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AT the N.W. end of the main chain of the Himalaya Mountains is the little-known range of the Karakoram. It lies between the Indus River and Chinese Turkestan and occupies most of northern Baltistan, the northernmost province of Kashmir. The range is unique in the concentration in a relatively small area of very high peaks, thirty of which are over 24,000 ft., while hundreds are over 20,000 ft. The highest of these is K2.¹ Rising 12,000 ft. above its glaciers, it reaches 28,250 ft. in a sharp pyramid of rock and ice. It is the second highest mountain in the world, being 750 ft. lower than Everest and a scant 100 ft. higher than Kangchenjunga.

Due to its remoteness and the difficulties of approach the Karakoram has not received as much attention as some other parts of the Himalaya. Nevertheless it has been visited by white men for more than a century and in spite of its extremely complicated structure the major peaks and drainages have been fairly well placed. Mountaineering as such has but recently been considered in this region, the majority of expeditions having been engaged primarily or exclusively in surveying. It goes without saying that surveying among such mountains demands a high degree of mountaineering skill, but until the turn of the century most expeditions concentrated on mapping.

¹ K2 is the official name for this peak although the name Godwin-Austen (the great Himalayan topographer) has also been given to it. Rather than risk confusion by naming the hundreds of new peaks by English or native names, the Survey of India wisely resorted to numbering. In this case K designates Karakoram and 2 means peak number two in their triangulation. (Incidentally K1 is Masherbrum.) More recently numbers have been dropped and new peaks are designated by their altitudes—unromantic but practical.

K2 FROM THE SOUTH

Photo, Dr. G. O. Dyrenfurth

The Duke of the Abruzzi was one of the first to answer the challenge of K2.² In 1909, with a large expedition equipped for survey work as well as for collecting scientific data, he penetrated the Karakoram with the intention of trying to climb the mountain. With Italian guides and local porters he established several camps on the glaciers at the base and made two definite attempts to reach the summit. On the first endeavor he reached a point at approximately 20,000 ft. on the S. E. ridge. On the second the base of the N. W. ridge was gained at 21,800 ft. Following these two essays he reconnoitered further but came to the conclusion that the mountain was not to be climbed, at least during that year.

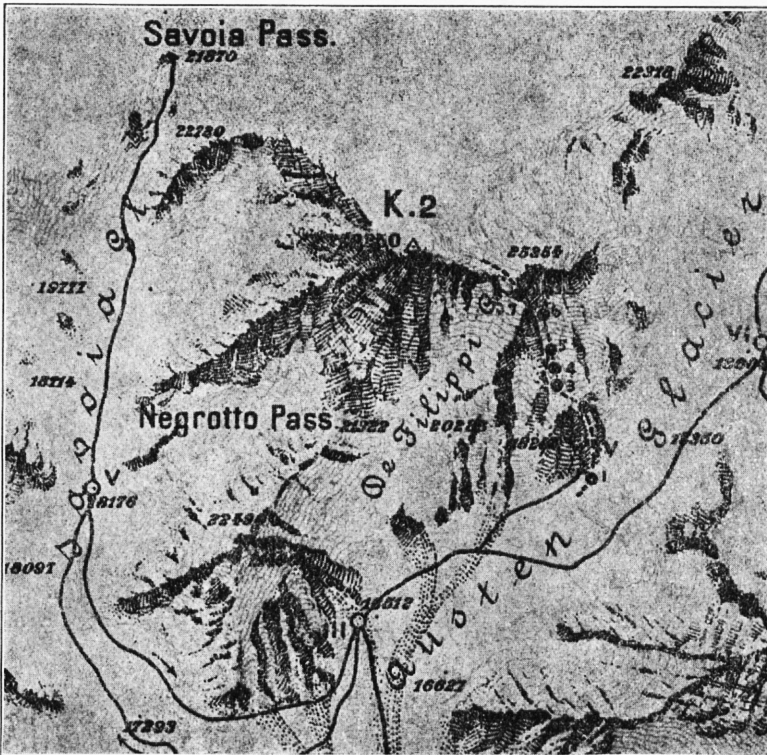
To complete the Duke's reconnaissance, and so take advantage of his valuable work, and to make an attempt on the summit an American expedition was planned for the spring of 1938. Application for permission for an expedition into Baltistan had been made through the American Alpine Club and, when this was granted by the Indian and Kashmir governments, a small party was organized. F. H. Wiessner who had applied for permission was unable to go and the permit was given to Charles Houston. With Robert Bates and Richard Burdsall as a nucleus, preparations were rushed during the fall and winter of 1937 so that by April most of the supplies had been collected and arrangements made. The expedition was completed by Paul K. Petzoldt, Capt. N. R. Streatfield (Bengal Mountain Battery), transport officer and the writer.

The party was organized very much like the successful British-American Nanda Devi expedition of 1936—that is, it was to be a light expedition. In contrast to the more completely equipped larger parties which had set the standards for the greater Himalayan peaks, supplies and equipment were reduced to the essentials required by safety and efficiency. This meant heavy culling of many items considered indispensable by other expeditions. It also meant that we could have very few porters so that greater dependence was put on the carrying power of the climbers themselves. It was believed that the mobility and flexibility of this type of organization would be more effective than that of a larger, more fully equipped one, despite the greater resistance and staying power of the latter. This consideration was doubly important for it was known that

² The earliest expedition was that of Pfannl, Guillardod and Eckenstein in 1901.

problems of high technical difficulty would be encountered where a fast moving, well-coordinated party might be able to take advantage of favorable conditions of short duration. Moreover, the season for climbing would not be long because of the lateness of the season.

Four of the party sailed from New York with most of the equipment. A comfortable voyage through the Mediterranean and Red Seas and a less comfortable railroad trip over the hot plains of western India landed us at Rawalpindi, where we met Houston who had come by plane from England. On our arrival we were greeted by Capt. Streatfield and the six Sherpa porters who had been selected for us earlier in the spring by William Tilman.



PORTION OF DE FILIPPI MAP

Showing position of Camps on K2 and route used by American Karakoram Expedition in 1938. Glacial routes generally followed those of the Duke of the Abruzzi's Expedition as indicated by heavy lines.

After a spectacular day's drive through the ranges of southern Kashmir, we reached Srinagar, capital of Kashmir and our jumping-off point for the interior of Baltistan.

For three days we worked like beavers. Light plywood boxes had to be assembled from materials we had brought from the United States. All supplies were sorted and packed in loads of 50 lbs. Individual clothing was distributed to sahibs and porters and countless last minute purchases were made. Only Capt. Streatfield's knowledge of Hindustani and of how to get things done in the East kept us from completely losing our minds. Somehow, we managed to collect ourselves and our belongings together and were ready to leave early on the morning of May 13th.

With our baggage loaded on twenty-five ponies and without care in our hearts we tramped up the Sind Valley, leaving the charms of the Vale of Kashmir behind.

The valley sloped gently upward between heavily timbered slopes of deodar, Himalayan pine and silver fir. Far above us always were great snowy peaks with forbidding rock walls and, from all appearances, without routes of ascent. Each night we camped in some delightful grassy meadow beside the roaring Sind River; every day we came closer to the ring of high mountains that guarded the head of the valley. After travelling for three days we reached the stage of Baltal at the foot of the Zogi La. This is the main pass from Tibet into Kashmir. Although only 11,230 ft. in height it sometimes presents great difficulties to caravans, particularly those travelling during early spring or late fall. The pass had been open two weeks previous to our arrival for ponies and was now filled with snow. During the afternoon pony caravans from Ladakh with their wild-looking drivers came down from the pass, their exhausted condition attesting to the difficulty of the pass during the daytime.

After snatching a few hours of sleep we started the climb to the pass at midnight, leaving our ponies to make the steep ascent more slowly. In the eerie light we entered a long dim corridor of rock piled with *débris* from countless avalanches. It seemed incredible that our ponies could follow on that hard snow surface, but, as we were feeling the effects of not being in training, we concentrated on getting our own straining bodies to the top. Little by little the moon came out, illuminating the icy crags in a brilliantly cold light, seemingly unearthly! Stillness prevailed but for the

soft crunching of boots in the snow. All the mystery of Central Asia seemed to lie in the dark void at the N. end of that dim corridor.

It was a thrilling moment when at last we stood on the summit of the pass and realized that one more step would bring us to the N. of the Himalayas, into a country unlike any part of India. As we continued down the far side towards Ladakh, we were greeted by a thin crack of light from the east which made the hundreds of peaks beyond shine like quicksilver. As it became lighter, we beheld a strange country. Here was none of the soft loveliness of the Kashmir side of the mountains! It was black winter and there were no pleasant green fields below—only rank on rank of ridges and peaks and valleys that seemingly offered no outlet.

By six o'clock we had reached the rest house at Machoi where we had some tea and watched the sleepy Ladakhis and their caravans get under way. Later, as we marched gaily down the steep snow slopes to the valley below, we passed long strings of heavily laden ponies and zos,³ pushed and guided by their cursing drivers. The sun had not been up many hours before the snow softened and all was confusion, with loads falling off and ponies struggling to regain foothold. In spite of the soft snow, ours was the first caravan to reach Matayan, a filthy little village at the foot of the pass. We were none too soon, for many of the caravans behind were hopelessly mired and were forced to camp until the cold of the night hardened the crust.

A long march the next day brought us below snowline but it was still desolate and chilly. At the village of Dras we paid our Kashmiri drivers and engaged fresh transport from the Baltis. Two days later we left the treaty road to Leh and followed the Shinso River down to its confluence with the Indus.

The Baltis are very clever with stone work, having very little timber in their country. In many places the road was built along cliffs where only a well-built rock embankment kept everything from falling into the river. Often the trail would appear to end half way across a precipice, but, when we reached such a point, we would find a cleverly built little switchback that carried the trail above or beneath the impassable stretch. In their irrigation sys-

³ A happy cross between a cow and a yak, mated for the docility of the former and the endurance of the latter.

tems, too, the Baltis show great cleverness. Troughs of rock are carried for miles along the steep canyon walls to bring water from the high streams down to the villages. Occasionally the skeleton of a once prosperous village revealed the tale of an irrigation system destroyed by an avalanche. Since these occur every year, the amount of work necessary to keep the ditches in good order is tremendous.

Five hot days of marching in the valley of the Indus brought us to the plain of Skardu. Here is situated the capital of Baltistan which, strangely enough, boasts a tennis-court. We spent a busy day repacking equipment and engaging new transport. The evening was made unforgettable by an Indian dinner at the home of the Wazir. Later, on the return trip, we were privileged to enjoy his hospitality again. The next day we embarked in an ancient barge, propelled with incredible confusion but with considerable skill by ten oarsmen across the very swift Indus River. We landed on the north bank and walked up the pleasant Shigar Valley, passing through many prosperous little villages. We had trouble with our new coolies, thereby losing two days before order was restored. We could no longer use ponies as the trail was so poor. With seventy coolies we worked slowly up the valley, now 2000 ft. above the river on an airy shoulder, now skirting the crumbling banks of the Braldo River. Once we had occasion to use one of the famous rope bridges which are thrown across rivers too swift to ford. They make even a mountaineer consider his past sins.

As we rounded new corners in the valley, we were able to see great towering peaks not far away. On each side the valley walls ended in rocky teeth 18,000-20,000 ft. high. Gradually the valley became more deserted, the villages smaller, the vegetation less and the nights colder. At the last little village of Askole we were at 10,000 ft. Here we changed most of our coolies and started on, leaving Petzoldt, who was ill, with Houston and several coolies to follow us later.

The trail from here involved some very fine rock climbing which, however, our coolies, carrying 55-65 lbs., managed without apparent difficulty. After three days of rough travelling, we reached the snout of the Baltoro Glacier, the main subsidiary of which laps the base of K2. The lower part was fearfully broken up with huge troughs and ridges of unstable rock. As we travelled

up the Baltoro, we began to realize why the Karakoram is so famous. On both sides and far ahead towered great castles of mountains with sheer faces of thousands of feet. Some resembled church-steeple, rising 6000-7000 ft. above the glacier in formidable ice-shrouded walls. Compared with them, the great pits and gullies in the glacier looked insignificant—although we did not find them so.

On the morning of the fifth day on the glacier we left the Baltoro Glacier and, rounding a rocky shoulder, looked up the Godwin-Austen Glacier at K2. All that could be seen were the lower rocky buttresses, the upper slopes being hidden in clouds. A magnificent sight! To our right rose steep glacier-encrusted walls culminating in the summits of Gasherbrum and Broad Peaks, 26,000 and 27,000 ft. respectively. To our left were the lesser peaks, Crystal and Marble, their summits catching the first rays of the sun in brilliant white and rich dark red. From our feet stretched straight as a die the huge central moraine, dark in the early morning, ending so it seemed right in the heart of K2. Once, the clouds, sweeping across the upper part of the mountain, thinned and we could see the brilliant white ice of its summit, glowing through the mists.

That evening we were at our base camp, 16,600 ft. above sea level, right beneath the great S. face of K2. Our Balti coolies had been paid off and were already on their way back to Askole. We were left with our six Sherpas and three camp men, and with seven weeks supply of food were confident that we could accomplish a good deal if the weather did not break too often.

The camp was situated near the juncture of the Savoia Glacier and the Godwin-Austen Glacier. The former comes from a pass on the N. W. ridge, sweeping across the base of the W. face and curving E. to join the Godwin-Austen. To the E. of the camp the latter glacier goes directly E. underneath the ice-encrusted E. face of K2 to a pass of about 20,000 ft. beyond which is the watershed of the Yarkand River. Across the glacier rears the huge bulk of Broad Peak, rising to 27,132 ft. in a series of apparently unapproachable false summits.

Up both these glaciers the Duke of the Abruzzi had gone in search of a route. We were following his steps in a very real

sense, when, the second day after reaching base camp, we set out to climb the Savoia Glacier. Our object was to try to get to the Savoia Pass (since photographs of the N. W. ridge had impressed us favorably). The Duke had not mentioned it as a possibility although his guides had reached the pass. Nevertheless, we could see that the strata sloped upwards and the angle looked reasonable.

In stormy weather we pushed a camp up to the very foot of the cirque which rose to the pass. There Burdsall and Petzoldt left Houston and myself and returned to a camp halfway up the glacier from which they planned to scout further the next day. We were now over 19,000 ft. and the prospect for the morrow looked good. The slopes leading up to the pass did not look too dangerous although they were actually very steep. Once on the pass we could get a look behind several gendarmes and maybe could see what the N. W. ridge really looked like. Perhaps we would see what we had long hoped for and could send word down to the base camp to begin moving supplies up to the pass!

Early the next morning we started up the steep snow slopes near the E. side of the cirque. As we ascended we were forced to cross several large cracks with flimsy snow bridges that made us wonder if two men were the right number for this climb. In the uncertain light there seemed to be ice ahead, but we pushed on. Keeping our previously mapped route across a small bergschrund, we found our worst fears realized. Above the snow was only an inch or two thick and lay on hard ice at an angle of about 55°. It was less than 800 ft. to the nearest rocks below the pass, but the hardness and steepness of the ice convinced us that it was not a route for porters. Later on it would be a dangerously weak link in our line of camps should we find the ridge possible. Preserving 800 ft. of ice steps during the melting of the summer months would have been an Herculean job if possible at all. It came so suddenly that we could hardly realize it, for the Duke's guides had experienced little difficulty in reaching the pass. Regretfully we descended. Houston hurried down to base camp in order to start a party off to the E. side of the mountain. I stayed and with Petzoldt brought our camp down the glacier.

Two days later Petzoldt and I reestablished this camp somewhat lower. He believed he could see a possible route up to the base of the ridge via a rock rib that skirted the E. side of the cirque.

We were not able to chance it for the next day it was storming so hard that we knew climbing would be out of the question for several days. Leaving the tent in position we returned to the base camp.

Meanwhile Bates and Streatfield with three Sherpas had established a camp four miles up the Godwin-Austen Glacier and had had an excellent view of the N. E. and the Abruzzi ridges. They did not have a very encouraging report, but we decided that all of us would go up and have a look. This we did, splitting in two parties. Houston, Bates and Burdsall climbing up towards Windy Gap to look at the back of the N. E. ridge; and Petzoldt and myself up a rocky slope just across the glacier from the Abruzzi ridge.

That evening we compared notes. The N. E. ridge looked just as treacherous on the other side. A long knife-like ridge lined with sharp ice-coated gendarmes ran horizontally from the top of a series of ribs, 3000 ft. above the glacier toward the mountain where it rose steeply. It seemed to come out below the great ice-field just E. of the summit. All agreed that a safe route on this ridge was very unlikely; in fact, we could not find one that seemed justifiable. From what we had seen of the Abruzzi ridge we thought an attempt was possible, though difficult. A series of converging rock ribs ran up to a pyramid of black rock about 6000 ft. above the glacier. If that could be gained, an ice and snow plateau could be reached just above it which would give access to the summit cone itself. We worried over the problem for a long time and finally decided without much conviction that the Abruzzi ridge was the best bet.

The next day we crossed the glacier to the base of the ridge and Houston and I climbed up on it while the others descended to base camp to start the transfer of loads. The Abruzzi ridge is really more a shoulder of the mountain than a true ridge. It consists of many sharp ridges of rock, separated by ice couloirs. We had been afraid of this ridge from the beginning because we knew the strata sloped downward. Also the rock looked bad. All day we combed the ridge to 1500 ft. above the glacier, sometimes together and sometimes alone. The climbing was not very difficult but we were unable to find a single place large enough to pitch a tent, nor even places where platforms could be built of loose stone.

In the course of these explorations we reached a tiny saddle about 1200 ft. above the glacier. As we rested, Houston's eye

spied a few small pieces of wood and we realized that this was the highest site at which the Duke had pitched camp on this ridge. It was a thrilling discovery! Somehow, finding traces of an exploration of another who had fought K2 and found it a real antagonist gave us strength. It was rather like a Friday's footprints although we knew he could never come to help us. Interestingly enough, we had followed almost exactly the Duke's route up to this point, even though we did not discover the remains of his lower camp on the ridge until later. We decided against the saddle as a camp site because of a couloir that went up from it and would certainly send down snow and possibly rock and ice after a heavy storm. Still following the guides' route, we climbed up the couloir, roping up as the climbing became more difficult. The angle of the rocks on either side was deceptive. What looked from below like a nice rock platform that would hold half a dozen tents turned out to be far too steep to hold anything but the rocks frozen into it. The climbing became more and more difficult so we clambered over the W. wall of the couloir and, after some ticklish work, reached the bed of an icy gully on the other side. We hurried down that as fast as we dared for it was growing late, reaching base camp a little before dark, exhausted and discouraged.

Supper that night was a gloomy affair which even the fine Demerara rum donated by Houston's father could not effectively dispel. We were convinced that the three ridges we had studied were the only possibilities and they had all proved more formidable than we had ever thought possible. When, in desperation, we had chosen one, it offered no campsites and one can't climb far in the Himalayas without safe and adequate camps.

One of the things that had bothered us when we were trying to decide whether the difficult Abruzzi ridge was the right choice was the faint possibility of the N. W. ridge which we had been unable to essay because of the storm. This little devil had bothered us a great deal so now we decided to make sure. Petzoldt had another attack of fever so he rested up for a few days and Houston and Capt. Streatfield went back to the N. E. ridge to clear up that evil one also.

With three Sherpas Bates and I went up the now familiar Savoia Glacier and moved our tent closer to the pass. We sent the Sherpas back as they were by now quite reliable on snow and there were few cracks on the glacier. This was an impressive camp

for avalanches were roaring down the slopes across the valley and occasionally one would come down from the W. face of K2. We planned to try to reach the crest of a sharp rock rib that came down to the glacier from the N. W. ridge just above the pass, thinking that from there we could skirt the ice slopes on either side, or possibly find a route up the rib itself. While we were studying it, we discussed a steep ice chute which I thought was the best way to reach the rib, but which Bates did not. A few minutes later a serac came tumbling down it and the discussion ceased. Later in the evening he beat me at chess!

The next morning we climbed a snow slope just W. of the rib but soon had to don crampons as it turned to ice. Carefully we worked our way diagonally upward toward a low spot in the rib which looked hopeful. The angle steepened and rocks came close to the ice. Still we kept on, since it seemed as though once the little platform had been gained we could work our way up the crest or traverse across the other side. It was a difficult situation for the ice alternated with tiny rock ledges which were never built for crampons. When we finally reached the crest, we were disappointed for it was impossible to go higher; the rock was too steep and we dared not take the time to drop down over the other side. The sun was getting hotter, the snow softer, and we were afraid of being caught on the ice slopes with wet snow above us. We were at about 20,000 ft. but the snow seemed to be softening far above that. Coming down from the crest proved far more difficult than coming up, not being able to use a *rappel* since the only possible route was a diagonal one. However, we reached the snow slope safely, finding the snow balling slightly in our crampons. A merry, if disorganized glissade brought us back to our camp about 3 o'clock with a new plan cooked up for the morrow. We would climb a great hump of ice to the E. of the ridge and from there study the E. side of the rib as well as the S. wall of the N. W. ridge to see if a possible route did not lie directly up that.

It snowed heavily most of the morning, but Bates, with his keen glacier sense, picked an intricate way through crevasses to the top of the hump where we sat in the snow waiting for the weather to clear. Occasionally windows would appear in the swirling clouds and the formidable nature of the ice-glazed slabs leading to the ridge from this side was fully illuminated. In vain we tried to

convince ourselves that there might be a flaw in them, but were unsuccessful. Each brief picture was far too convincing.

One last resort presented itself; namely, to try the western corner of the cirque leading to Savoia Pass. Where there seemed to be more snow on the ice, it seemed entirely possible that it was continuous to some rocks that made up the rim at that point. It was a forlorn hope and a dangerous one, we feared, as exposure to avalanches throughout the length of a deep corridor leading to it would be hazardous. All through the night the wind tore at our tent, driving snow through the smallest openings. Morning brought the realization that the cirque would be an avalanche trap. In a dejected frame of mind we scurried for base camp. We felt certain now that the Savoia Pass was not to be gained with conditions as they were this year.

Later that day Houston and Capt. Streatfield returned. They had established a camp at the foot of the N. E. ridge and had managed to climb about 800 ft. There they met with steep hard ice which, as on Savoia Pass, dismissed it as a route for loads. There lacked, also, a protection for camps. In some respects we were glad that they had decided not to continue for the ridge looked wicked to all of us.

There remained but one alternative: to camp at the foot of the Abruzzi ridge and comb it for campsites. Being prepared to spend several days constructing a campsite (having an engineer with us), if necessary, all felt anything was better than complete frustration. To be stymied on the glacier even by such a mountain as K2 was more than our pride would allow.

We spent a day in camp before proceeding, partly because we needed a rest and partly because it was storming heavily. The following day loads were carried to a point on the glacier just across from the base of the Abruzzi ridge. There we were forced back because of the terrific cold wind that blew continually down this portion of the Godwin-Austen Glacier. We had willow-wanded our route so were able to find our way, and it was a welcome sight to glimpse the black-banded wands looming up through the snow. At intervals during the storm we could hear a thunderous roar as avalanches fell from Broad Peak and K2. Sometimes we felt their wind, but our route had been well planned to avoid the dangerous places. The glacier here is so narrow and the faces of Broad Peak

and K2 are so high and so steep that it is never entirely safe after a heavy snowfall. It was in this same stretch that our good Sherpas said they heard the snow-men and well they might have, for that same day an avalanche came far out on the glacier, partially covering an abandoned route.

While we were relaying loads up to this cache, we lost one of our tins of gas when a glacier table fell on it. This was three whole gallons—a serious blow as we were light on fuel. It did not cripple us to any great extent, but precaution was taken henceforth. Capt. Streatfield volunteered to take several of the Sherpas and make the long hard trip down to the Baltoro and then up to the base camp, occupied by the French expedition in 1936. He knew that some petrol-tins had been left there, but there was no certainty of finding them. Failing in this, he would send one of the Sherpas with one of our Shikaris down to Askole and bring up ten coolie loads of firewood for use at the base camp. In the meantime we would concentrate on the Abruzzi ridge.

On July first Petzoldt and I were deposited with food and equipment at the very base of the ridge. We were to search anew for camp sites while Houston, Bates and Burdsall with four Sherpas brought the final loads up from base camp. Together we explored the W. side of the ridge, but it was not until late in the afternoon as we were considering descent that Petzoldt spotted a superb little snow pocket at the top of a steep ice gully. It nestled just below a knife ridge and was situated on what we later found the only practical route to the upper part of the Abruzzi ridge. We raced down to Camp I with the good news and were greeted with cheers. It was the first time we felt really encouraged since our first view of the mountain.

The route up to this camp was not very difficult except in two places where we fixed ropes. Elsewhere it was easy enough for laden men. Later, about 500 ft. above the glacier Burdsall investigated some odd looking piles of rock and found the remains of the Duke's lower camp. After thirty years, surprisingly enough, the tent platforms were in good condition. On the theory that Petzoldt and I were in favor with the mountain sprites, and that it would be unwise to tempt them to turn against us by changing the lead party, we were established at our new camp to see if they would point out a way to a Camp III.

Above Camp II we climbed a rock and ice gully to a small col from which we traversed across the bed of an ugly couloir to another pass. This brought us to an ice slope that stretched from our camp on the glacier for almost 7000 ft. toward the summit. The extreme western edge was broken by towers and pinnacles but these were so steep and smooth that conquering them was out of the question. Near this edge, however, was a series of rock protuberances which suggested a possible route. We began our climb, growing more and more discouraged, for all the ledges sloped downward and the general character of the slope did not suggest any camp sites. After several hours of careful climbing, we reached a point just below a small rock buttress which looked as though its top might be level enough to hold tents, resembling an island in a crazily furrowed sea of ice. Two ice traverses and a steep ice gully had to be overcome before we reached our destination. It was far from satisfactory—being only 10 by 20 ft. and sloping away on three sides. No part of it was level.

Many parts of this route were far too treacherous for laden men so the next day we laid 900 ft. of line over the difficult rock and over the ice traverses. This took all day as many pitons had to be used and it was a complicated matter even with a sufficient amount of rope to safeguard the traverses adequately. Still not satisfied, we spent another day carrying light loads, stringing more rope and fixing slings on the down sloping slabs. Bad weather forced us to leave our loads just below the buttress and scurry for Camp II with a biting blast of wind in our faces. Once there, the storm increased in fury. Fearing a prolonged spell we descended to Camp I on the glacier.

In the meantime Bates and Houston with the Sherpas had moved our camp on the Savoia Glacier and the one at the base of the N. E. ridge and had carried their contents to Camp II.

A fearful wind roared all night long and we settled down to a much dreaded Himalayan storm; but, dissolving our alarm, the next day dawned clear. Everyone, except Capt. Streatfield and the Sherpas who were with him looking for gas at the French camp, climbed to Camp II.

The route to Camp III still worried us. Therefore, since the weather was unsettled the next day, we left the Sherpas in camp and carried loads ourselves, stringing more rope on the way down. We probably used more precaution than was necessary for later

we learned to trust Pasang, Chitendu and Pinza almost as much as we did one another. However, before they had demonstrated their ability on difficult rock, we were unwilling to take any chances.

On the 10th the weather was but slightly improved but, with the help of Burdsall and the four Sherpas, we managed to locate Petzoldt and Houston at Camp III with a large supply of food. We felt rather guilty leaving them there for the site was terribly exposed and already the wind was hammering it in terrific gusts.

In order to reduce the size of the party and so increase its mobility Burdsall and one Sherpa returned to Camp I, there to carry on topographic work with the Captain. We agreed that two men reconnoitering and two carrying with the porters was more efficient than having two extra men for that meant carrying two more tents. Moreover, we were sufficiently apprehensive of what might happen on such a route in bad weather to want as few men on it as possible.

The route found by Houston and Petzoldt above III was fully as bad as that below it. The only possible way lay up a rotten ridge which rose for 1000 ft. to a short perpendicular cliff or gendarme which guarded it. Handicapped by a strong wind they worked their way up to the cliff. This obstacle was finally overcome via an overhanging crack which brought them to a ledge about 20 ft. higher. From here they were able to traverse to the left and discover a site above the gendarme where they decided Camp IV should be placed.

On this same day Bates and I with three Sherpas carried loads to Camp III, leaving Pasang and Chitendu to help with loads to the next camp. On the ice slopes a few hundred feet below camp we had been bombarded by rocks sent down by the others; consequently when we reached the site, we left with the Sherpas a strong note telling the other two not to climb until we had arrived the next day. Then we continued to Camp II, rejoicing that we would have to make the journey but once more.

They remained in camp until noon the next day while we brought up the last loads and prepared for an afternoon of rest. Then Pasang and Chitendu carried loads with them to the place selected for Camp IV. It was an unwise decision for, when they were 500 ft. above camp, rocks began to fall. The ridge was so rotten that it was impossible to avoid dislodging some of these

rocks. Thinking that the rocks were falling into the ice gullies on either side of the camp, they continued their ascent. But, alas! they came bouncing into the camp with terrifying accuracy. The wind was too high for them to hear our shouts so we could do little but keep constant watch and be prepared to seek safety when puffs of rock dust swept toward us. All of the tents were punctured but we had to hold the fort since escape to either side was impossible and the route below, like a funnel, caught all the stone fire.

In very bad humor we had retired to our tent when the others returned. Immediately, upon seeing the condition of the tents, with true mountain sense, no questions were asked; but offerings of hot tea, pemmican and jam which even our bruised sensibilities could not resist were forthcoming. All agreed that it had been an unavoidable mistake. After this no one would be stationed at Camp III while men were climbing above it and the tents would be dropped and covered with rocks.

We were now at 20,700 ft. and rising above many of the surrounding mountains. We could look over their tops at vast expanses of glittering ice summits which stretched as far as the eye could see. Far below were the great glaciers with their beautifully curved lines of moraine, disappearing in the chaos of jagged peaks.

We appreciated more fully what Petzoldt and Houston had accomplished when all seven of us climbed up to Camp IV the following day. The ridge was steep and of loose rock. It was impossible not to send some rocks hurtling downward so we had to stay closely together and be constantly on guard. I, for one, was happy to find the gendarme well festooned with fixed ropes.

On the sloping top of this buttress Bates and I were left with the usual food and fuel for ten days. Fifty feet above us a vertical wall of yellowish rock stretched completely across the ridge. There seemed to be no way around it and we feared it might give us trouble. It did.

When we had cut our way up to it over the ice slopes immediately above camp we found the rock worse than we had anticipated. It was nearly vertical and what had looked like promising ledges from below were in reality tiny sloping platforms. After much trouble Bates curled himself around a projecting tooth of rock and belayed me while I traversed into the bottom of a shallow chimney.

It was difficult to stay in as the walls flared out and the bed was formed of ice, but, after a good deal of exertion and not a little swearing, I reached the top, gaining about 80 ft. This had taken four hours so, when Bates joined me, we donned crampons and hurried up the ice and snow slopes to a little pinnacle of rock beneath which we decided Camp V should be located. This made it less than 500 ft. above Camp IV, but we realized it would be a good day's work for laden men to make the round trip.

That evening we had a pleasant surprise in the form of mail which Petzoldt and Houston had left at our camp, Burdsall having deposited it along with more food at Camp II. It seemed very strange reading letters at 22,000 ft., letters which had been written in the quiet homes of our families and friends where there was good food and warm beds and where one's boots were not frozen in the morning. The latter was one of our chief petty annoyances for, becoming damp during the day, they froze solidly at night. Usually we had to put them out in the sun to thaw out, thus giving us an excellent excuse to lie abed as we could put them out without emerging from our sleeping bags, but this did not encourage early starts. Another of the chief annoyances was the tent platform problem. At every camp we were forced to build a wall of rock 3 or 4 ft. high behind which more rocks and chunks of ice were piled to make a somewhat level platform for the tent. The rocks were most always frozen so they had to be knocked from their beds separately. Even then the tents tilted at a crazy angle and the air mattresses had to be bolstered up by stoves and food bags. Occasionally a corner would suddenly subside, giving one the feeling that tent and all was on its way to the glacier.

Another day was spent in putting more rope in the chimney and in carrying loads to the new camp. Then, when the others arrived with the Sherpas, we introduced them to the chimney and established them at Camp V. It was impossible to climb the chimney with loads; therefore we rigged up a remarkable aerial tramway and hoisted everything over the top. While we did this, the others scouted on ahead, making their way up a series of rock buttresses and across three ice couloirs. When they came down that night, they reported a fair campsite at about 23,300 ft. at the foot of the black buttress which capped the ridge. Above was the ice and snow plateau which we hoped to reach!

The weather for the preceding two days had been mischievous. During the night it became more threatening. We were awakened early in the morning by the wind battering at our tents and could get little sleep as the sides of the tents surged in and out with loud reports. By 9 o'clock the wind had subsided and, unwilling to lose a day as time was an all important factor, we decided to establish Petzoldt and Houston at Camp VI. They started out, disappearing in a few seconds into the obscurity of the storm, while Bates and I prepared to follow with our Sherpas. They had gone barely 100 ft. before they were driven back, ice forming on their faces, convinced that upward progress was unjustifiable in such weather. Everyone assented and we retired to our tents. As we did so, Pasang, our head Sherpa, came forward, wreathed in smiles, and confided that the weather was "just like Nanga Parbat, sahib," referring to the terrible storm in 1934 which took so many lives and which almost cost him his own.

All day the winds thundered at our tents while the four of us crouched inside listening to the snow rattling on the sides, thankful that we had enough food and fuel for more than two weeks.

The next day, even though it was still snowing, the wind had almost vanished, so we pushed on. Petzoldt and Houston, carrying light loads, went ahead in order to reconnoitre beyond Camp VI while Bates and I with the three Sherpas followed, more heavily laden. When we reached the site selected, we stood aghast for it did not seem that one tent platform could be built there, least of all three. Two tiny sloping ledges with a small quantity of loose rock composed the selected spot. However, with the enthusiastic help of our Sherpas we managed to construct a reasonably secure platform. On it we pitched a tent and leaving our loads of food and fuel returned to Camp V.

In the meantime the other two had gone above Camp VI in an effort to locate a route to the next camp. They were now nearing the top of what looked from below like a great black pyramid, but which in reality was a triangular buttress of dark-colored rock which ended below the edge of an ice and snow platform at about 24,500 ft. If they were successful in finding a route to the top, one of the main obstacles of the mountain would be conquered and the route to the 2200-ft. summit cone would be found.

After a day of carrying heavy loads up the rock ribs below Camp VI, we were all assembled on the tiny platforms which con-

stituted that camp. The weather had cleared, but to the S. hovered great masses of ominous looking clouds. Far to the S. W. we could see a column of clouds where Nanga Parbat should have been, an indication that the German expedition was also having trouble.

The report of Petzoldt and Houston was both encouraging and discouraging. They had reached the snow and ice plateau and had found a good campsite on an ice slope at about 24,700 ft. From there they were sure of a good route to the base of the summit cone and a somewhat doubtful route up a rock ridge to the summit. Between the camps, however, they had encountered very difficult going. The rock was steep and the snow treacherous. They had strung much fixed rope and driven many pitons, but the route still possessed difficulties.

We had now to make a decision which for some time we had known was inevitable. We had reached the limit of our food and supplies, beyond which we could not safely establish camps. The long reconnaissance, plus the difficulty of our final route, had taken so much time that, after leaving emergency supplies at several of the lower camps, we were no longer in a position to stock higher camps with food enough for the hypothetical Himalayan storm. Had the route to Camp VII been easier, there would have been little doubt as to what decision to make. We hesitated, however, to establish a camp from which we might be driven by lack of food in a prolonged storm. It was obvious that to return to Camp VI in a storm of any consequence was out of the question, even with the hundreds of feet of fixed rope on the rocks. Moreover, the banks of clouds to the S. and W. were approaching rapidly, and, still puzzled by the caprices of Karakoram weather, we knew not whether they would strike us in one day, or two or three.

We slept on the matter, having virtually come to the conclusion that to push on any farther was unwise and that we had best make use of the good weather in effecting a retreat down the glacier. We now felt certain that the summit was unattainable for us this year. Moreover our coolies were due at base camp in seven days. If we arrived later, we might find them gone as they would not remain on the glacier with the meagre equipment they had. In the morning the clouds were still far away and the day was clear. It was irresistible! We decided to establish two men at Camp VII.

In one day they were to gain as much altitude as possible and still return to camp. Then they were to return to Camp VI and retreat would begin. If in the meantime there was any immediate threat of bad weather, they were to make a hasty return.

Houston and Petzoldt who had been to the 24,700-ft. point without difficulty were the logical ones to make this last dash, Bates and myself not having had the two extra days of acclimatization. We decided that the route was too hazardous and slow to warrant taking any of the Sherpas along. Although thoroughly reliable, we preferred carrying slightly heavier loads to going through the slow laborious process of assuring three more men on difficult rock. Pasang's face grew so long at this news that when a few minutes later he asked to go along we could not refuse. By that time we had learned to trust him implicitly.

With light loads we started off on two ropes, climbing directly above our tents. The rock was steep and rotten and we were glad of the fixed ropes and slings that had been placed there the day before. We were feeling the altitude now and went more slowly and deliberately than ever before. The rock was very exposed and natural belays scarce. There was not a breath of wind and, except for an occasional light cloud, the sun beat warmly on our hands and faces. It was exhilarating to be pushing our way up the steep rock slopes towards an unattainable goal, the ice summit cap of K2 3000 ft. above us. Below the mountain seemed to drop off into nothing. The sinuous striped glacier might have been 100 miles below as easily as 6000 ft. Only the great overshadowing bulk of Broad Peak rising to 27,000 ft. a few miles away brought to us the grim realization that we were actually far short of our goal.

After four hours of climbing we rested on a narrow crest of the ridge for lunch. It was the most peaceful few minutes we had had together on the mountain. We could forget for the moment that our position was precarious and enjoy each other's company and the superb scene untroubled.

More difficult climbing jolted us out of our pleasant reverie and soon we were clambering up the lip of the huge ice platform which had been our goal for so many weeks. Halfway up, where a rock protruded from the ice, we stopped. We were already in afternoon shadow so we left our loads while Houston and Petzoldt renewed the steps up to Camp VII. We wished them good luck

and started the return trip. Coming down was slow and exhausting work and we were happy to reach camp and find tea prepared for us by our thoughtful Sherpas. We were extremely tired that night for it had been the longest and hardest day we had experienced on the mountain.

On the morning of July 21st Houston and Petzoldt commenced their last dash. From their camp, set in a niche cut on the edge of the great ice plateau, they climbed upwards toward the summit cone. The going was not difficult technically, but the breakable crust lay on powder snow. Above them on the face of the summit cone hung a great ice mass, stretching almost the width of the face. To avoid possible falls, they kept to the western edge of the plateau where it dipped to the S. face of K2 toward the de Filippi Glacier and then downward to the Godwin-Austen, 10,000 ft. below. By noon they had reached a shoulder on this crest. This we had seen from below. It had been triangulated by the Duke of the Abruzzi's party at 25,600 ft. A triumph for them indeed, for the summit cone had been reached.

A few hundred feet higher they decided it was time to descend, but before doing so Petzoldt scrambled up the rocks of the lower part of the S. ridge of the summit cone. They were in accord that the ridge looked no more difficult than some of the routes below the ice plateau and could probably be climbed. There remained a doubt however whether such exacting climbing could be done at that altitude, even though we had been little troubled up to this point. A good campsite lay at about 25,600 ft. from which they decided the summit might be reached in a day. It would have to be well stocked, and possibly still another camp would be needed above.

Regretfully they retraced their steps to Camp VII with many a backward glance at the summit, seemingly only a stone's throw away. It was late in the afternoon when they returned. They experienced a bad half hour when the weather appeared to be breaking and they prepared to push on to Camp VI. Fortunately it was only a cloud of brief duration and soon the air was clear again. Tired but contented they crawled into their tent to gain strength for the morrow.

Morning came and Bates and I awoke to find the cloud banks to the S. and W. visibly closer and cloud formations beginning to appear on the higher mountains above the lower Baltoro. Our

uneasiness increased when the two above had not appeared by eleven, but shortly after noon a welcome patter of pebbles beside our tent told us they were close at hand. We were overjoyed to hear what they had accomplished although their description of the possibilities on the summit cone made us slightly uncomfortable. However, there was no time for such reflections. There was still the problem of getting down to the glacier.

Leaving a tent, primus and some extra food we roped and started the slow descent to the lower camp. Fatigue, loose rocks and heavy overbalancing packs made the trip a trying one. I, for one, did not feel sure of myself and wondered if we could have done it in a storm. It was with a sigh of relief that the last man slithered out of the bottom of the chimney to Camp IV. It seemed a relief to have that serious obstacle behind us although there was still the difficult step above Camp III.

We celebrated that evening with an extensive high tea, the *pièce de résistance* of which was an all too small can of kippered herring. This, with other delicacies carefully hoarded during the days of the ascent, made a truly magnificent feast.

The journey down to Camp II the following day was most arduous. Melting ice had loosened many rocks frozen soundly two weeks earlier. These made the ridge above the unpopular Camp III more fragile than ever. Below that ill-memored spot our steps in the ice had disappeared. They had to be renewed with great care and even the great amount of fixed rope we had strung there did not help very much. Great melting had taken place all over this side of the Abruzzi ridge. Water and ominous cascades of pebbles and small rocks ran down the steep slabs. Where before we had been able to kick steps or cut good ones in solid ice, there now was polished rock spotted with unstable masses of pebbles and other débris.

At this altitude the mountain had lost its grandeur. It was a mass of decaying ice and rock, deadly and unpleasant, showing the meanness, which even great things must have. But, spring was in the air! It was as unmistakable as the curious realization that comes in March that the messiness and decay we see on all sides really means a reawakening of life. It mattered not that there never would be any life even on those lower slopes of K2, but somehow that thrill of experiencing a spring again made the unpleasantness of the descent a trivial matter.

Far above, as the sun sank lower, we could still see the dull white of the summit while across the valley on the massive face of Broad Peak was outlined the huge profile of the summit cone, justifiably ethereal this time.

We congratulated ourselves that night at Camp II. From there to the glacier was quite an easy trip and no storm could harm us now. All around the great peaks flew clouds from their tops and, as the evening turned to night, a light film settled on the upper slopes of K2.

The next day we prudently delayed our start for Burdsall had seen us from the glacier and was on his way to meet us with the three other Sherpas to help us down with our loads. It was a grand moment as we were sitting by the dismantled tents to see him step over the crest of the knife ridge, followed by the grinning Sherpas. It seemed years since we had last said farewell at this very camp; yet it had been less than two weeks ago. Time recedes quickly in the mountains.

We learned that he and Capt. Streatfield had spent most of their time mapping lower down on the glacier toward Concordia, trying to fill in a blank spot E. of Masherbrum. They had also ascended Windy Gap and had looked down into the upper part of the Shaksgam.

We were loath to leave our last camp on the mountain but we wanted to reach base camp that evening, so regretfully started down. Overhead the weather had definitely turned bad and great masses of swirling clouds hid the last 6000 ft.

We had a grand reunion all over again with the Captain and we were a happy, if tired, party as we swung on the last heavy loads we were to carry and descended the glacier to base camp. It was an hilarious evening. The campaign with its discomforts and uncertainties lay behind. We had reached 26,000 ft. on a difficult mountain and everyone was safe and in good health. We could ask for little more, except, of course, to have reached the top.

The next day our coolies arrived unexpectedly, a day early, so we hurriedly packed everything and on the morning of the 26th started down the glacier. We never did get a parting view of K2 that morning as we stood at Concordia. We waited in vain for the clouds to break as they had done for us a month and a half earlier, but the entire end of the corridor remained shrouded in clouds.

Throughout the long days of marching on the homeward journey we discussed many times that last 2200 ft. We doubted if any of us could ever come back to try again, but everyone felt that it would be conquered some day. As the trip drew to a close and we passed successively Askole, Shigar and Skardu, realization that K2 was almost a part of us was deeply embedded in the minds of all, a memory to last throughout a lifetime!

NOTES ON EQUIPMENT

CLOTHING

Woolens: Duncan. Four sweaters, two underwear per man. Turtle-neck sweaters, long underwear, natural very lightweight, loose-weave woolens. Excellent.

Mittens and Socks: Lawrie. Six pairs Herdwick brushed-wool socks, in two different sizes to fit one over the other, marked with different colored tape. Do not shrink, very warm, best climbing sock we know. Four lightweight shetland mittens. Excellent.

Windproof suits: Flint. Double thickness Grenfell parka and trousers separate. Absolutely windproof, very tough, built to measure. One of best items we had.

Gauntlets: Osborne. Soft buckskin mitt with canvas cuff. Leather is soft enough so mitt can be used on difficult rock safely. Very warm, dries rapidly.

Boots: Lawrie. Unlined Mark VIII with nailing to taste. Finest boots for alpine climbing made; leather is nonfreezing and very good. The toe is not deep enough, and the sole not wide enough to wear comfortably over socks needed at high altitude. If this is corrected, and if boot is fitted by Lawrie personally, or by cobbler here over desired number of socks, then this boot will be very good. We do not know any other boot as good even with these faults. Paul Bauer has a boot made in Munich, with the sole built on a slight curve to avoid the inevitable crease over the toe. P. Allain in Paris also has a good boot.

Shoes: Personal. Each man has individual taste for the long hard walk in. Majority preferred a low, rubber-soled shoe. Must be chosen with great care and thoroughly broken in before trip starts. Sneakers are good. Metal arch-supporters recommended.

Rain capes: Camp and Sports. Rambler model, light and tough, and waterproof; built to shelter pack also. Useful even if one never sees rain.

Miscellaneous. Wool scarf for high altitudes. Face mask of cloth or light leather very useful against high winds in upper camps. Soft-felt hat is more comfortable than solar topi and just as good. Many handkerchiefs, large and preferably silk. Insoles, felt or better sea-weed (Osborne) very important against sweating of feet. Pajamas worn by most of us as high as 16,000 ft. Polo shirt, shorts, long stockings, light ski-jacket for march to base camp.

CLIMBING KIT

Pack-frames: Camp and Sports. Light (1.5 lbs.), of duraluminum, Everest model. Very necessary for carrying boxes, bags, etc. For Sherpa porters and sahibs.

Crampons: Lawrie. Duraluminum. Eckenstein model with two-strap binding simple to do and undo, and does not bind the toes too tightly.

Pitons: P. Allain. Iron or duraluminum; by far the best and lightest we

- know. The duraluminum ones did *not* break in cold weather under sudden strain.
- Karabiners*: Lawrie. Small tapered ones with small filed edge on opening jaw to facilitate quick use.
- Goggles*: Hamblin. Everest model of Crookes glass. Pale-golden color, very comfortable to wear and absolutely safe. Head strap not as good as frame and glass. Can be made to prescription at extra cost. Best mountain goggle we know.
- Rope*: Beale. Latest and best is halfway between Alpine line and Alpine rope: very strong, soft and safe. For fixed rope we used $\frac{3}{8}$ " hemp bought in Bombay, 1700 ft.
- Willow Wands*: personal. $\frac{1}{4}$ " x 36" dowels. Paint one end black for 6-8" to aid visibility. Essential for marking route along tangled glacier in case of storm.
- Snowshoes*: Camp and Sports. Duraluminum frames about 18" oval, with rawhide lacing. Too flexible, not very good, need much improvement, then would be valuable even on steep slopes.

CAMPING KIT

- Tents*: Burns. Meade model, called Yak tent, has V-poles at each end, holds two men and stove, very simple to pitch. Of excellent cloth and design, waterproof, and will not tear even in very high wind. A splendid tent especially where campsites are small and need to be built up.
- Tents*: Abercrombie. Pyramid tent, with center pole, one guy rope, no wall, holds three or four men. Easy to pitch on hard terrain. Not perfected as yet; needs changes.
- Tents*: Woods. Standard Logan. Best tent for base camp or any level ground. Spacious and stands wind well. Needs waterproofing.
- Sleeping-bags*: Burns. Two bags: inner of eiderdown, lined with soft flannel; outer of live goose down. Total weight 7.5 lbs. Both bags tapered, inner with good design hood. We were never cold. Bag is a little too short for a tall man, should be a little wider for the average man. Made to order costing about \$45 for eider in inner bag, \$35 for goose in both (almost as good). The most satisfactory bag we know for warm light sleeping.
- Mattresses*: Abercrombie. Half length air mattress. Very tough, weighing about 4 lbs. Lasts two seasons at least. Where sleep is as important as it is at high altitude we feel extra weight is worth it. Lighter, cheaper mattresses puncture too easily, leak.
- Snow-shovels*: Beale. Bernina model, of aluminum, with short handle, detachable. Better than model that attaches to ice axe. Very light and strong.
- Stoves*: Condrupp. Primus stove model No. 221 L. Burners adjusted for any specified altitude by maker. Paraffin can be bought in India; gasoline is as good. We had no trouble as high as we used them 24,700 ft. Get set of extra parts and spare cleaners. Don't use ethyl gas. Funnels to fill stove with must be bought at home.
- Fuel*: Paraffin or gasoline; brand recommended by Condrupp can be bought anywhere and is good. Use Meta, solid fuel, to start stove; much better than alcohol or gasoline. Strike-anywhere matches are not good above 16,000 ft.: take box-matches, also small friction-top tins for carrying above base. Take about four times as many as you think necessary as coolies are crazy for them.
- Containers*: Camp and Sports. Aluminum water bottles, with screw tops, holding 1 qt. Ideal for carrying gas on mountain, strong, light and leak-proof. On way to base use two-gallon tins; four gal. is too heavy. Take at least two qt. bottles for every camp anticipated.

Packing: Abercrombie. 18" duffles for personal kit. 9" duffles for food, etc. 15, 10, 5, 1 lb. paraffin bags for carrying cereals, sugar, fruit, etc., are essential; these fit neatly into duffles (9"). Best and safest way to carry perishable food. Large sacks to carry 50 lbs. of coolie food, etc., can be made in Kashmir: make at least twice as many as needed for food, as porters need some to carry their clothing unless others are provided. Plywood (3 thickness) boxes 10" x 12" x 24" can be cut at home and assembled in Srinagar. Reenforce with ½" strips inside and tin edging. Hinge and lock for lid. If well made these are better and far lighter than local yakdan.

Kitchen: Local. Aluminum dekshi made in Srinagar is cheapest, best and lightest heating cookset we know. Take at least two for every camp anticipated. On mountain we used pint cup and spoon per man. On way in add light plate, fork. Sherpas need same. For march in take several empty four-gal. gas tins with handles fitted to knocked out tops. On mountain use collapsible light canvas buckets made by Camp and Sports.

Hardware: New York. 50 and 100 lb. scales essential. Several dozen assorted copper rivets. Pliers, good screwdriver, one or two spools wire and tape. One ball heavy twine and several hundred feet clothes-line. Four light flashlights, and few extra batteries. One dozen long-burning candles and collapsible lantern (Lawrie). Two light steel cash-boxes for carrying coolie pay. Several hundred waterproof tags (Dennison) to tie on food-bags. Small notebooks and pencils for listing at base camp and notes. Sewing kit with much thread. Steel mirror. One wash basin.

PORTER OUTFITS

Woolens: Camp and Sports. Two pair wool underdrawers, 2 pair undershirts, 3 turtle-neck sweaters. Windproof suits or khaki Jacqua very good. Balaclava wool helmet. Ski gauntlet and mitts of best wool. Socks should be numerous: suggest six pair ordinary cheap wool pair for march in and on mountain, then at least four pair of best quality to be given out at base camp for mountain. Sherpa wears out socks very fast, needs as many as sahib. Boots: Lawrie. Make on Ghurka last to fit wide short sherpa foot. Suggest 3 sizes 7, 3 size 8 and 1-2 size 9. Many extra laces, and grease to suit. Ordinary mountain goggles, two pairs apiece. All coolies have to be given goggles on Baltoro, so get 80-100 pairs of cheap Japanese pairs in Srinagar. Porter sleeping-bags made by Burns, double bags, lined or unlined, with good down, costing about \$15-\$20. Our sherpas never complained. Mattresses desirable, but not essential. Take good ones, if any, as sherpas burst the cheap ones rapidly.

FIRMS DEALT WITH:

David T. Abercrombie, 311 Broadway, New York City.
 Arthur Beale, 194 Shaftsbury Avenue, London.
 Robert Burns, Hanover Mill, London Road, Manchester, England.
 Camp and Sports, 21 New Gate Street, London.
 Condrupp, 77 Fore Street, London.
 Mrs. C. Duncan, New Road, Scalloway, Shetland Isles.
 Theodore Hamblin, 15 Wigmore Street, London.
 Howard Flint, 38 Maddox Street, London.
 Robert Lawrie, Bryanston Street, Marble Arch, London.
 Asa Osborne, 8 High Street, Boston, Mass.

C. S. H.