



OUR CAMP AT AN ELEVATION OF OVER 16,000 FEET ON ROSE GLACIER, THE KING GEORGE V. GROUP IN THE BACKGROUND

## Conquering the Great Rose

AN ACCOUNT OF THE FIRST ASCENT OF THE WORLD'S LONGEST NON-POLAR GLACIER

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**T**HE Siachen, or Rose Glacier, in eastern Karakoram, was first seen by Col. H. Strachey, who ascended it from its tongue for two miles, October, 1848; but its immensity and importance were in those days unsuspected. In 1909 Dr. Longstaff, an Englishman, crossed the Bilaphond Pass from Baltistan, descended to it, and after one day's *séjour* there returned by the way he came. Thus very little was known of this huge ice stream until 1911, when, toward the end of our season's Himalayan work, Dr. Hunter Workman and I visited it, de-

voting over two weeks to examining its basin and exploring two of its largest affluents.

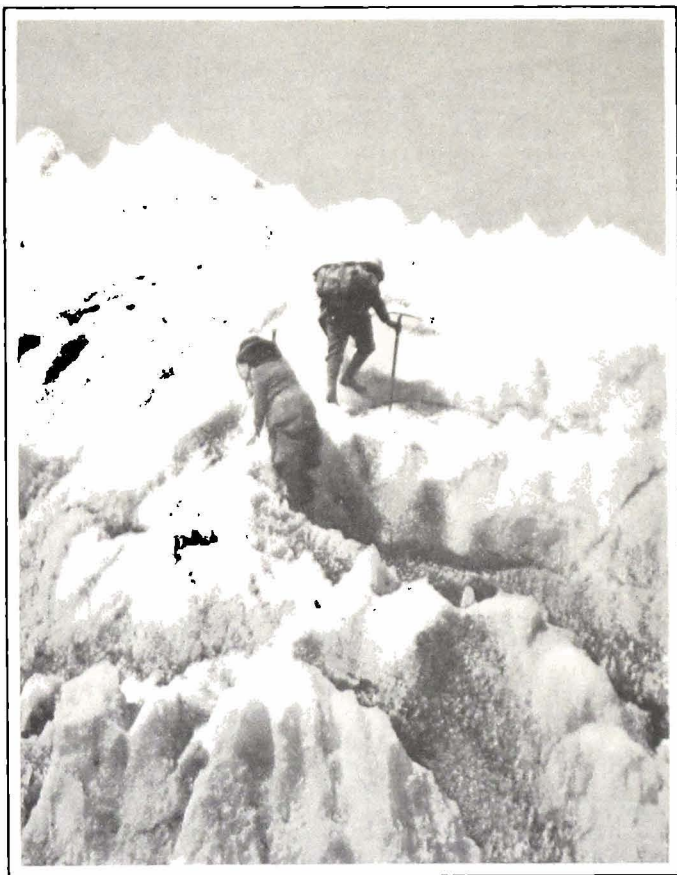
We also climbed a mountain of 21,000 feet, and all this between August 27th and September 15th, a period of the year much too late for safe working on large glaciers, where all camps must be from 16,000 feet upward, and when the risk of being stalled for days by prolonged snow-storms is imminent. After the experience of eight Himalayan expeditions, when my advice is asked, I always answer, "Crowd in your high work, if possible, before August 15th."

In review of what we learned from our late visit and the wonderful things seen,

we had no reason to regret the cold, the severe storms endured, and the risk involved; particularly when on a cloudless September 16th we reached in safety with our big caravan the summit of the snowy Bilaphond col, the most ticklish point of the return journey. To me the most memorable conclusion of these weeks—the one that, in spite of hardships and obstacles encountered, was ever tightening its grip on my soul—was, that I must return to the Rose, explore it from end to end, cull the secrets of its distant north water-parting, and have it surveyed in its entirety.

This was an ambitious project, particularly as I was faced with the fact that the Rose was not only the longest and widest glacier in Asia, but incomparably less accessible from any proper base of supplies than any other great Karakoram glacier.

Up to the time I made the acquaintance of the Rose, I had never met with a large glacier which could not be approached by an inhabited valley leading to its tongue and thence by the tongue itself. Such may exist outside the polar regions, but I do not know of them. The sparsely inhabited Nubra Valley, devoid of villages which might supply the needs of an explorer's caravan, winds its wild, uncultivated way north of Ladakh to the Rose Glacier snout. From this snout issues the Nubra River, which, in ever-increasing volume from the glaciers melting above, bears down upon the valley, cleaving it like a seething monster in the middle. Some four or five fordings from one side to the other are necessary before the glacier tongue



WHERE ICE-HUMMOCKS MADE PROGRESS DIFFICULT

is reached, and these fordings cannot be made between May and September 15th, because of the great height of the water and the numerous quicksands known to exist in the river-bottom. Thus has nature rendered the Rose Glacier tongue impervious to the approach of man during the five summer months.

The only other route of access to it is from Baltistan, where, after leaving the last base for supplies—Goma, in the Sal-toro Valley—the explorer must take his one hundred laden coolies, his flock of sheep, and even his wood for camp use, over twenty-five miles of difficult glaciers, cross the icy Bilaphond Pass, 18,400 feet, and descend by one of its long west affluents to the Rose, which is tapped at near 16,000 feet, a distance of twenty-three miles from its tongue.

To prepare for a six weeks' sojourn in

a remote ice region of a contingent of men varying from seventy-five to one hundred necessitates some months of constant thought and activity. The end of May found my party, with a large equipment of tents and stores, ready to leave Kashmir for Kapalu, Baltistan, fourteen marches distant, where, on arrival, a reorganization must take place and permanent Balti coolies taken on for further transport purposes. I say "permanent," but no force of coolies is really permanent in Himalaya, as after ice is reached they have a way of absconding in batches, regardless of the trouble they may cause their leader.

T. Byramji, a Parsee of Srinagar, preceded us by some weeks to Goma, four marches from Kapalu, where he had charge of collecting the quantity of grain required to feed the coolies, of selecting coolies, buying sheep, and making arrangements expected of an agent. Dr. Hunter Workman accompanied me, as

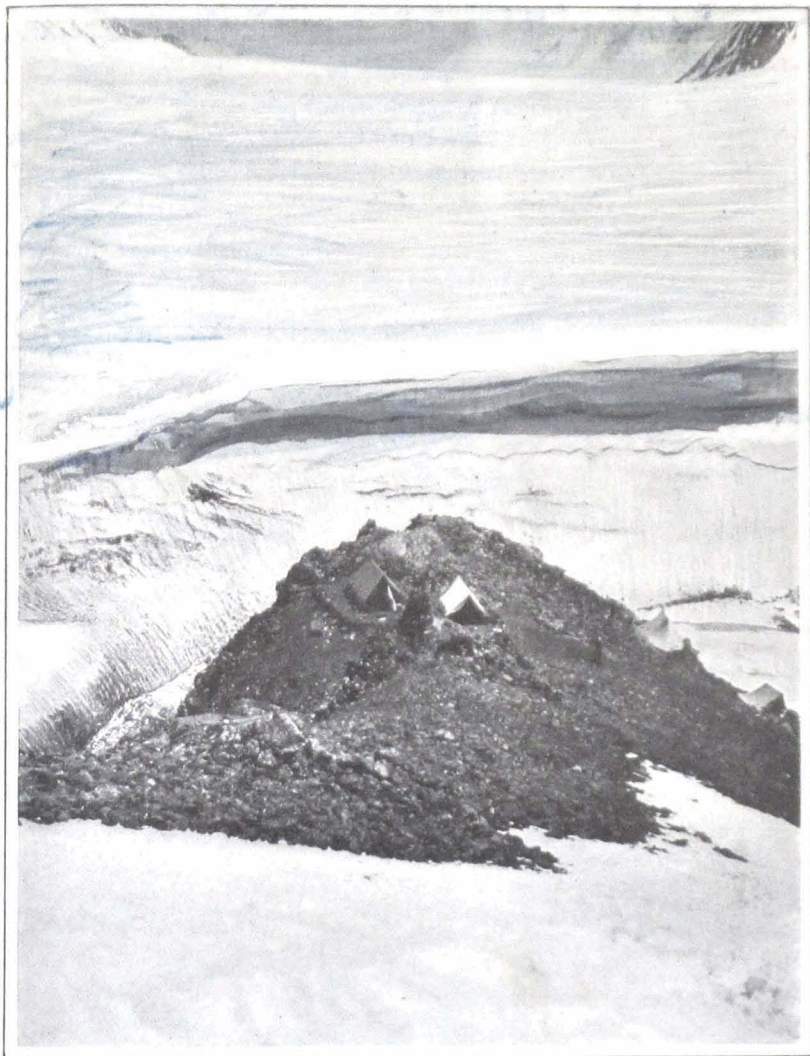
previously, in the capacity of photographer and glacialist; but I was the responsible leader of this expedition, and on my efforts depended, in a large measure, its success or failure. An English surveyor had charge of the theodolite work, with a native plane-tableer to assist him, loaned to me by the Surveyor-General of India. Cyprien Savoye, of Courmayeur, came for the fifth time as head guide, bringing with him two other Italian guides and two porters.

Kapalu, a large village on the Shyok River, is the capital of that district and has for its ruler a small Raja. This Raja sent word to the men of Goma, the last village of the Saltoro Valley, that we were coming, and to be ready to accompany us to the glaciers.

When the agent arrived, before us, he found the people there and in the whole valley greatly perturbed at the prospect of our returning to make even a longer sojourn than that of the year before on the Rose Glacier. They did not refuse



PEAK K 8, OVER 24,000 FEET HIGH. TAKEN FROM THE TARIM SUEHR PROMONTORY



SPUR CAMP, UPPER ROSE GLACIER, 18,400 FEET (TAKEN FROM A POINT 700 FEET ABOVE)

to go—coolies rarely do that; they start, and then abscond later as the ice conditions become too formidable for their taste.

The priests, always numerous in native villages, told the agent they had been kept busy exhorting the gods and preparing small tawiz (magic) amulets for the coolies to suspend about their necks. These contained prayers to the gods to bring bad weather or some other calamity which should cause us speedily to leave the Rose ice region for some other. Faith in the power of magic and amulets is as strong to-day among the

semi-barbarous natives of India as it was centuries ago.

All was finally organized, and the 4th of July saw us leaving for the eight-mile-distant Bilaphond Glacier with a loaded caravan of sixty coolies, while the agent promised to send another forty after us two days later. The first six miles of the Bilaphond Glacier are most difficult to travel over, the surface consisting chiefly of a chaos of large boulders which, in spite of their size, are seldom firmly placed and tattle about when stepped upon.

This sort of "moraine hopping," as



MEMBERS OF OUR PARTY ON THE SUMMIT OF TAWIZ PEAK, 21,000 FEET

mountaineers call it, is not rapid, a mile an hour representing fairly good time, and after a seven hours' stint one's caravan is pretty well done up and ready to camp. Another seven miles of crevassed ice surface brought us to a moraine-ridge on the side of the glacier, where the last halt before the great snow pass is made at 17,000 feet. We called this wild spot Ali Bransa, because that is the last name marked on the Indian Survey map.

The coolies had no idea of its whereabouts, but with the guides we spotted it, after trying exposure in a violent snow-storm. Eight native stone shelters were found here which showed no signs of fires nor of recent usage, and may have stood thus for a century or more. Through the aid of my polyglot agent I learned interesting bits of "human geography" from the priests and "learned men" of the Saltoro Valley concerning names and legends connected with this

and the Rose Glacier. In olden times the Baltis called this the Bilaphond, or Butterfly Glacier, because of the shape it assumes near the center where certain branches enter. From an eminence above the ice a little imagination makes the main glacier and its affluents appear like a monster ice butterfly.

Such an idea would never occur to the present-day Baltis, but, apparently, natives of former times were possessed of a pretty fancy, which has been preserved by tradition. Our intention had been to push on the next day, if possible, from Ali Bransa to the pass, but in Himalaya one must be prepared, after 15,000 feet, not to carry out one's plans with undue speed. The snow-storm in which we camped lasted sixteen hours, so the following morning was passed in freeing the tents from their snow burden and in

waiting for the weather to settle again. The expected caravan from the agent had not arrived by night. Owing to the rapid and severe change in three days from a shade temperature of 85° to 14° F. and the rarefied air of 17,000 feet, my favorite porter, Chenoz, and a camp servant became incapacitated. In fact, we all felt the sudden change from normal to abnormal conditions.

Thus three days passed, the weather became perfect, and my head was buzzing with thoughts of a tall snow-peak west of the pass which I wished to climb. At last the guides, watching below on the glacier, sighted the belated caravan toiling upward. At dark they arrived, groaning and pointing to their heads and feet, but really not half so badly off as they professed to be. At dawn, as the beautiful steel-mauve tones were transformed into deep, fine-weather, Himalayan blue, I called the camp, and soon tents were struck and the caravan of

eighty men was moving onward to the music of crunching snow.

The sick servant had been sent down to the valleys, and the porter Chenoz, when he shouldered my bag of coats and cameras, answered merily my inquiry after his health: "I am quite cured now, madame, and ready for anything."

In view of what happened one hour later, I often recall how we stood there that sparkling day, looking joyfully toward the sunlit col, oblivious of approaching tragedy. The snow being in prime condition, the long ascent of the Bilaphond Pass offered no special difficulty, hence guide Savoye readily agreed that he and the second guide, Rey, should push ahead, cross the pass, and reconnoiter a route to the peak I wished to climb, rejoining our party again beyond the pass. Accordingly, in an hour he and Rey left, taking with them one of the two alpine ropes.

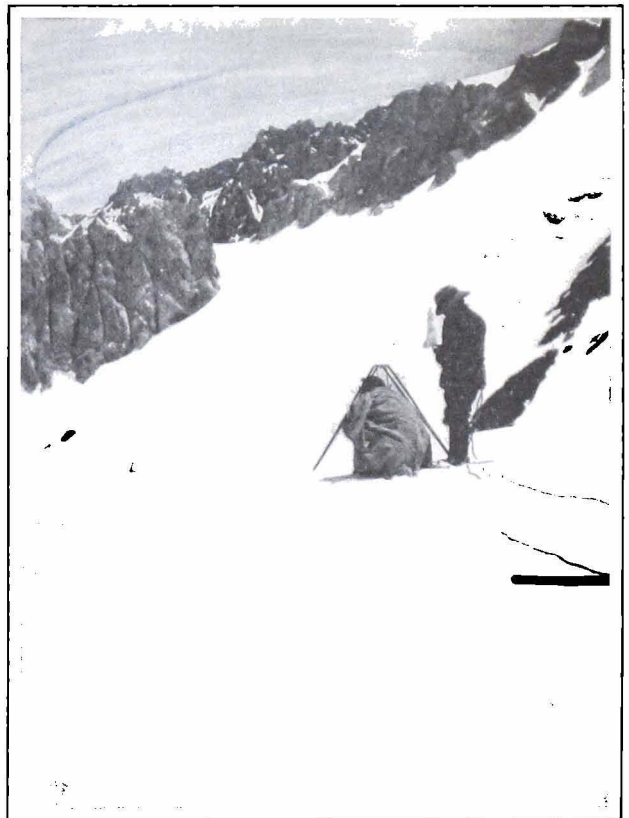
Chenoz and the guide Quarzier remained with us and the caravan. As we moved upward it was suggested that Chenoz and I be photographed on some ice hummocks near by to show the nature of the route to the col. Before crossing to this place I consulted the guide as to the desirability of roping, but he laughed at the idea, declaring the surface to be solid and free of crevasses. As I wished to take the rope, Chenoz threw it over his back above my bag.

When the photograph had been taken, Chenoz started off in a direction above the hummocks to join, higher up, the line on which Dr. Workman and the caravan were coming up. Supposing the route to be quite safe, as it had been, and leaving the matter of testing the ice in front of him to Chenoz, which one naturally does when such persons are leading, I walked quickly after him, hardly glancing at the ice surface. Imagine my consternation when I saw

him suddenly disappear, without uttering a word, into the snow depth, one step in front of me. Fortunately I stopped and did not take the step that would have sent me also into the gaping chasm.

I stood paralyzed for two or three seconds, gazing distractedly at the uncanny hole at my feet, surrounded by the radiant sunlit peaks and glacier expanses which had so ruthlessly drawn my companion into their blue death-chambers, powerless to help in any way. I then turned and called backward to the others. They, seeing me standing alone and knowing at a glance what had happened, hurried at once toward the spot. But it was of no use, as I realized while I stood guard by the silent chasm, for Chenoz had taken one rope with him into the crevasse and the other was with the guides who were on the far side of the pass.

Guide Quarzier approached the chasm from the upper side, which was solid, and, leaning in, called to the porter, who



THE FARTHEST NORTH POINT OF THE ROSE, THE INDIRA COL, 21,000 FEET

answered faintly, as from a distance, saying he was alive and could wait for help. Quarzier then left with three coolies to cross the pass, find the guides, and bring them and the rope. The coolies sat in long lines in solemn silence, while we and the servants unpacked loads and got ready blankets and stimulants for use, should Chenoz be taken out alive. But, as we saw the men, held in the grip of the oxygenless air, toil upward, our preparations were made with a feeling of lost endeavor, for it was certain the porter would remain at least another hour in his icy tomb. Could even he, endowed as he was with great strength and youth, withstand the cruel test? We doubted it. It was a terrible period of inaction for all, as we sat looking at the sun-bathed snow slopes, trying to shield our bodies (thinly clad for marching) as well as possible from the chill wind blowing down from the col.

At last Quarzier was seen hurrying back from the pass, followed by the coolies, as Savoye and Rey arrived on the summit and began their breathless descent in the soft snow, for it was now eleven o'clock, and the sun's heat had turned the crisp surface into a toilsome snow *souffle*. On their arrival the rope was quickly tied about Rey, the smallest guide, and he, carrying stimulants, was lowered through the hole, the other two guides and six natives holding the long, loose end, prepared to lengthen or shorten it, as Rey might direct.

It was fully ten minutes before any sound came from the glacier bottom. At length Savoye, who was peering into the chasm, gave the word to those behind to haul slowly. The bag and ice ax soon appeared on the rope, which was again lowered; then a wait, and next Rey came aboveground, and at last, after slow, hard pulling, the limp body of Chenoz rose above the ice-mouth and was received by the guides' sheltering arms and unroped.

He was perfectly conscious, although unable to stand, and suffering greatly from shock and cold. Massaged and wrapped in blankets, he was soon after carried down to Ali Bransa, where camp was again pitched. There, on examination, no bones were found broken, but he remained pulseless and suffered se-

vere pain until 6 p. m., when he sank into a quiet sleep. He awoke at nine, drank water, and slept again—his last sleep, alas! At ten o'clock Savoye brought the heartrending news to our tents that Chenoz was dead.

That night at Ali Bransa was a ghastly one. We were all overcome with grief, yet immediate action was imperative. We sat up into the small hours in a temperature of 14° F., talking things over with Savoye. The only course possible was decided on during this awesome vigil. At daylight the guides and twelve coolies were to take the body down to the first grass of the valley, bury it and put up a suitable stone tablet, while we were to remain at Ali Bransa, awaiting their return.

Accordingly, as another glorious day opened, we watched the coolies slowly bear away the body of Chenoz, followed by the three sorrowing guides—a strange contrast to the scene of twenty-four hours previous, when Chenoz and I stood gaily talking about ascending to the col!

On their return, two days later, the work of the expedition was, as it had to be, at once taken up, and we again started for the col, which was reached in cloudless weather after seven days' dreary camping at Ali Bransa. From this pass we struck out west for a wide, elevated snow plateau which lay below the beautiful virgin snow peak I wished to attempt. After a sharp climb this plateau was reached at 2 p. m., and as there was space enough on its ascending slopes, large tents were pitched for a two nights' halt at 19,000 feet.

The next morning, as soon as the thermometer rose to 10° above zero, we set out with the guides toward the peak. After two hours' ascent of moderate snow slopes, a rock ridge jutting out below the main peak was reached, where Dr. Workman remained for photography and observations, while I continued the climb with three guides. We ascended from the left side, and the climb was a most difficult one, the middle part being very precarious, owing to the melting of the snow, which caused us to sink through onto hard, black ice.

Each step had to be cut, which on black ice is a most arduous task. The

gradient of the last thousand feet was never less than  $60^{\circ}$ . We were delighted, however, that we could win the summit even by dint of prodigious effort, for the year previous, when we had studied it, the last 800 feet was seen to bear a coat of *verglas* over the snow, and would doubtless be in the same condition this season in the course of another two weeks. Near the apex the snow became more stable, and we may be seen in the photograph standing on the summit, a fairly firm hood or cornice 21,000 feet above sea-level. A wonderful scene lay before us from this point. The great Rose Glacier, three miles wide, six thousand feet below where I stood, appeared to run for many miles between wild ranges until lost in mountain chaos. For seventy-five miles, on three sides, great mountain vistas of weirdest rock and snow splendor met my gaze. Here and again among the endless phalanxes of peaks some superlative snow giant of 26,000 or 27,000 feet lifted its glittering

snow crest above the others, and by aid of the compass and what previous knowledge of the region I possessed I was able to identify these as fixed points of the Indian Survey, which was of prime importance for the future mapping of the region. We looked over a vast ice continent of a thousand square miles, consisting of mountains and glaciers, devoid of all vegetation, extending from one wide horizon to the other.

Well satisfied with the day's work, we began the dangerous descent of the ice-clad cone, and later, joining the others, returned safely to our snow camp, where the coolies were snugly ensconced in their lined tents. After another near-zero night, all descended to the Rose Glacier. I named the mountain just climbed the Magic, or Tawiz, Peak.

As I said before, on reaching the Rose Glacier one is twenty-three miles from its tongue and at an altitude of 16,000 feet—that is, 200 feet higher than the summit of Mount Blanc. Our task was



CHENOZ LYING ON THE GLACIER JUST AFTER BEING RESCUED FROM THE CREVASSE  
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to descend and examine this glacier to near its tongue, to reascend this lower twenty-three miles of ice and continue the exploration of its upper twenty-four miles, explore its affluents and visit its elevated sources forming the barrier between the Karakoram and Chinese Turkestan, of which nothing was as yet known. It was on this upper part—where camps for at least three weeks would have to be pitched from 16,000 feet upward—that I chiefly concentrated my attention. The task of the topographers was to survey the whole glacier and its tributaries. I shall not enter here into the details of this work, but describe certain interesting features of the region, incidents of the expedition, and the visits to the high sources.

Siachen, I find, after much inquiry, means, in the Bakti dialect, jungle or wild rose. *Sia* is their word for rose; *chen* denotes a collection of thorns. Large wild-rose bushes flourish in the barren Baltistan valleys up to the snouts of the large glaciers, and often along the sides for some distance; but the name Rose as applied to this, the world's largest continental glacier outside the polar regions, is highly picturesque, considering that no roses exist even near its end; and only in a few spots on its lower mountain flanks are stunted edelweiss and alpine flora to be met with. I once discovered snow roses on its banks, which makes me specially cherish the incongruous name of "rose" for this great ice river.

This glacier is Tibetan in character, in that, unlike the great Hispar, which I described in this magazine, where wood is found twenty miles from its tongue, no wood is seen for a distance of forty miles. Likewise, earth and grass camping maidans, found far up the Hispar, are here non-existent beyond six miles above the tongue, and camps had to be pitched on moraine-strewn ice, while higher up, above 17,000 feet, only ice or snow surface was available.

On a few occasions we climbed up the barren mountain flanks and constructed tent-terraces on the damp shale soil, but this involved much extra work, and in general the border mountain flanks of the Rose are very sharp, rocky, and quite inaccessible. Thus even fairly comfortable

camps during our six weeks' stay on the Rose were out of the question.

Beautiful clear lakes are numerous on the Rose, lying incased in stratified ice walls of from fifty to sixty feet in height. The banks of one lake which we photographed from an altitude of 17,000 feet were peppered black with large mosquitoes. Perhaps they suffered from mountain sickness, as they appeared quite sluggish when brushed off the ice surface with the hand. They seemed to hover only about the lakes, as at the camps none were ever seen.

Our first attempt to reach the north watershed of the Rose, although involving much hardship, was not successful. A snow camp was made far up the glacier in fine weather, from which we were driven down the next day by a snow and wind blizzard of such ferocity that our faces, though covered by wool masks, were found to be badly cut by the ice pellicles that had penetrated through all covering. Camp was finally managed in the storm, on a bit of snow-covered moraine, and here we were stalled with ever-diminishing provisions for two days, while the elements ragged themselves out.

When supplies again arrived from a base camp, and the many feet of new snow on the glacier had settled, another start was made. After two days of arduous snow plodding and various narrow escapes from being engulfed in wide, snow-plugged crevasses, we reached a mountain ridge which juts into the glacier where the Rose merges into its upper basin. Here, to our joy, we discovered a small rocky spur 200 feet above the glacier where tent-terraces could be constructed on soil, and here Spur Camp, seen in the photograph, was pitched at 18,400 feet. A deep blue lakelet, incased in sharp ice walls, surrounded the spur on three sides, supplying pure iced water to thirty thirsty people.

Our three mascots also enjoyed a good drink, and it was amusing to watch them cawing loudly, nipping at the nearly frozen water, and sharpening their beaks upon a group of icicles. I may mention that three large crows had followed camp from our début on ice and continued to accompany us to all high camps, taking their departure only when the lower

regions of the Kondus Valley were reached on the return march. They took good care to find a living somehow off the camp and did not suffer at all from mountain lassitude, judging from their activity, even at 20,000 feet.

An interesting and inexplicable find was made at Spur Camp, consisting of the lower layers of two native stone cairns, which could have been placed as we found them only by human hands. In view of the fact that no feasible route is possible over the ice barriers of the Upper Rose to Chinese Turkestan, one is hard put to it to explain the presence of hardy, old-time adventurers in this elevated ice fastness. The "learned men" of Saltoro could offer no legend of previous human presence at this distant point, for the sources of the Rose lay quite beyond the pale of their geographical knowledge.

The next day, in a temperature of 14° F., we ascended the Upper Rose basin with the guides, to search for the north water-parting. At first we advanced well, over a hard, crisp surface, facing bitter winds, and later, as the day grew, plunged to the knees up softened snow slants, with a sun of tropical power beating upon our heads.

At the end of the rising plateau stood a snow peak of 22,000 feet, and at its base we paused, for no yoke or col was anywhere visible. After consultation, we decided to climb over the right flank of the peak and see what lay beyond. As we ascended slowly to quite 21,000 feet, a wonderful vista of the Rose could be seen for thirty-five miles falling downward, the first half a glittering ice river, which later became ribboned with long gray and black moraines.

Having crossed the mountain, descent was made to another plateau, which might be said to have been turned into a death-trap labyrinth of yawning chasms by the mountain gods. An hour spent in overcoming this hodge-podge of obstacles brought us to the desired ridge, and I was able to realize my long-cherished wish and be the first to stand upon the farthest north point of the Rose—on the great, previously unknown watershed of the Eastern Karakoram, between the Indus and Chinese Turkestan.

As, roped together, we slowly ap-

proached the edge of the col, the guide called backward, "Have care; it is a line of cornices." And so it was—not one, but rows of monster white hoods curling over on the Turkestan side, fringed with massive ice pendants. With the guides holding the rope, we took the risk of standing on one of these and gazing down into the deep basin which they overhung, 6,000 feet below, from which a great glacier flowed away northeast into the wild, verdureless region of Turkestan.

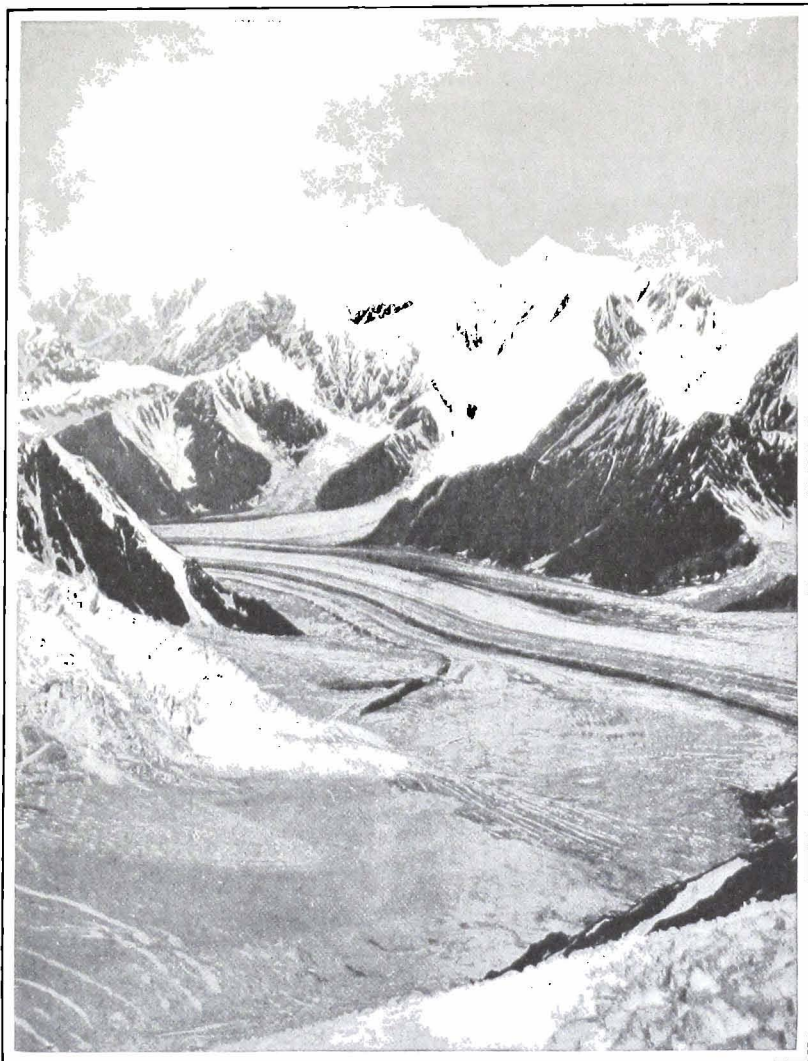
As we stood photographing and making observations, two other explorers, a brown butterfly and a large wasp, flew up from Turkestan to greet us, the latter settling down on my ice ax for a good rest.

This ridge, as measured by us as a few feet below 21,000 feet, I have named on my map, after the Indian goddess, the Indira Col. The strongest man of the party had had enough in reaching this point, and it may be imagined that all were sufficiently fatigued by the perilous seven-mile return journey to camp amid treacherous chasms and sodden snow.

From our perch at Spur Camp, another new col of over 19,000 feet on the east water-parting was discovered and ascended, from which a new group of high peaks and another glacier were first seen.

The weather continuing fine all these days, the exploration of the Upper Rose was pushed to the last point of endurance. The highest west affluent, entering the main stream at over 17,000 feet, was also visited. To reach it we had to descend the Rose glacier and then traverse it at a point partially covered with large, shallow, half-frozen water-pools, which were best crossed on hands and knees. This west source branch is a great snow expanse from one containing wall to the other, devoid of rocks or soil spots for camp and of the lakelets so frequent on the Rose.

In its upper basin, at 18,700 feet, we camped for three nights, on snow which so upset coolie complacency that the desertion of our picked lot of twenty Baltis was hourly expected. This ice desert is dominated by two beautiful snow peaks, which we have named The Silver Thrones.



WHERE WE ENTERED THE UPPER KONDUS GLACIER FROM THE SIA LA

Investigation was here pushed to the great Silver Throne Plateau, an extraordinary anomaly, containing four square miles of snow. This snow lake lies at the base of the final cone of the higher Silver Throne peak, and is at an altitude of 21,000 feet.

From here we located and photographed the Indian Survey Peak No. 23, over 26,000 feet high, and the group I have named the King George V., first seen and triangulated by my expedition. I named one peak after England's Queen, the Queen Mary Peak, and one Mount Hardinge, after the Viceroy of India. Other high ascents were carried out and

the snow defile leading to the unknown Kondus Glacier discovered. I there made up my mind that my caravan must be the first to traverse this west watershed and link up the Rose with the Kondus Glacier.

The weather god, not heeding the prayers for storm contained in the tawiz of the coolies, had favored us to his utmost, for without the unprecedented number of fine days the many important geographical secrets of the vast Rose sources could not have been gleaned.

As the last climb was accomplished, on the third night at our frigid ice camp,

the wind changed, snow fell heavily all night, nearly crushing in the small tents, and early the next day, in spite of much risk, goods were packed and we fled back to the Rose in a blinding snow-storm.

During the next weeks the journey down and back to the lower part of the Rose was carried out, but I never abandoned the idea of returning to the icy west source and departing from the Rose by the newly discovered snow passage.

When we were again camped at 16,700 feet, held prisoners for ten days by continual fog and storm and menaced by a shortage of supplies, with the added problem of quelling a coolie mutiny which lasted eighteen hours, it seemed as if my project could not possibly be accomplished. But I have faith in waiting and insisting, and both of these things we did. In various interviews with my timid headman I ordered him to tell the coolies I would never return, as we had come, by the Bilaphond Pass, and assured him the new route was easier than the old.

The probability of this being the case was amply contradicted by the gruesome stories related by the twenty coolies who had passed three nights at the inhospitable west source, to the forty-five others who would now have to join the caravan. Matters did in time, however, adjust themselves; and on August 20th, in uncertain weather, under a leaden sky, our caravan of sixty-six coolies started up the Rose. Provisions for all — some seventy-five men — for fourteen days had to be carried, for we did not know where we should come out after crossing the pass, or when villages would again be reached.

After two days of climbing amid the worst of snow conditions we arrived below the col, and camped in a freezing temperature and snow-storm. I did not much care, as the worst strikers among the coolies were now silent, making no protest, and I felt sure of crossing to the other side notwithstanding the elements. It cleared in the night, and early the next morning, the glass showing 3° F., we ascended to the watershed ridge, which I have called the Sia La, or Rose Pass.

As we turned to have a last look at the

Rose region the sun rose in a cloudless sky, turning the scene into one of golden glory. Thus, on the best of terms with our old friend the weather god, with the three mascot ravens gaily leading the way, the first crossing of the West Rose Water-parting became a *fait accompli*, and the difficult descent to another new glacier was made.

It soon became evident that we were on the unexplored upper Kondus, a glacier only vaguely known by name to the Indian Survey, of much smaller dimensions than the Rose, yet a long glacier, longer than any in the Alps. The difficulties of finding a way through the huge moraine-hillocks of the last two-thirds of this ice stream diminished the speed of the caravan to about a mile in two hours.

At one of the most rickety camps on the top of a moraine-hill in the early morning, a severe earthquake was experienced. The rocking of the ice-bed was tremendous, and I rushed from my tent, fearing the ice-hill would split and let me and my belongings in. It did not, but the rain of rocks and boulders composing the surface and falling from all the surrounding ice-hillocks was prodigious. This clatter, accompanied by the incessant booming of avalanches from the adjacent mountains, produced such a tumult of nature as only seismic disturbances in an immense unstable mountain region can call forth.

The valley below the glacier-tongue, when reached, was found enveloped in mist as dense as a London fog, caused by the dust which had been raised by earth avalanches on the surrounding mountains; and on reaching the first habitations pitiful tales of the destruction of cattle and property in the surrounding country by the severe earthquake in Baltistan were poured into our ears.

My caravan of seventy-five, having safely weathered this and many other threatening perils, now entered civilization again in prime condition, so I ordered the "fatted" sheep killed and the coolies and servants feasted on mutton to their fill, while we Europeans, *faute de mieux*, drank of pure mountain water to our success and accomplishment among the ice roses of the great Rose.