

on the E. side of our pass as we started to descend into Sikkim early on the morning of the 20th. The descent proved more than troublesome. We discarded some snow-covered rocks on the left in favour of an icefall; but here our way was barred by a huge crevasse system and we had to go back again. Our eventual success in reaching the Lhonak Glacier by way of the rocks was due to a fine bit of route-finding by Aila.

After this we were in known country, and we sped down the Lhonak Glen, reaching Tangu in the Lachen Valley by way of the beautiful Lungnak La on July 22.

Wager went N. to obtain one more glimpse of his beloved Tibet from the Dongkya La, while I double-marched down the Lachen Valley to the comforts and worries of civilization.

THE BAR AND DAINSTAR GLACIERS, 1933.

BY REGINALD SCHOMBERG.

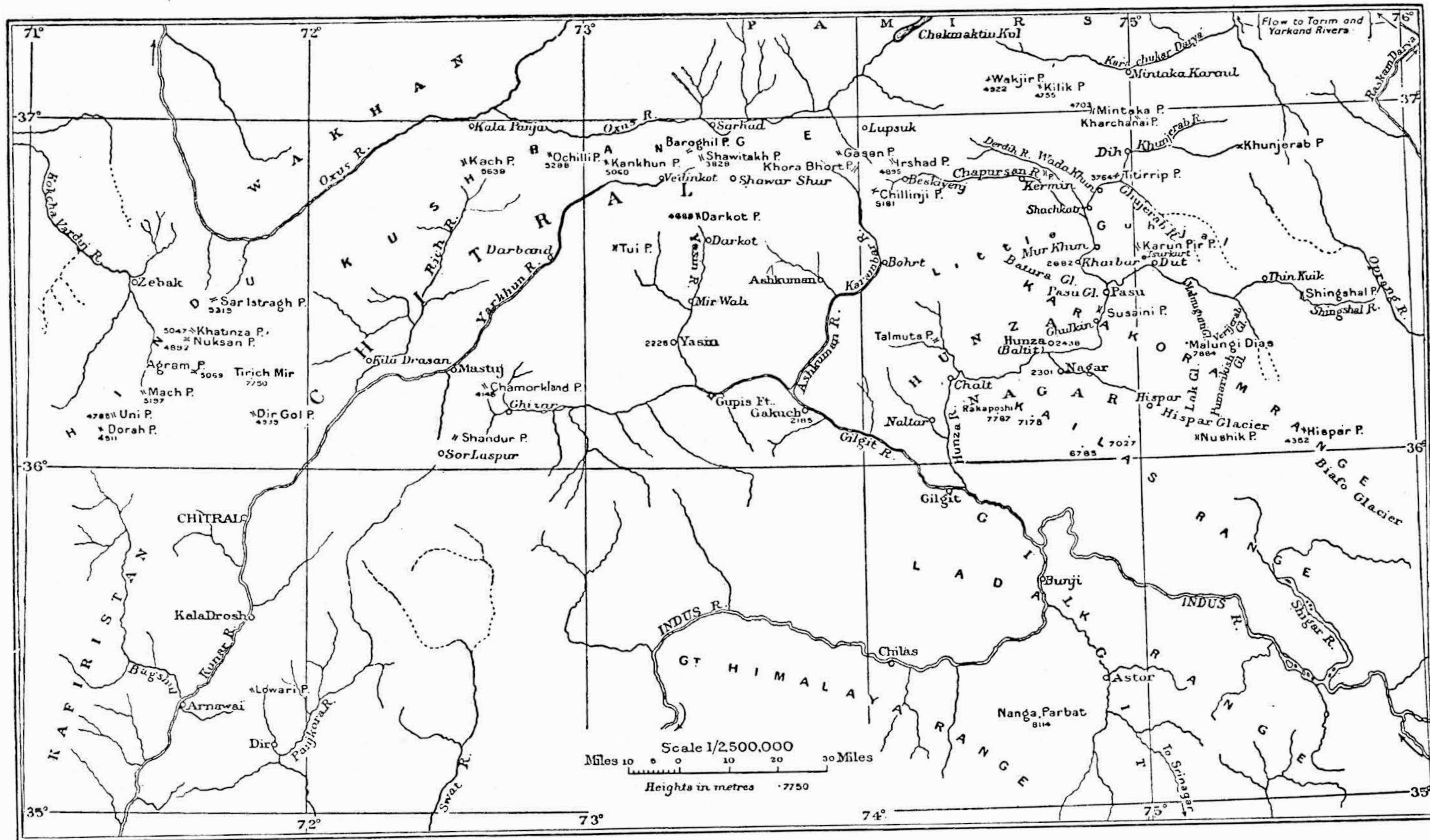
The Bar Glacier.

THIRTY-TWO miles from Gilgit on the main route to Hunza and Nagir lies Chalt, a village of some size which has always played rather a prominent part in local history. It has been a bone of contention and the adjoining valley of Chaprot has in particular been much coveted. Chalt is well irrigated not only by the Chaprot stream, but chiefly by the Chalt river that flows into the right bank of the Hunza, a mile above the village. This stream flows from the N., from the great snow peaks lying between the Gilgit and Hunza rivers.

It is somewhat remarkable that there is no evidence of any European having visited the main glaciers at the head of the stream.

Leaving Chalt, we turned away from the main valley and up the Chalt river, and crossed by a rope bridge to Budelas, a village built high above the stream. After passing a hot spring the main valley divided. On the right from the N.W. the Daintar nala came in. This has been visited several times, and a short description of it will be given later. Turning N.E. we continued up the main affluent of the Chalt river, the Garamsai or Tutu-uns, and soon entered the village of Bar.

This we found to be a very prosperous village, inhabited by Shins, that curious race which, despite conversion to Mahomedanism, has preserved an aversion to all products of the cow, a legacy from the old days of Hinduism. There was a good deal of cultivation and with greater energy there might even have been more; but the people said they had more land than they knew what to do with, and so did not trouble.



We left Bar towards the end of August 1933 and went up the rather desolate valley. The cultivation ended some three miles above the village; shortly after which we descended to the bed of the valley and our route continued over the glacier. At this point we saw a hot spring on the left of the valley, with the steam rising 20 ft. into the air. It was, unfortunately, on the other side of the river, which was impassable, and the cliffs on either side of the spring made it impossible of access even by a *détour* over the glacier.

We were now on the glacier formed by the two main tributary glaciers which combined and flowed down the Bar valley. We continued on or over the ice until we reached their junction, when we crossed over to the left of the valley and camped in the angle of the main valley and the eastern or left arm. This was the beginning of the Baltar valley. The corresponding arm, the right or western, was the Kukuay. Immediately opposite this first camp of ours, known as Baltar Shuwe, was Toltar, a place for some reason marked on all the maps, though it is not easy to see why, for it is just a ledge of land and some fresh water, though I fancy in former times it must have been cultivated and of greater extent. Our own camp was on a shelf above the valley, with springs of good water and abundant well-grown willow jungle. Immediately below was the end of the Baltar nala, filled with stone and on the left side of the nala, while just below the camp was a stretch of level moraine and silt.

The Baltar Glacier has retreated and the snout was now about one mile from where the valley joined the Kukuay Glacier and, turning S., formed the Tutu-uns (the Bar valley), in which Bar village lies.

We left Baltar Shuwe and continued eastward up to Baltar nala, for the first mile on the left of the nala, then over the glacier, which was well covered with moraine. The dead ice, the frequent lakelets, and the customary disorder and confusion of a retreating glacier made our progress very difficult. It took over five hours to do four miles, though there were really no great obstacles. It was tedious and tiresome, but nothing more. Our new camp was just where the Baltar nala received its only tributary, the Salai Darokush, which, four miles long, flowed in from the N. This valley, too, was filled with a moraine-covered glacier.

We crossed this at right angles, climbed up the steep stone side and saw before us a delightful wide plain, an old moraine covered with silt, which had become a grassy wooded pasture—as beautiful as unexpected.

We looked down over the morose jumble of stones over which we had sweated, and up to the agreeable prairie where we were to camp. It was a mile from E. to W., and three-quarters of a mile wide. Immediately above us was the strange two-pinnacled peak of Beka Brakai Chok, and on all sides were peaks and glaciers. We gazed into a superb amphitheatre of snow and ice. On our right, as we looked E., was the main Baltar nala, much below the level of the

plain. Its bed was invisible, with an old moraine ridge between it and us on which grew dense forest.

This ridge on the S., with the one crossed on our march back, formed the plain, for these two banks had caught the silt and built it up into a level expanse.

Baltar was a lovely place, but it was as a grazing ground that it was valued by the people and it held quite a colony of shepherds. Besides the willow and birch, we noticed on the left of the main Baltar nala a fine growth of *Pinus excelsa* and other trees. From our camp we went due E. over turf till we came to what seemed the head of the valley. This however was not the case, as we found that the main nala turned abruptly N.E., so much indeed that until we reached the corner we never suspected it. This was the head of the nala and was parallel with the tributary one we had crossed to reach our camp.

The left of this last section of the nala was very precipitous, dropping sheer down to the glacier-filled bed. The right bank up which we went was very different as there was a level grassy ledge 200 ft. above the flow giving easy walking. This again was due to deposits of silt caught by the moraine, well built up by the glacier, as it carved its way down the valley. Grass and brushwood were alike most abundant.

On the left four small glaciers, 60 to 120 yds. in breadth, flowed in, clean and free from moraine. Above us was the Bekai Brakai Chok, the culminating point of a series of rocky pinnacles towering upwards into a group round the central point: beyond were two moderate-sized glaciers.

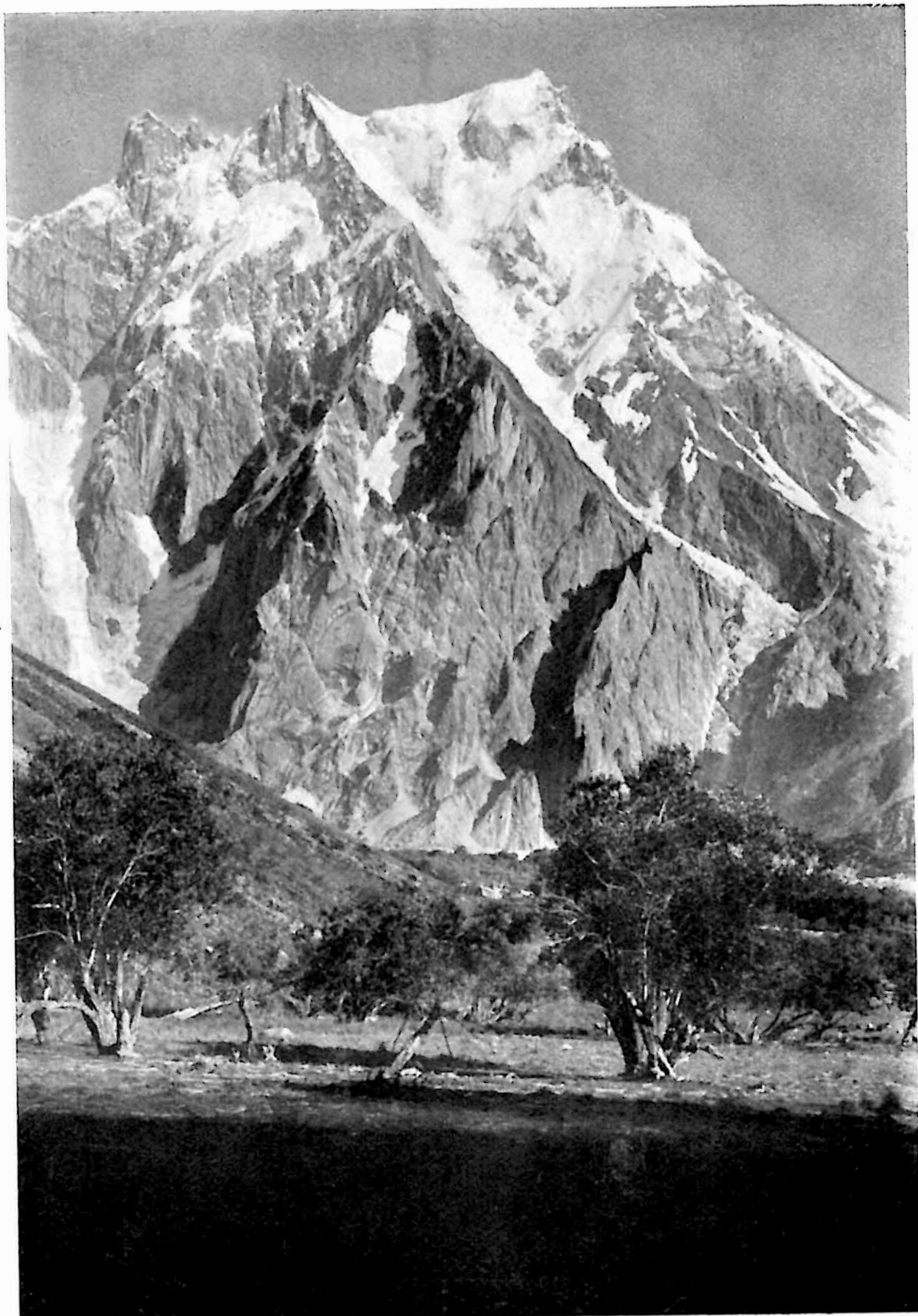
At the head of the valley was an immense perpendicular massif of snow and rock, from which fine hanging glaciers flowed into the main icefall. Two more were on the right or W., so seven glaciers confronted us, above the main ice stream, 800 yds. wide.

This fine view of the head of the Baltar nala was marred by a subordinate feature, a mass of black rock which interfered with a clear view of the whole sweep of the massif. A very curious phenomenon was that the glacier, just after attaining the valley bed, gave a kink or twist.

A reference must be made to the two glaciers flowing into the valley from the S.E. just before the latter turns N.E. The upper one had a most impressive icefall, divided half-way down its course by an outcrop of black rock situated high above the main glacier. It flows from an extensive ice field and contributes a great deal to the main glacier. This ice field, however, can only be seen from a height some distance away, and it was then only that we realized the existence of a peak of over 25,000 ft. towering above.

The head of the Baltar nala is known as the Ani Kucho (Shina for the ugly or bad mouth).

A brief reference must be made to the deposits of earth, a feature of the Baltar valley. In some cases the main glacier was covered



Telephoto, R. Schomberg.]

BALTAR VALLEY, CENTRAL PEAK, LOOKING E.

[To face p. 134.]



Photo, R. Schomberg.]

VIEW OF RAKAPOSHI FROM BALTIT.



Photo, R. Schomberg.]

DYING GLACIER ABOVE GASHI, DAINITAR VALLEY.

with a fine deposit to the depth of 8 ins., and the covering of silt, earth, rock and stone was unusual, not the ordinary deposit on a glacier but the fine produce of the earth-covered valley slopes.

In spite of the ample growth of trees and of grass, the soil washed down must be considerable. The small stream near our camp used to bring down quantities of yellow silt every day, and the water then became so thick as to be useless for any purpose.

The Salai Darokush was a short but fine nala. The moraine on its glacier, filling all its length of four miles, was subsiding. At the head was a grand, square-shaped peak, 22,500 ft. high, but for the size of the valley the glacial deposits were very poor. The valley seemed to be too open and, with its southern course, too exposed to the sun to favour any considerable accumulation of snow. It was one of those strange dry valleys where one looks for glaciers and ice peaks but fails to find them—for no evident reason. All its glaciers on the right and, with one exception, on the left were well above the valley, one only reaching the main ice stream. Amongst the dry stone and rock they seemed to be mere dwindling giant icicles; yet at one time they had clearly extended to the valley floor, for their course was still marked.

There was but one large glacier at the head, and that was not enough to sustain the bulk of the glacier in the valley although fed by another from the N.E. of moderate size and several smaller ones. It appeared that all were retreating.

The Salai Darokush held, on its left bank, a good deal of willow growth and even a few patches on the right; there was a small level plain with grass and scrub at the head, below the largest ice flow. On this side too the deposits of soil, thanks to the earth slopes, were very great. In fact, the whole of this nala showed great desiccation, but its direction as well as its shape made it peculiarly sensitive to solar action.

We had a good deal of bad weather during our stay at Baltar, with steady but not heavy rain. Two miles away, facing my tent door, was a very high but insignificant waterfall from a diminutive glacier far up on the hillside, but when a little rain had fallen this waterfall made a noise like thunder. Great lumps of ice and quantities of stone and rock *débris* then roared down this narrow water-course, yet with all this there was but a trickle of water. The same process was happening all round, but, as in the larger glaciers, the resistance being greater, the falls of ice and rock were rarer; nevertheless every now and again great crashes would occur and we would rush out to see masses of ice avalanching into the valley below from the heaving mountain-sides.

The local people had a horror of the effects of rain and, after two days of it, began to drive their flocks to lower levels, which we thought very foolish. After all, it was only the end of August, the bad weather could not last, and they were abandoning good grass to use up winter pasture prematurely, which would be sorely needed

later on when these uplands became really inaccessible. But Shins are such mean, stupid creatures that it is impossible to argue with them, although my Hunza men gave utterance frankly.

The effect of rain in these arid regions, where little or no snow is deposited during the summer, seems to me to have been disregarded in discussing glacial changes. The melting of snow and ice, their flow and their effects are all normal. These rainstorms are not so. In some years there is no rain: in others it is in excess, and thus I think that this abnormal downpour must account for many of the unexpected changes that do occur. When in one year glaciers happen to be swept by these rainstorms, and then for several years are perhaps spared, more change is produced in the year of rain than in all the years of drought. The dry, friable, usually extremely steep hillsides are forced to disgorge stone and rock. These erode the snow and ice, boring into crevices and hollows where no sun penetrates and, together with their accompanying avalanches, are responsible for most of the changes in these mountains.

It has been remarked already that the Baltar Glacier ends about one mile from the actual end of the Baltar side, that is from where it joins the main nala: and I estimate that this distance has been subject to retrogradation by the glacier in the past 20 years for reasons which will be given later.

The snout of the glacier is a low black cave from which the stream flows. Beyond this, the valley consists of level silt and old terraces, the now tamed deposits of a glacier. Some 1300 yds. below the ice cave there was a huge deposit of silt covering a mass of ice left by the retreating glacier. This silt was pitted with cup-like depressions, some resembling the craters of a modern battlefield—about 200 yds. in circumference and 30 ft. deep, with the strata visible. On the top lies sand, then loess-like silt, and 10 ft. from the surface was a layer of stones 8 ft. deep; then comes more silt and sand till 8 ft. of water are reached. All this, of course, was the final stage before all signs of the glacier disappeared. Accordingly silt, sand and water would then be swept away by the stream.

On leaving the Baltar Glacier we crossed the head of the main valley and entered the western affluent or arm. Just as the Baltar Glacier was retreating with most of its ice dead, so its partner the Kukuay was equally moribund. The moraine was most trying and we continued up the right bank of the nala to the Aldarkush, an important side-nala. Here we rose high above the stream, which was not easy to cross, and encamped near a sheep-steading. The flies were in myriads and we should have done better to camp some way off, but the huts meant society and shelter for our coolies, who would have fared badly farther off. Incidentally, we managed to procure milk, but that pleasure could easily have been foregone could we have got rid of the flies.

The main or Kukuay valley was completely filled with a glacier on which lay a heavy deposit of moraine and a great deal of earth.

Beneath it all the glacier was dead or dying, and I judged that the living glacier extended only as far as Tokai Barri. Piles of lakelets, dead ice, together with other evidences of retreat, were plentiful. How long it is since the glacier began to retreat I was not able to judge.

In the Baltar, I hazarded an estimate of 20 years, judging by the appearance of the moraines and the superimposed vegetation, but in the case of the Kukuay there was little to help me. The process of decay was active. It appeared too that the Kukuay Glacier, although moribund and moraine-covered, flowed in one continuous mass to within three miles of Bar, and as the Baltar Glacier was now separated by a mile from the Kukuay, it would seem that the process of retreat had been either later or slower. On the other hand, the Kukuay was longer, more vigorous and, in every way, superior to the Baltar. It was the senior partner, and even were its ice dying, it was still in possession of its original bed. The ascent of the Kukuay gave a good view over to Baltar and I saw that that nala was divided from its southern neighbour, the Chiltar, by a low hilly ridge, quite a subordinate feature. The Chiltar was a short nala about 5 miles long, sharing at its head the same snowfields as the Baltar and possessing one large fine glacier besides minor ones.

The Kukuay Glacier was divided into three minor depressions divided by low ridges of moraine. The sides of the Kukuay, consisting of cliffs of clay 100–200 ft. high, were accessible only in certain places. It was impossible to go up or down except where a lateral stream had cut its way down the face of the cliff.

From our camp to the opposite (left) side of the glacier was a distance of just 1200 yds., but it took us an hour to cross, thanks to the roughness of the moraine and the steepness of the slopes. Standing at the side of the valley we looked down 200 ft. on to inconceivable confusion. Isolated hillocks of dirt-covered ice, 70 ft. high, sprawling moraine, lakes, pools, trickling streams were all plentiful; there were old crevasses, some choked with stones, others exposed; there were *moulins*, half-exposed ice slopes, patches of soft silt scattered everywhere—a dreary spectacle; never before had I seen the death-throes of a glacier so exposed with all its secrets revealed.

Above the cliffs or bluffs at the valley sides was a level strip, sometimes as much as 150 yds. wide, covered with a thick growth of trees—chiefly willow and birch—so dense as to be almost impenetrable. The growth was most marked on the left, but there was not a drop of water on this level anywhere. Accordingly these valuable grazing grounds can be used only in winter.

The Kukuay Glacier was composed, as regards one-third on the left of the valley, of the dead ice of the glacier in the E. or left affluent, whilst the remaining two-thirds came from the W. or right affluent—the major source of supply.

The local people say that a hundred years ago there were no glaciers in the Baltar and Kukuay valleys except at the head, and that at Toltar, near where our first camp above Bar had been, there used to be a rope bridge. Then came the two glaciers, destroying what were described as very beautiful valleys. The ice of the glaciers used until recently to be quite white down to their junction, and the villagers said that as far as Hukun, 2 miles above the main village of Bar, the glacier was very 'powerful' until about five or six years ago, when it grew 'tired.'

They were quite positive that a century ago streams flowed from the heads of the present glacier-filled valleys. So it would seem that the trees, brushwood and grass that now fringe the Kukuay and Baltar sides are the survivors of what had escaped the glacier stream. The damage done is clearly great. The glaciers are dying now and will leave behind a mass of stone choking the beds of valleys which before had been delightful Alpine glens.

The head of the Kukuay with its two main tributaries are fed from a mass of snow peaks at the head of the Karambar and those adjoining valleys already described.

The only lower tributary of the Kukuay was the Aldarkush pouring in from the right just below our camp.

On ascending this nala to its head we found two tributary glaciers high above the left of the valley, whilst at the head was a cirque of snow and ice. The moraine was much furrowed with deep ablation gullies on either side in which trees and grass had begun to grow, but which were exposed to stone avalanches, of which one had poured across the valley from the right side.

The main Kukuay was alive for half a mile only, after its confluence with the glacier from the right affluent. The rest was wholly dead. The Aldarkush was also dying, and had for long failed to reach the main Kukuay Glacier. The left affluent was living only as far as its junction with the Kukuay. Thus all the Bar glaciers are retreating. The force which had sent the two streams of ice pouring down to Baltar and Kukuay Hukun to within 2 miles of Bar, as shown by the marks of the former glacier snout, had quite spent itself. The damage caused by the glaciers is irreparable. Instead of two tree-clad valleys provided with grass and streams, there are now two troughs full of useless stone and rotting ice.

The Daintar Glaciers.

After two weeks in the Bar Glaciers—for it is more convenient so to describe them than by their usual rather complicated names—we went to visit the western valley of the Chalt river which joined the stream from Bar about 2 miles below that village.

The preliminaries involved endless squabbling amongst the miserable Shins, who were torn in two with anguish at the thought



Photo, R. Schomberg.]

PANORAMA AT THE HEAD OF THE KUKUAY, THE RIGHT OR W. AFFLUENT OF THE BAR VALLEY.



Photo, R. Schomberg.]

PANORAMA LOOKING N.E. UP BALTAZ VALLEY FROM CAMP.

[To face p. 138.]

of losing good money and that of doing a job of work. It was harvest-time, and a popular idea prevails that it is a hardship for hill-men to do work during that season. I have seldom found it so. Undoubtedly such cases do occur, but it is the rule amongst the hardier peasantry to carry the loads, leave them at their destination, and then hurry back to their fields, delighted to have earned a little money, and yet not have neglected their crops. The villagers of Bar had other ideas. It was time to gather the corn and do other field work, but they decided to amuse themselves by talking to us. When we halted for a couple of days in Bar, the population sat round us and never budged; when we moved abroad, others would detach themselves to talk endlessly about nothing. I fancy that the women did most of the work. I have elaborated this question of coolies and harvest as my experience is that far more labour is available than is needed for the work, and that the old excuse that travellers take men from the fields is a dodge either to shirk the job or to extort more pay. There is always an ample margin of labour for the casual visitor. A large expedition is another matter; such is a perfect nuisance to the whole countryside, but my observations deal only with travellers needing a dozen or a score of coolies. The coolies supplied on leaving Bar were a particularly poor lot, of wretched stamina. They came from farther down the valley, where the villagers are accustomed to take turns in supplying transport, a stupid arrangement in view of the few visitors; but it was not our business to upset local custom.

To reach the Daintar valley which ran from the N.W. there was a direct track over the Taimutz Pass (10,550 ft.). It meant crossing the southern end of the spur dividing the two valleys, but it was too great a climb for our men, lightly laden though they were, so we went down the Bar valley to where the Daintar stream joined the Garamsai or Tutu-uns and turned up the left bank of the Daintar stream. We were rewarded by a magnificent view of Dumani (Rakaposhi) lying immediately opposite us and appearing through the opening of the Chalt valley. It is not easy to get an unimpeded view of this grand mountain from near at hand. Most views are entirely foreshortened, or at any rate too close to enable the eye to enjoy at one glance the whole mass. I regretted that a slight haze made photography difficult, for the view seemed unrivalled.

The lower Daintar valley was dreary and arid with some sulphur in the soil, but we soon reached the cultivation, which was of surprising extent, extending on both sides of the stream for over five straggling miles. There were thousands of pigeons collected here from all parts to eat the corn. There were practically no trees, the villagers stating that they had given up planting as the spring avalanches always destroyed them. When we pointed to certain surviving trees, they said nothing. From our knowledge of the people, I fancy it was just laziness. Moreover, there were plenty of houses, and it was difficult to account for the avalanches sparing

these but not the trees. However, it was a futile business arguing with these work-shy hill-men.

We pitched our highest camp at Gashi, where the valley divided and cultivation ended. The autumn tints were now beginning, for it was nearing mid-September and the hillsides were dyed red with the berries of the wild rose, berberis, and other shrubs. Wild gooseberries abounded and were of a fair size, big enough to make a good stew; higher up we found black currants. Wild fruit of any sort is so rare in this country that I feel I must chronicle its presence in Daintar. The wild red currants on the other hand were inedible. Higher up, the valley supported a large number of well-grown pencil cedars; willow and birch were abundant and there were poplars in places, but no signs of a pine, a proof of the lack of humidity. The barley had been gathered and the wheat was just ready, the crop being good. The two nalas which unite at Gashi were the main Daintar, coming from the N. and N.E., and the smaller Taloi Bar or Basket nala (so called from the abundant willow-jungle), from the W. We found this latter valley of little interest, its chief feature being the stretch of birch and willow half-way up on the right. At its head was a small glacier with a ridge of shale and rock; below on the left was a larger, and on the right three hanging glaciers. There was an entire absence of moraine or glacier on the floor of the valley which, in spite of the grass and trees, presented an arid and desolate appearance. The scenery was naturally poor.

The main Daintar valley above Gashi was known as Kukuay, and then a little farther up as Darokush (melancholy examples of the poor nomenclature of the district), and quite frankly, a sad disappointment. The peaks and snow fields of the Bar valley, as well as those of the adjacent Ishkoman nalas, had led us to expect something at least impressive on the other side. On ascending the main valley, we found for the first two or three miles well-covered slopes and open spaces with signs of abandoned cultivation. On the right, high up, were hanging glaciers resting on the edge of a cliff, and beyond, just where the grass became thin and the bushes ended, a great mass of moraine filled the valley. Here was the snout of the glacier, but the ice was dead and the glacier in retreat. We climbed to the top of the moraine, which was heaped up in a mound 800 ft. above the snout and some 1200 yds. from it. Here we obtained a good view of the head of the valley, remaining comparatively level up to the very end. There were but two glaciers reaching the floor; these were, in 1933, responsible for what little life was left in the moraine. I should say that these were vanishing rapidly as the stream had great difficulty in forcing its way to the great, confused and towering moraine. In two years' time, at the present rate of retreat, there will be a gap of a mile between the snout of the two glaciers and the northern extremity of the moraine.

On the left of the Kukuay lies one of the peaks of the Aldarkush,

responsible for the left and larger of the two glaciers. We saw a number of other smaller glaciers, piling in front of them heaps of moraine—the relics of their vigorous and active youth. All were retiring rapidly and would soon become no more than a mere mass of unlovely, shrinking black ice. I was perplexed by the volume and weight which the glaciers must once have possessed to produce a moraine which though only a mile in length was an immense hill of stone, rock, and buried ice. The rivers of the valley, especially the right, give but a precarious purchase to the snow, and even at the head the potential snowfield seemed inadequate. However, as the valley was certainly very open, facing S. and E. and exposed to the sun, much melting of its glaciers must result.

The sudden ending of moraine and glacier was also unusual. Below the snout there were no signs of other moraines, but avalanches were clearly common features. Late in September we crossed the stream, two miles below the end of the glacier, by a snow bridge left by an avalanche. It would seem that some unusual force, driving down the actual glacier and moraine to its present limit, had as suddenly spent itself and that the glacier, with no impetus behind it, had then retreated at once. The present dead mass represents its farthest limit.

I conclude therefore that the same force is at work in Daintar which, after filling the adjacent Bar nalas with glacier and moraine, has long since been exhausted. It all points to an intense period of glaciation. The hanging glaciers on the right bank of the main Daintar valley seemed to have had no share at all in the matter. Below are cliffs and, except for occasional showers of ice and stone, the glaciers have played no part in producing the present condition of the valley.

From both branches of the Daintar valley are routes towards or from Ishkoman. Into Taloi Bar or Basket valley lies the path by which Sir George Cockerill and Sir Francis Younghusband crossed over into Ishkoman (*vide* 'Geographical Journal,' January, 1922). Since that date they have had no followers.

When I was in Ishkoman I made enquiries about the route, and was told by Mir Ahmad Khan (the second son of Rajah Mir Bais Khan, the governor in 1933), an energetic young man, keen and active, that he had been up to the Munjowir nala on the Ishkoman side, but found it impossible to cross.

On the other hand, about 1927 or 1928 three men, coming from Ishkoman, had succeeded in entering the main Daintar valley. There is undoubtedly a route from Ishkoman, but the difficulties seem to be on the Ishkoman and not on the Daintar side of the watershed. These three men appear to have come over by the Bad Swat nala which lies next to and N. of the Munjowir. On ascending the Bad Swat we noticed a small, wide nala and conjectured that this might be the way to Daintar.

Crossing from Daintar over into the adjacent Chaprot valley, we

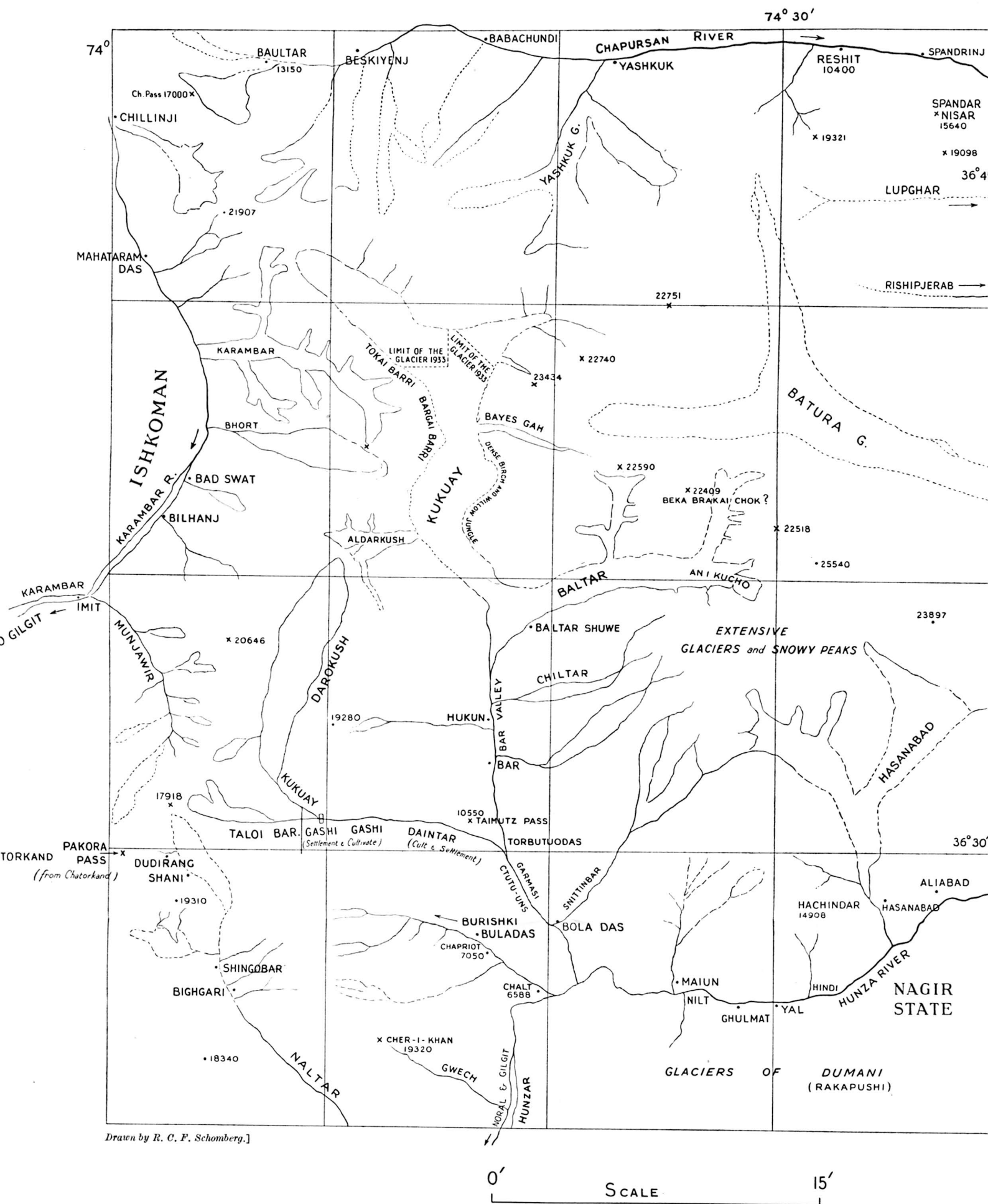
had a fine view from the top of the watershed, confirming our belief that the Bad Swat nala lay on the other side of the highest point on the right of the main valley, the so-called Darokush. We were also able to see clearly the extent of the glaciers on the right of this valley; we perceived no fewer than nine hanging glaciers below the right of the two main glaciers: beyond these main ones we saw four more. Thus in all there are, in the main Daintar valley, nine glaciers on the right of its head, and two very insignificant ones on the left. The whole of the Bad Swat snowfield seemed to be inadequate to affect the valley to any extent; the two main glaciers have to do all the work.

It was thus evident that Daintar has passed its main period of glaciation—at least for the present—and that all its glaciers are in full retreat. Fortunately, the damage they have done is insignificant compared with the destruction wrought in the Bar area.

To me, retreating glaciers seem always mournful, with the desolation of dead and rotting ice, masses of moraine and an air of failure, as though Nature had given up a great task.

The condition of the Daintar valleys and glaciers closely resembles that of the immediately adjacent Bar. The same forces must have been active, first filling the valleys with glaciers, then on ceasing to function, all the glaciers have begun to retire.

A map illustrating this region will be found at the end of this volume.



MAP ILLUSTRATING BAR AND DAINITAR, ISHKOMAN AND OTHER GLACIERS.