This summit was crossed on August 8, 1894, by Messrs. G. A. Solly and F. W. Newmarch. From the bridge at the junction of the Ingur and Mulkhura torrents near Latal they followed a track keeping near the brow of a spur descending from the Laila range to the foot of Mashkin (seven hours). Climbing a rocky ridge between the eastern and central of three glaciers flowing from the summit, they turned west up snow to reach the top (seven hours). This descent to Lentekhi was, after descending the first snow-slopes,

generally in a south-east direction above the stream and on its left bank. In one place a considerable ascent had to be made to cross a tributary and avoid a gorge. From the top to Lentekhi the party spent sixteen hours, not including a night. [*Alpine Journal*, vol. xvii. p. 265.]

The Lapara Pass (over 10,000 feet) not to be confused with the Latpari Pass farther east, is said to be the shortest and is certainly the most direct track between Lentekhi and Betsho. The route marked on the five-verst map involves apparently many ascents over the spur overlooking the Lakuri torrent, which runs out at right angles from the Laila ridge towards Lentekhi. Messrs. Dent, Donkin, and Fox in 1887 passed round the east side of the hill in which this spur terminates, crossed to its west flank, and struck the main Laila ridge, descending by a circuitous track to Latal. [Fox's Diary.]

The Lasil Peak is a snowy eminence.

The Gur Pass is a foot-track from Cholur to Ipari.

The Latpari Pass (9256 feet), a good horse-path, is the most frequented route into Suanetia.

The track follows the stream of the Skenis Skali to the highest of the hamlets of Cholur, and then ascends, at first steeply, afterwards more gently, to the pass, which commands a superb view. The track to Kal circles round to the west, and then descends a spur. A track crossing the ridge a short distance farther east is used by the natives of Ushkul, and known as the Gorvash Pass (9513 feet).

Dudiash-ushkul (11,305 feet).—This is a conspicuous block—the Buet of the district. The panorama has been photographed by S. Sella.

By ascending past Lashketi to the glen of the Zena, the westernmost of the Skenis Skali sources, the old track from Gebi to Ushkul can be joined, and Ushkul reached by the *Zagar Pass* (8673 feet), the lowest of the Suanetian Passes. This is a circuitous route, seldom used by natives owing to the character of the paths in the Skenis Skali Valley. Magnificent views could be obtained by following the grass-ridge north from the pass to the base of Nuamkuam and returning to Ushkul along the Ingur.

The traveller who has arrived in Suanetia by any of the routes described above may be glad to know of the most recommendable paths within the district, which is easily traversed in every direction, the ridges which divide its cultivated basins being broad, low, and covered with forests and pastures. The horse-roads are mostly wide sledge-tracks; between cultivated ground they are often horribly stony, but footpaths, after the English fashion, so rare in the Alps, generally come to the help of the pedestrian.

The main tracks between the two centres of the future, Ushkul and Betsho, may be described as:—

1. *The Ingur track.*

The shortest, following the Ingur more or less from Ushkul to Latal, easy;

beyond Ipari hilly, with beautiful views of Laila; splendid descent on Latal. One long day's ride to Betsho without baggage, two with laden horses.

2. *The Mountain track.*

Crosses the spurs between the Kalde and Adish Glens, and descends on the Mujalaliz. One of the most superb rides imaginable, an ever-varying panorama of peaks and glaciers, valleys and forests. One day to Adish, two to Latal.

The direct road leads down the hill to Mulakh and along the left bank of the river to Mestia. The most delightful paths may be found among the woods on the crest south of the Mujalaliz between Mulakh and Latal.

The direct pass from Ipari to the Mujalaliz is known as the Uguir Pass (6200 feet). It is a two hours' ride.

Two or three hours' ride below Betsho lies *Ezeri*, the summer residence of the Dadish Kilians, on a broad cultivated shelf above the Ingur. It communicates with Mazeri by a horse-path crossing a low grass-pass. The brow south of this pass (*Mesik* of S. Sella) commands a beautiful panorama of the district and one of the finest views of Ushba.

THE RACHA RANGE.

This is the geological and orographical continuation of the Laila, from which it is severed by the valley of the Skenis Skali, while to the east the Rion Valley forms its most convenient limit. The only peak yet visited is its highest summit, *Shoda* (11,180 feet), climbed by Mr. D. W. Freshfield with F. Dévouassoud in 1887. The panorama has been photographed by Signor Sella.

A path leads from Gebi to the glen north-east of the peak, from the head of which the small glacier on its summit is easily accessible. The ascent can be made in a day from Gebi, but it is better to sleep at the pasturage, three hours' walk above the village.

The Lukhunis-Zveri ridge farther west bears a little ice, and is probably the second in height of the summits of the range.

THE KLUKHOR GROUP.

This group has not as yet been touched by travellers. The sketch-map based on the sheets just published of the one-verst survey will furnish mountaineers with the best aid in its exploration (see p. 190).

APPENDIX C

TABLE OF MEAN TEMPERATURES AND RAINFALLS ¹
(YEAR 1890)

STAVROPOL.

MONTH.	MEAN TEMPERATURE.		RAINFALL.
	Fahrenheit.		Inches.
January,	24°.1		1.27
February,	19°.8		0.59
March,	39°.0		1.61
April,	48°.2		1.02
May,	59°.0		2.70
June,	64°.4		3.59
July,	72°.3		4.09
August,	72°.7		0.89
September,	59°.9		4.60
October,	47°.3		3.39
November,	38°.7		2.11
December,	20°.7		0.89
Annual,	47°.2		26.75

NOVOROSSISK.

January,	33°.3	6.40
February,	31°.6	0.16
March,	48°.2	1.22
April,	55°.0	0.13
May,	65°.1	0.00
June,	68°.9	0.83
July,	79°.2	0.26
August,	80°.1	0.16
September,	66°.6	1.59
October,	55°.2	2.78
November,	47°.3	1.63
December, . . . . .	...	...
Annual, . . . . .	...	...

¹ Extracted from *Annalen des Physikalischen Central-Observatoriums*, herausgegeben von H. Wild. St. Petersburg.

APPENDIX C

PIATIGORSK.

MONTH.	MEAN TEMPERATURE.		RAINFALL.
	Fahrenheit.		inches.
January,	23°·0		0·24
February,	21°·2		0·96
March,	37°·8		0·91
April,	49°·6		2·30
May,	59°·9		2·13
June,	67°·5		4·67
July,	74°·5		0·71
August,	73°·0		1·25
September,	63°·0		2·15
October,	48°·6		1·04
November,	38°·3		2·01
December,	21°·7		0·76
Annual,	48°·2		19·13

ESENTUKI.

January,	22°·6	0·22
February,	21°·2	0·40
March,	37°·0	0·94
April,	48°·2	2·42
May,	58°·1	2·26
June,	64°·8	3·68
July,	72°·0	0·58
August,	71°·6	0·76
September,	61°·7	2·07
October,	47°·5	0·66
November,	37°·4	1·15
December,	21°·0	0·22
Annual,	46°·9	15·36

KISLOVODSK.

January,	21°·0	0·27
February,	21°·0	0·35
March,	40°·1	0·72
April,	48°·4	2·41
May,	57°·2	6·80
June,	62°·8	6·55
July,	68°·9	0·95
August,	68°·7	1·69
September,	59°·5	0·97
October,	46°·2	0·64
November,	38°·7	1·42
December,	22°·3	0·48
Annual,	46°·2	23·25

VLADIKAVKAZ.

MONTH.	MEAN TEMPERATURE.		RAINFALL.
	Fahrenheit.		Inches.
January,	21°·7		0·38
February,	23°·2		0·39
March,	39°·9		1·12
April,	50°·0		3·00
May,	59°·7		5·46
June,	65°·3		4·13
July,	70°·7		4·29
August,	71°·4		1·23
September,	62°·4		2·89
October,	47°·8		2·09
November,	40°·1		1·22
December,	23°·9		0·46
Annual,	48°·0		26·66

LIGHTHOUSE AT SUKHUM KALE.

January,	39°·4	4·27
February,	42°·3	1·74
March,	49°·5	2·15
April,	55°·9	3·13
May,	66°·0	2·57
June,	69°·4	4·68
July,	77°·2	0·18
August,	78°·4	0·61
September,	68°·5	5·41
October,	57°·4	4·70
November,	54°·7	4·83
December,	44°·6	4·32
Annual,	58°·6	38·89

KUTAIS.

January,	36°·7	7·05
February,	42°·8	3·66
March,	54°·0	1·20
April,	59°·5	3·51
May, . . . . .	...	...
June, . . . . .	...	...
July, . . . . .	...	...
August, . . . . .	...	...
September, . . . . .	...	...
October,	60°·3	6·88
November,	56°·7	3·05
December,	45°·1	1·51
Annual, . . . . .	...	...

APPENDIX C

POTI.

MONTH.	MEAN TEMPERATURE.		RAINFALL.
	Fahrenheit.		Inches.
January,	38°·5		4·55
February,	43°·3		1·55
March,	49°·3		0·76
April,	55°·9		1·76
May,	66°·0		1·48
June,	68°·9		5·98
July,	75°·0		6·20
August,	77°·4		11·24
September,	70°·0		10·26
October,	59°·9		4·38
November,	56°·8		5·26
December,	45°·5		4·77
Annual,	58°·8		58·19

BATUM.

January,	40°·3	10·15
February,	43°·3	2·44
March,	46°·9	0·70
April,	54°·3	2·51
May,	66°·2	1·23
June,	69°·1	10·66
July,	74°·7	8·93
August,	77°·5	5·55
September,	69°·4	17·58
October,	58°·6	17·69
November,	57°·2	7·14
December,	47°·5	12·00
Annual,	58°·7	96·58

KOBI.

January,	14°·5	0·26
February,	19°·0	0·50
March,	34°·0	7·02
April,	39°·6	2·30
May,	48°·0	2·87
June,	54°·3	3·74
July,	57°·0	4·53
August,	57°·2	2·57
September,	49°·6	3·54
October,	41°·0	5·37
November,	34°·2	5·73
December,	17°·6	0·57
Annual,	38°·8	39·00

GUDAUR.

MONTH.	MEAN TEMPERATURE.		RAINFALL.
	Fahrenheit.		Inches.
January,	17°·2		1·69
February,	21°·0		1·57
March,	34°·7		4·16
April,	37°·6		4·85
May,	46°·4		4·49
June,	53°·2		6·02
July,	56°·5		4·95
August,	56°·8		6·44
September,	50°·2		3·94
October,	41°·9		4·54
November,	35°·4		7·61
December,	19°·9		0·84
Annual,	39°·2		51·10

GORI.

January,	27°·7	0·52
February,	31°·5	1·35
March,	46°·9	0·39
April,	53°·6	1·28
May,	61°·9	2·76
June,	67°·3	2·94
July,	73°·8	0·51
August,	74°·3	0·26
September,	65°·1	0·65
October,	51°·8	2·68
November,	43°·9	1·60
December,	31°·6	0·49
Annual,	52°·4	15·43

BORJOM.

January,	24°·4	0·90
February,	29°·5	0·31
March,	44°·6	0·22
April,	51°·1	1·00
May,	58°·5	2·76
June,	63°·7	2·29
July,	70°·5	1·23
August,	71°·6	1·18
September,	62°·8	1·13
October,	48°·6	2·19
November,	42°·6	2·91
December,	31°·1	0·74
Annual,	49°·9	16·86

APPENDIX C

ABASTUMAN.

MONTH.	MEAN TEMPERATURE.		RAINFALL.
	Fahrenheit.		Inches.
January,	17°.2		1.10
February,	22°.6		0.32
March,	37°.9		0.58
April,	45°.1		2.03
May,	51°.8		5.21
June,	58°.8		3.38
July,	64°.2		2.67
August,	64°.2		0.71
September,	55°.9		1.44
October,	44°.1		1.25
November,	38°.3		1.85
December,	24°.6		1.20
Annual,	43.7		21.74

TIFLIS.

January,	30°.6	0.28
February,	34°.2	1.22
March,	47°.5	0.04
April,	55°.2	2.03
May,	65°.3	3.96
June,	71°.4	3.66
July,	75°.9	4.31
August,	76°.3	0.60
September,	68°.4	2.55
October,	55°.4	0.77
November,	47°.1	2.26
December,	34°.2	0.93
Annual,	55°.1	22.61

PETROVSK.

January,	26°.6	1.82
February,	30°.0	1.85
March,	41°.2	0.06
April,	51°.8	0.88
May,	63°.5	0.57
June,	73°.4	1.11
July,	79°.7	0.35
August,	77°.7	0.03
September,	70°.0	3.25
October,	55°.4	1.28
November,	45°.5	4.50
December,	31°.3	2.95
Annual,	53°.8	18.65

BAKU (CAPE BAILOW).

MONTH.	MEAN TEMPERATURE.		RAINFALL.
	Fahrenheit.		Inches
January,	36°·5		0·76
February,	37°·0		1·60
March,	45°·5		0·02
April,	54°·7		0·13
May,	65°·1		0·14
June,	74°·3		0·02
July,	79°·9		1·09
August,	78°·8		0·02
September,	73°·1		0·70
October,	62°·6		0·61
November,	55°·6		0·76
December,	40°·8		0·67
Annual,	58°·7		6·52

In the *Caucasian Calendar* for 1896 the following figures are given for the mean annual temperatures and rainfalls of the various stations, the monthly details of which are given above :—

STATION.	HEIGHT.	MEAN TEMPERATURE.		RAINFALL.
		Fahrenheit.		Inches
Stavropol,	1906	46°·8		30·80
Novorossisk,	65	54°·7		28·28
Piatigorsk,	1656	48°·4		17·61
Esentuki,	1988	47°·3		16·01
Kislovodsk,	2598	46°·4		19·96
Vladikavkaz,	5191	47°·7		32·53
Sukhum Kale,	30	58°·3		47·96
Kntais,	500	58°·3		52·88
Poti,	26	58°·5		62·40
Batum,	173	59°·0		92·76
Kobi,	6470	38°·3		47·36
Gudaur,	7277	39°·4		56·18
Gori, . . . . .	...	51°·8		21·06
Borjom,	1341	50°·0		24·29
Abastuman,	4237	43°·3		24·48
Tiflis,	1341	54°·9		19·25
Petrovsk,	—32	48°·4		16·66
Baku (Cape Bailow),	—27	58°·1		9·72

The height given for the Gori Station (8618 feet) is omitted, as it seems obviously incorrect. That at Vladikavkaz (if correct?) must be high above the town. *N.B.*—The Caspian is below the Black Sea level.

APPENDIX D

HEIGHTS OF THE LOWER TERMINATIONS OF SOME OF THE PRINCIPAL CAUCASIAN GLACIERS

ELBRUZ GROUP

Ullu-Chiran Glacier,	9576 feet.	Malka, N.
Kiukurtli Glacier,	9114 „	Kuban, W.
Ullukam Glacier,	9730 „	Kuban, W.
Azau Glacier,	7644 „	Baksan, S.
Terskol Glacier,	8610 „	Baksan, S.
Irik Glacier,	8377 „	Baksan, E.

MAIN CHAIN. SUANETIAN GROUP

Ozengi Glacier,	8071 feet.	} Baksan basin, N. side.
Shikildi Glacier,	7945 „	
Ullukara Glacier,	7679 „	
Adyl Glacier,	7735 „	
Adyr Glacier,	8162 „	
Bashil Glacier,	7140 „	} Chegem basin, N. side.
Nenskra Glacier,	8428 „	} Ingur Basin, S. side.
Nakra Glacier,	8176 „	
Kuish Glacier,	7581 „	
Betsho Pass Glacier,	7931 „	
Ushba or Sotair Glacier,	7195 „	
Gul Glacier,	7635 „	
Chalaat Glacier,	5180 „	
Leksur Glacier,	5691 „	
Tuiber Glacier,	6564 „	

URUBASHI SPUR

Jailik Glacier,	8022 feet.	} Chegem basin, E.
Tintiu Glacier, ¹	?	

¹ The four other large glaciers of this group have no certain names, nor are the heights of their terminations ascertained.

CENTRAL GROUP

Kulak Glacier,	7924 feet.	} Chegem basin, N. side.
Shaurtu Glacier,	7560 "	
Bezingi Glacier,	6538 "	} Bezingi Cherek basin, N.
Mishirgi Glacier,	7420 "	
Ukir Glacier,	9996 "	
Ullnauz Glacier,	8085 "	
Tintim Glacier,	8491 "	} Balkar Cherek basin, N.
Dykhsu Glacier,	6650 "	
Fytnargyn Glacier,	7100 "	
Shtulu Glacier,	8078 "	
Zanner Glacier,	6804 "	} Ingur basin, S.
Adish Glacier,	7448 "	
Kalde Glacier,	8057 "	
Shkara Glacier,	7833 "	
Zena Glacier,	6860 "	

BOGKHOBASHI SPUR

Sugan Glacier,	8330 feet.	River Sugan, N.
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(There are at least six large nameless and unmeasured glaciers in this group.)

ADAI KHOKII GROUP

Bartuin Glacier,	7714 feet.	} Urukhi basin, N.
Karagom Glacier,	5700 "	
Skatikom Glacier,	9832 "	
Songuta Glacier,	6985 "	
Zea Glacier,	6735 "	} Ardon basin, W.
Saramag Glacier,	8820 "	
Kaltber Glacier,	7855 "	
Rion Glacier,	7529 "	} Rion basin, S.
Zopkhito Glacier,	7182 "	
Kirtisho Glacier,	7623 "	
Bokos Glacier,	7644 "	
Bubis Glacier,	8666 "	
Khamkhaki Glacier,	8500 (?)	

KASBEK GROUP

Nardon Glacier,	9394 feet.	Ardon basin, S.
Kolota Glacier,	9758 „	Ardon basin, N.
Midagravin Glacier,	7700 „	} Terek tributaries, N.
Shau Glacier,	9793 „	
Genal Glacier,	7644 „	
Chach Glacier,	9579 „	} Terek basin, E. and S.
Devdorak Glacier,	7532 „	
Ortsveri Glacier,	9520 „	
Snatisi Glacier,	8610 „	

A list extending to 679 glaciers is given in M. Mikhailovsky's Paper on the Mountain Groups and Glaciers of the Central Caucasus, published at Moscow in 1895 in the *Proceedings* of the Naturalists' Society. The heights given here are from the one-verst maps. I have borrowed three or four only from M. Mikhailovsky. His heights do not always agree with my copies of the maps, and I cannot in all cases adopt his nomenclature.

APPENDIX E

NOTE ON THE MAPS AND ILLUSTRATIONS

THE large map, on a scale of 1:210,000 or five versts (3·31 statute miles to the inch), is based on the new and (except as regards the Elbruz District) unpublished sheets of the one-verst Russian Map, 1:42,000.

The Laila range has not yet been re-surveyed, and this chain is depicted from the drawings, photographs, and observations of Mr. W. F. Donkin and others. The Urubashi Spur south-east of Urusbieh, one of the first portions to be re-surveyed, was imperfectly studied by the Russian engineers, and here extensive modifications have been made. Elsewhere, the corrections introduced are confined to a few details in the upper portions of the glacier basins. The nomenclature is, with a very few exceptions, that adopted by the Surveyors. It has been followed, not from any assurance as to its strict conformity with local usage, but, as I have explained elsewhere, from motives of practical convenience. The number of heights inserted has been limited in order to avoid obscuring topographical detail. Many, it will be noted, refer to the junction of streams.

The Geological Map is based on three documents: M. E. Favre's Map, published in 1875 in his *Recherches Géologiques dans le Caucase*; the Geological Map of Russia in Europe [*Carte Géologique de la Russie d'Europe*, éditée par le Comité Géologique, 1892], and a Geological Map of the Government of Kutais [*Carte Géologique d'une partie du Gouvernement de Koutais*, dressée par S. Simonovitch et A. Solokine, 1887], with a few variations of my own. Professor Bonney has been good enough to advise me in the combination of this material (see his Note, Appendix A).

The Map of the Klukhor Group is from preliminary sheets of the new Russian Survey, kindly forwarded by General Kulberg.

In the small General Map the new railways and the lines projected or in construction are copied from a map in the *Caucasian Almanack* for 1896.

I have not inserted *Europe* and *Asia* on my maps. It is hardly needful to repeat that the Caucasian chain is the only suitable limit between the Continents. No natural boundary is perfect, but a wall is always preferable to a ditch, and the bisection of a river basin can be justified on no scientific ground. The Manych has nothing in its favour, and the Don only classical tradition.

The following list of words common in place-names may be of service in studying the maps:—

TURKISH.—*Tau*, a range, the point at which it is crossed, and more rarely a particular summit (compare Tyrolese Tauern); *Kol*, a side valley; *Chiran*, a glacier; *Su*, a stream; *Bashi*, head, top of a mountain or valley; *Auz*, pasture; *Aul*, village; *Karaul*, guard-post; *Kosh*, a shepherd's hut or shelter; *ukiu*, little; *ulbu*, great; *mingi*, white; *kara* or *gara*, black; *tiutiu*, noisy—used of a stream.

OSSETE.—*Khokh*, mountain; *Don*, river; *Kom*, valley; *Kau*, *Kaf*, *Kav*, village; *Zete*, glacier; *Vsek*, pass.

GEORGIAN.—*Chala*, *Skali*, river; *Mta*, mountain.

The following notes may give those who are interested in the details of Caucasian orography fuller information than could conveniently be comprised in the titles as to the peaks represented in the full-page illustrations. In one or two cases slight discrepancies in spelling between the titles under the pictures and those printed in the list of illustrations may be noticed. In these cases the latter must be taken as those finally adopted.

The words *left* and *right* are used with relation to the reader, holding the plate before him.

FULL-PAGE ILLUSTRATIONS.

No.

2. *Ushba Group from Ciat Bashi.*
Left—Chatuintau Pass, Chatuintau, Little Ushba, Ushba, Mazeri Peak.
Akhsu Pass in middle distance, exactly under Ushba Betshe Pass right.
3. *Tetnuld and the Adish Glacier.*
Peak of Gestola right of Tetnuld. Katuintau in cloud.
4. *Mountains north of the Uruk, from Zikhrarga.*
Left—Giulchi, Sugan, Doppakh, Nakhashbita Khokh.
5. *The Karagom Glacier and Burdjula.*
Karagom Khokh, Burdjula.
13. *Gebi from the North.*
Shoda on the right, with a snow-cap.
17. *The Adai Khokh Group from Shoda.*
Burdjula, Karagom Khokh, Adai Khokh, Double Peak, Bubis Khokh, Khamkhakhi Khokh.

- No.
19. *Adai Khokh and Burdjula.*
Adai Khokh on left, distant.
20. *The Uruk Valley.*
Ziteli, Laboda and Tana Glacier.
42. *Ukiu from the East.*
Salynan Bashi and Pass in distance.
49. *The Central Group from Ushba.*
On left—Tiktengen, Salynan Bashi, Koshtantau, Dykhtau, Gestola, Tetnuld ;
Gulba in foreground, right.
55. *Mountains north of the Shtulusek.*
The Kashtan Ridge in front. Laboda is seen in distance over it. Giulchi
farther left.
56. *The Head of the Bezingi Glacier.*
Shkara, Janga, Katuintau.
60. *The Mountains of the Adyl and Adyr Valleys from Ciat Bashi.*
Jailik Bashi, Donkin's Pass, then second depression is Freshfield's Pass,
followed by a snow-peak and Adyrsu Bashi, Latsga, all in distance.
On right Ullukara and Bshedukh.
66. *The Leksur Glacier.*
The Adylsu Pass opposite. Gorvash Pass on extreme right.

APPENDIX F

A SHORT LIST OF BOOKS RECOMMENDED TO THOSE
INTERESTED IN THE CENTRAL CAUCASUS

FOR GENERAL INFORMATION

- Bryce, J.*—Transcaucasia and Ararat. London : Macmillan and Co., . 1877
- Wardrop, O.*—The Kingdom of Georgia. London : Sampson Low and Co., 1888
(Contains a fairly full Bibliographical Appendix.)
- Chantre, E.*—Recherches Anthropologiques dans le Caucase. 5 vols. Paris :
Ch. Reinwald, . 1886-87
(In the Royal Geographical Library, 1 Savile Row.)

- Murray's Handbook for Travellers in Russia. 5th edition. London: John Murray, 1893
- Mourier, J.*—Guide au Caucase. Paris: Maisonneuve, 1894
- Hints to Travellers. 7th edition. Edited by Douglas W. Freshfield and Admiral Wharton. London: Royal Geographical Society, 1893
- The Caucasian Almanack (in Russian). Published yearly at Tiflis.

FOR THE CENTRAL MOUNTAINS

- Freshfield, D. W.*—Travels in the Central Caucasus and Bashan. London: Longmans, 1869
- Grove, F. C.*—The Frosty Caucasus. London: Longmans, 1875
- Telfer, J. B.*—The Crimea and Transcaucasia. 2 vols. London: King and Co., 1876
- Phillips-Wolley, C.*—Savage Svânétia. 2 vols. London: Bentley and Son, 1883
- Mummery, A. F.*—My Climbs in the Alps and Caucasus. London: Fisher Unwin, 1895
- Levier, E.*—A travers le Caucase. Paris: Fischbacher, 1895
- Radde, Dr. G.*—Reisen im Mingrelischen Hochgebirge und in seinen drei Längenhothälern (Rion, Tskenis-Tsqali und Ingur). Tiflis, 1866
- Abich, H.*—Aus Kaukasischen Ländern. Reisebriefe von H. Abich. Vienna, 1895
- Bernoville, R.*—La Souanétie Libre. Paris: Morel et Cie, 1875
- Hahn.*—Aus dem Kaukasus. Leipzig: Duncker und Humblot, 1892
- Fischer, A.*—Zwei Kaukasus Expeditionen. Bern: Schmid, Franke and Co., 1891
- Merzbacher, G.*—Aus dem Schneeregionen des Kaukasus: Wanderungen: Erlebnisse: Beobachtungen. Leipzig, [In Preparation]
- Dent, Clinton.*—On the Verge of an Empire. London, [In Preparation]
- Levier, E.*—Enumeratio Plantarum quas in itinere Caucasico 1890 legerunt S. S. et E. L. St. Petersburg, [In Preparation]

Botanists may also consult a *Flore de le Colchide*, published by M. N. Alboff (and *Echo des Alpes*: Supplement, December 1895), and the works of M. Lipsky, procurable at St. Petersburg. A series of ethnological maps of the Caucasus have lately been issued as an Appendix to vol. xviii. of the *Proceedings* of the Caucasian Section of the Imperial Russian Geographical Society.

The Alpine Journal, the *Proceedings* of the Royal Geographical Society, and the *Bollettino* of the Italian Alpine Club, vols. xxiii. and xxiv., contain numerous articles on the Caucasus. List of requisites for Caucasian Travel will be found in Mr. Donkin's article (*Alpine Journal*, vol. xiii. p. 258), and in the *Report on Equipment for Mountaineers*, issued with No. 116 of the *Alpine Journal*, and also separately by the Alpine Club, and to be obtained of Messrs. Longmans, of Paternoster Row, E. C.

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