

Makalu, 1954

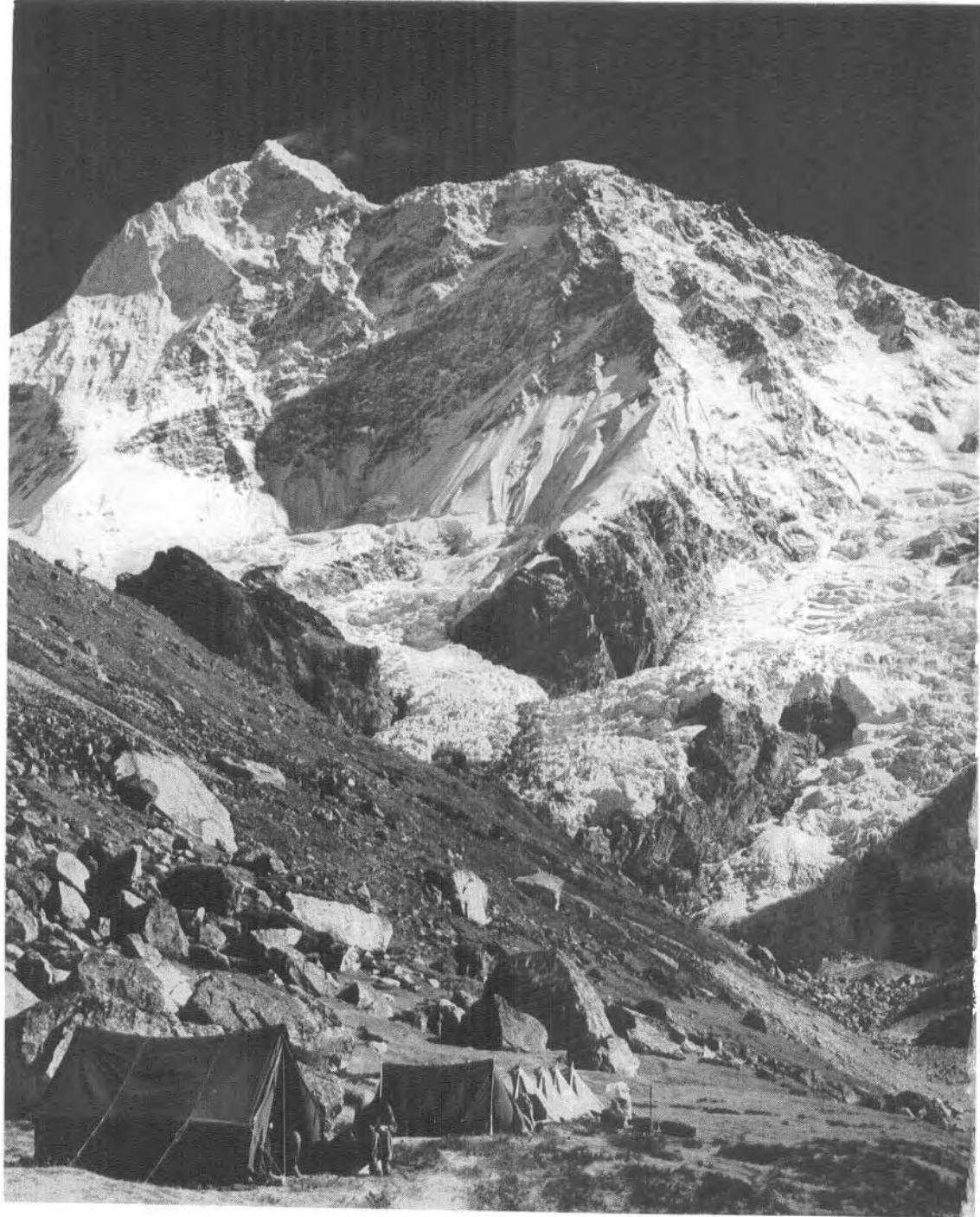
CALIFORNIA HIMALAYAN EXPEDITION

WILLIAM W. DUNMIRE AND WILLIAM UNSOELD

PART I: *Preparations and the March to Base Camp*

FIVE years ago the possibility of organizing an expedition to the Himalaya was but the remotest of dreams to the group of California mountaineers who realized this ambition only last spring. I am certain that among mountaineers we were not alone in our feeling that a strong financial backer, whether it be an individual or an organization, is a minimum requisite for the basis of an expedition, yet there was certainly no good prospect of this kind of support for us. Nevertheless, discussion of that promised land, the Himalaya, increased among certain of our local mountaineers who had had considerable expedition experience in Canada, Alaska, and Peru, and who now wanted a taste of the greatest of all; talk was soon replaced by action when we set up the California Himalayan Committee, whose function was to investigate the possibilities of sending an expedition to one of the Achtausenders.

Our first task was to decide upon an objective and to apply for permission through the State Department to enter the chosen area of operation. Our sights were aimed high. The Everest area already had too much traffic; K2 appeared to be out for political reasons (we were surprised and pleased when we later learned that Houston and Bates had been granted permission); and Kanchenjunga we vetoed because of its notorious history. Little



MAKALU FROM BASE CAMP IN BARUN VALLEY
Southeast ridge on right skyline.
Photo, W. Siri

was known about Makalu except that from a distance it looked difficult, so we applied to the government of Nepal for permission to attempt Dhaulagiri, the fifth highest. This was early in 1952. In six months word came back that permission had been refused because of the priority of the Swiss Expedition, we later learned, and we immediately reapplied, this time for Makalu. One of our biggest difficulties was that we didn't know which parties had been accorded which peaks for what years; a Himalayan coordinating committee would clearly be a boon. We had little reason to hope that our alternative request would now be granted, and we were therefore overjoyed when Will Siri announced at a meeting in late December 1952 that Makalu was legally ours for '54.

All that now remained was to field the expedition. We carefully drew up budgets and estimates of possible income. In those days we naively hoped to finance the venture with a single windfall—through a newspaper syndicate or a motion picture corporation, but we soon realized that no one American firm would be willing to adopt us, even though we could offer the possibility of the world's highest ascent at the time; we would somehow have to raise our estimated \$50,000 budget piecemeal. Our Advisory Committee, actually the Executive Committee of the Sierra Club, appealed on our behalf to individuals within the Sierra Club and the American Alpine Club, and the response was most gratifying. Products from local as well as national manufacturers were sought with the promise that the expedition's name could be used for approved promotional activities upon our return; the result was that nearly all our three tons of food and also much of our equipment was donated. By this time the expedition also included a full-fledged scientific program, including biological and physiological phases. The U.S. Air Force was much interested in the latter aspect, so much so, in fact, that they finally agreed to provide transportation for the expedition members to Calcutta and back, certainly the largest single expense on our budget. Even with all this enthusiasm and support from persons and groups outside the expedition, it was not until a month before leaving that we were on sound, though marginal, financial footing, and many a committee meeting was spent devising

schemes to whittle expenditures. We were a determined group and we would go to the Himalaya even if it meant relaying all loads ourselves without Sherpas, using discarded equipment and living on oatmeal. Happily, we did not have to resort to these extremes.

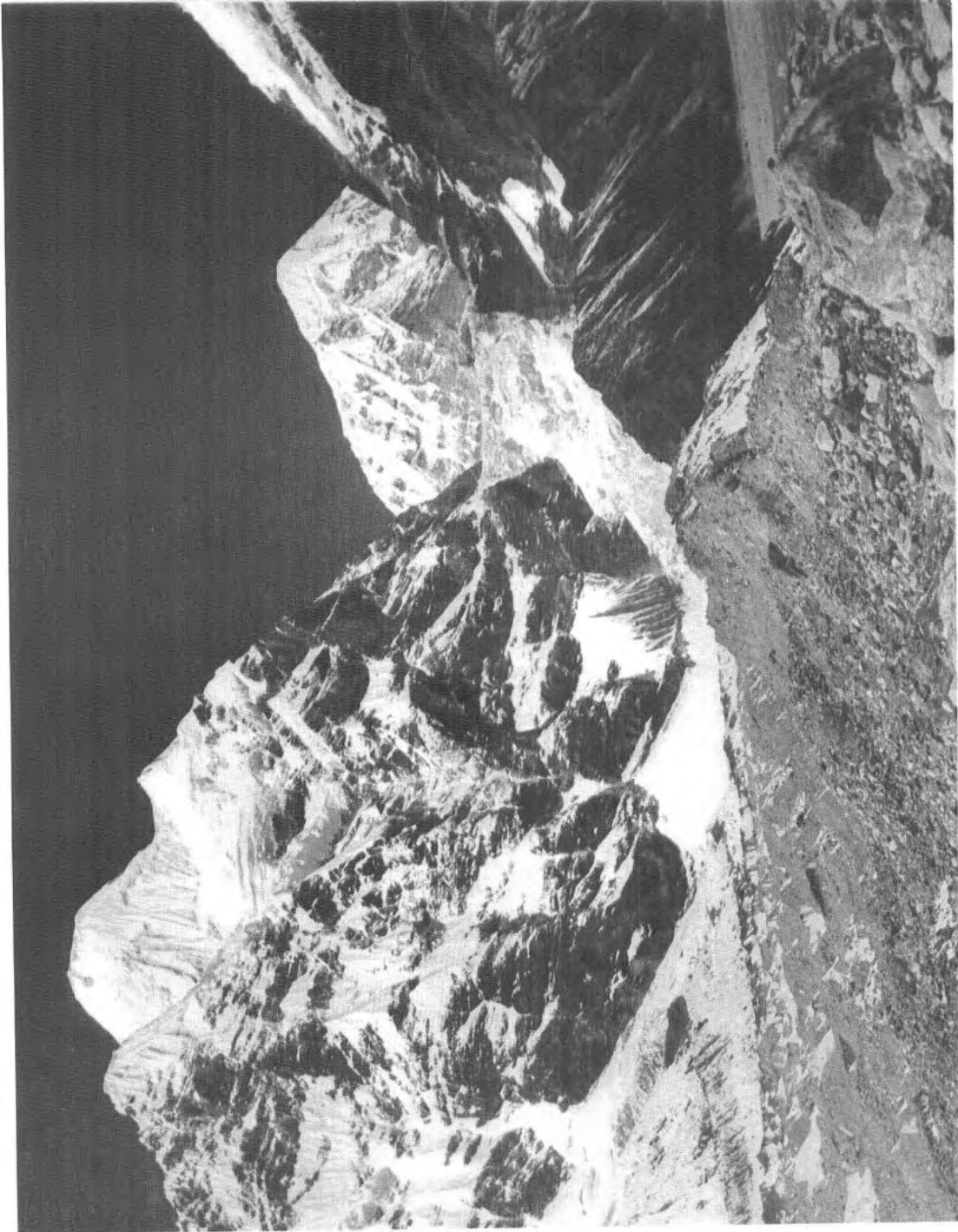
Since none of our members had ever done any really high mountaineering, we had to rely heavily upon what we read of recent Himalayan expeditions in solving our food and equipment problems. Our four-man Food Sub-Committee followed the general rule of providing a simple diet yet one varied enough to satisfy all tastes. Of course liquids were emphasized for the high camps. Our theory that food which does not appeal at sea level would be infinitely worse at extreme heights was later borne out, and we purposely omitted certain commonly used mountain foods from our menu. All perishable items, including oleo, bread, cereals, and even jam, were vacuum packaged in small aluminum-foil packs, and for the mountain these were combined in polyethylene bag units intended for four-man days. For those who would test their psychological fitness for a Himalayan expedition I suggest a day of spooning strawberry jam into tiny collapsible bags; if at the end of a day such enterprise still leaves you in command of all faculties, then be assured that lesser high camp tribulations will be easily taken in stride. (Our university-loaned warehouse must still show the effects of that unforgettable "jam session.") All food was shipped to India two months in advance, but our vacuum packaging resulted in surprisingly little spoilage.

Equipment selection was largely governed by our budget, and much of our ordinary mountaineering gear, especially that destined for Sherpa use, was donated by Sierra Club friends. Most of our equipment was standard Himalayan type, down suits, vapour-barrier Korea-type boots, and double sleeping bags, but our tents, made for us by Gerry Cunningham, we feel were superior to any previously used in the Himalaya. Perhaps the most striking feature of these double-walled nylon tents was the use made of two glass wands for bowing out the sides with a resulting roominess never experienced before. The tents also withstood battering winds and could be erected simply. Except for medi-

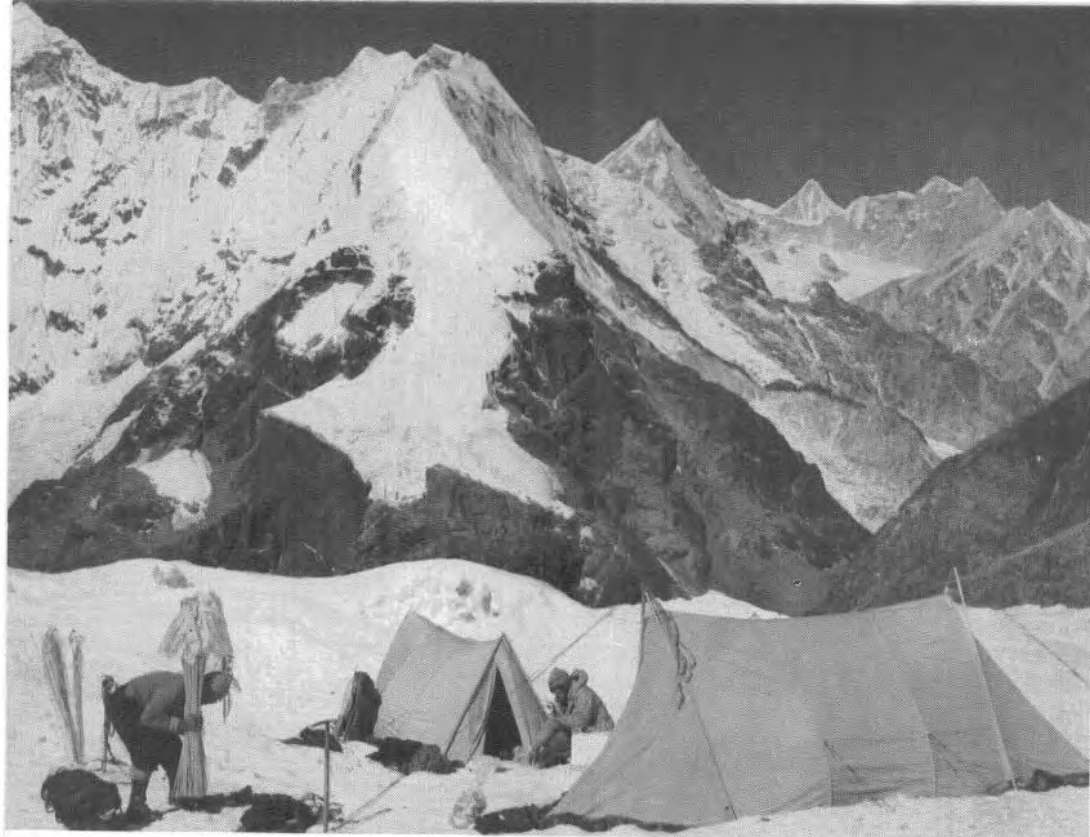
cial purposes oxygen was not used, mostly because of its prohibitive cost and the difficulties of transporting it.

Selection of the final team was no problem for us. What had been the California Himalayan Committee in 1952 now became, with a few changes necessitated by other commitments, the California Himalayan Expedition for 1954. Those of us who had made up the team had originally conceived the idea of the expedition in 1951, and it was we who had struggled with the problems of necessary permission to travel, secured the funds, and acquired the equipment; of course all this was done with the constant help and encouragement of our Advisory Committee, made up of men who probably would have organized their own Himalayan expedition had world politics permitted a few years before. All our members had climbed together many times in the past, so we were well acquainted with one another and familiar with the idiosyncracies of each.

The team consisted of two scientists and eight climbers. Lawrence Swan, 31, a Stanford Ph.D., would carry out a biological collecting program, while Nello Pace, 37, Professor of Physiology at the University of California, would work on high-altitude physiological research; Nello was elected deputy leader of the expedition. Fritz Lippmann, 32, a high school teacher, climber since pre-war days, and now back from his summer's ascent of McKinley, perhaps had had the most experience of any of us. Another high school teacher, Richard Houston, 32, also had had considerable expedition experience; those who had climbed with him in the past knew that his capacity for cheerfulness in tense situations would be a real asset on Makalu. Allen Steck, 27, sporting goods store manager, and a brilliant mountaineer, with the rare talent of an almost infallible sense for route finding, was in charge of equipment in addition to being a climbing member. William Long, 23, a survival instructor for the U.S. Air Force and a power house on any mountain, was the only unmarried member, and how "Shoulders Long" has maintained his status is quite beyond our understanding. Bruce Meyer, M.D., 31, an orthopedist, was the expedition doctor, but he also proved to be one of our strongest climbers when the going became difficult. The fact that William Unsoeld, 27, was a recent graduate of the



BARUN VALLEY
BELOW BASE CAMP
Chamlang on
left side of icefall.
Photo, W. Siri



MAKALU, 1954

Pacific School of Religion was not the primary reason for his being a late addition to the expedition team, but we thought his special training would be valuable. Actually Willi was our only member with previous Himalayan experience, having made an attempt on Nilkantha in 1949. We were to rely heavily on Willi's judgment on the mountain. Will Siri, 34, University of California physicist, proven leader on two Peruvian Andes expeditions and in Club affairs at home, had been our chairman during the last year and a half of organization. It was natural that the group should now vote him our leader. The fact that our program in the field came off with a striking absence of snags was in large part due to Will's thorough planning and guidance. As a 23-year-old graduate student in zoology, I very nearly missed going on the expedition, for I was liable for armed-service induction at any time, but in the end I was spared for the trip. One other climber, Alfred Baxter, was to have been on the team and that the expedition succeeded in getting under way promptly, we perhaps owe more to him than to any other member. As original chairman of the Expedition Committee it had been Al's dynamic enthusiasm that had initially gotten us started, he had constantly been our hardest worker, and now, ironically, because of a bad ankle recently broken while skiing, he had to forego the trip for the success of which he had worked so hard.

With a gathering of relatives, well-wishers, and the curious, along with a five-piece German Band from the local brewery (we are still at loss to explain their welcome presence), our group left the university campus on February 18th, boarded a MATS plane, and in a week were in Calcutta. Here we were faced with the

Top—CAMP II AT 18,500 FT. ON MAKALU, LOOKING SOUTH
Barun Valley and Peak 4 in background.

Photo, W. Siri

Bottom—CALIFORNIA HIMALAYAN EXPEDITION MEMBERS AND
SHERPAS AT BASE CAMP

back row—William Long, Fritz Lippmann, Nello Pace, Thandup, Tasha, Mingma Tseri,
L. Bruce Meyer.

middle row—William Dunmire, Lawrence Swan, Ang Phutar, William Unsoeld, Pasang
Dorge, Allen Steck, Gompu.

front row—Chotaray, Pemba Tensing, Richard Houston, William Siri, Ang Tharkay,
Nima Tensing, Kippa, and Ang Temba.

Photo, W. Siri

usual frustrations and delays of the Indian customs. For awhile the threat of a 40% duty on food and equipment almost brought the expedition to an end, but we finally won out and, travelling by rail, we arrived at the Nepalese border town of Biratnagar.

At Dharan, 40 miles within Nepal by truck, we were greeted by a parade of about a hundred communist flag-waving school children. We later learned that the demonstration was not primarily for our benefit but was being directed against the local school system. Nevertheless, it was saddening to think that this geographically critical sector of Nepal should be the constant recipient of only communist propaganda.

At Dharan, where we had expected to find chaos since we were a week late in meeting our 250 coolies, we were astonished to find things in perfect readiness for immediate movement of the expedition. We were thus initiated into the remarkable efficiency and organizational capacity of our Sherpas sirdar, Angtharkey. It was immediately apparent that he commanded the deepest respect from his fellow Sherpas and Nepalese coolies, yet a ready smile and good humor were always his. This fortunate combination of qualities along with mature judgment has made Angtharkey a true leader of men. Our twelve Sherpas varied greatly both in personality and past experience, but we were delighted to find that they all possessed a spontaneous light-heartedness that seems inherent in the Sherpa race.

From the start it was apparent that we were going to be a spoiled lot of Americans. At first we resisted. We told our Sherpas that we would gladly blow up our own air mattresses and that we didn't mind pitching in with camp chores, but they always had their way and ended up doing all the work while we meekly looked on. Can we ever forget the time that Bill Long was demonstrating the approved survival method for starting a campfire in the rain while our Sherpas watched dubiously! The technique involved numerous whittled "fuzz sticks" and the sheltering of these from the rain somehow in order to start a blaze. Finally, after Bill's repeated failures, Tashi, one of our older Sherpas, left the group—evidently weary of such ineffectual efforts. A moment later, he returned from the cooking area with a pot of glowing coals. These he dumped unceremoniously on

Bill's smouldering pile, muttering, "No good, Sahib, much better this way." A chapter on our march into Base Camp might well be titled "The Himalayan Education of Ten Americans by Their Patient Sherpas."

Our route followed due north through the foothills and partly along the Arun River and was well traveled at this time of year. Jungle fires were burning uncontrolled everywhere on the lower hills, and the resultant haze completely obscured any views of the high peaks that we might have had at this time. Even Nepal has a smog problem! Land burning on steep slopes will surely pose an eventual erosion problem in Nepal, and although the cultivated fields are always terraced, we saw a good deal of erosion already in evidence.

During the march in I was busy making a collection of small birds and mammals for the University of California, so most of the time I moved apart from the rest of the group. Although it was still March, the trail dust and heat in the foothills was excessive, and at this time we thought that a better conditioning exercise for a Himalayan expedition than our winter climbs in the Sierra would have been a mid-August hike across the Nevada Desert.

With the Arun River crossing at Num we finally had our taste of the famed Nepalese bamboo suspension bridges. This one was a 200-foot swinging span, 50 feet above the torrent. It was disconcerting to hear that these bridges are never repaired until they collapse of old age, when a new one is built, and even though we were assured that the present structure was not due to fail for several more months, last year's fallen bridge heaped along the water's edge was an all-too-constant reminder of their eventual fate. It took a day and a half getting our crew of 250 coolies across the Arun.

Beyond Num we climbed steadily, and when we reached snow line two days later at 10,000 feet, the seldom-used trail was gradually lost. After we had spent a day in a snowstorm trying to relocate the trail, the 100 coolies who had accompanied us from the plains and had probably never experienced snow decided that they had had enough and quit for home. We could hardly blame them, for even those of us clothed in full moun-

tain outfits found it rather miserable going, and these people had no shoes and only very flimsy garments. The rest of our coolies, who had come down to the expedition from the hill country and were Sherpas in origin, seemed to welcome the snow. Our solution was to make a cache of food and equipment for these hardier souls to return for in a relay after we had reached base camp. We still had with us 30 Sherpanis or lady Sherpas, each carrying a full load. It must be admitted that we had originally been doubtful about hiring female porters, but they certainly now proved their worth, both as cheerful load carriers and real morale boosters for the rest of the coolies.

After a day of reconnaissance, floundering in the fresh snow, we located the long-sought Barun Valley which would lead to the base of Makalu. Actually we entered the valley too far down, in the portion that Eric Shipton had described as a "typical impassable Himalayan gorge," and if it had not been for the old avalanche snow choking the rock-walled gorge bottom and providing a veritable highway in otherwise hopeless stretches, or for the trail-construction genius of the Sherpa crew across some very exposed moss gardens, we should never have gotten our heavily laden coolies up the canyon. As we moved up the Barun, we were surprised to find less and less snow to impede progress, probably because we were entering a kind of "rain shadow" so close in to the high peaks.

We were now above the zone of jungle fire haze and were gaining our first views of the tremendous snow-clad summits. Even these mere 20,000-footers were greater peaks than most of us had ever seen. Finally we rounded a corner in the valley, and there, unmistakably dominating all lesser giants, was Makalu. This was the peak of which Mallory after his glimpse in 1921 had proclaimed, "Among all the mountains I have seen, and, if we may judge by photographs, all that ever have been seen, Makalu is incomparable for its spectacular and rugged grandeur." An immediate discussion of route possibilities ensued among the climbers and lasted until an hour later when mists swept away all further views.

Our immediate task was the selection of a site for Base Camp. We had originally assumed that this would be on the Barun Glacier, but the glacier had receded considerably, since our map

showed ice where we now stood, yet there was no sign of it in the next several miles. For Base Camp we chose a broad ledge just above the stream and about two miles away from the southwest slopes of our mountain. Although at 15,500 feet we were well above timberline, there was some low juniper scrub on the slopes nearby. We could hardly have picked a more pleasant spot at this elevation in which to spend a good part of the next two and a half months. On the next day, April 4th, Base Camp was established, just three weeks after we had left the roadhead at Dharan. Surprisingly enough, a year ago in Berkeley, we had calculated that the march in should take three weeks

W. W. D.

PART II: *The Climb and Conclusion*

For six days following our arrival at Base Camp on April 5th there was a continual flurry of activity throughout the camp. High-altitude clothing was issued, Thermo-pac boots fitted, high-altitude food units completed, and a veritable orgy of physical tests indulged in under the relentless eye of our physiologist, Nello Pace.

The immediate problem was that of reconnaissance. Since no previous attempt had been made on Makalu, the route was purely a matter of conjecture based on aerial photos and the reports of Shipton and Evans who had descended the upper Barun with Hillary and Lowe on their return from the Everest reconnaissance in 1951. Of the four main ridges of Makalu, two were easily ruled out. The West Ridge, from both photos and direct inspection, was obviously of much too severe an angle to give any hope of even a start being made on it. Thousands of feet of narrow rock rib sweep from the valley floor direct to the summit with scarcely a break. The East Ridge was not accessible to view from the Barun, but photos showed it to be extremely long, and the combination of its length and the difficulty of approach to its foot ruled it out.

Both of the remaining ridges, the North and Southeast, had to be counted as possibilities, so it was with the idea of gathering additional information upon which to base our final choice that we sent out our two reconnaissance parties on April 11th. Four

climbers and four Sherpas spent five days looking over the approaches to the col on the North Ridge, while four other climbers with three Sherpas were gone three days looking for a possible eastern approach to the col on the Southeast Ridge. Both parties returned hoping that the other had found something about which to be optimistic.

Hillary had earlier expressed an opinion that the North Ridge was the logical route, and surely in length and general angle this seemed a good estimate. However, the approach to the col appeared to offer considerable difficulty, while a tremendous concave nick in the upper part of the ridge promised to be a serious obstacle. Then, too, it was reasoned that the northern exposure to the northwesterly winds would prove a hindrance which would be reduced by the protective bulk of the mountain if we chose the Southeast Ridge. The clinching factor, however, was that of the logistic problem of moving our Base Camp a distance of from three to four days march up the Barun Valley in order to be within striking distance of the col on the North Ridge. To have done this would have placed a severely critical strain upon both our reduced porter force and our depleted cash box. The Southeast Ridge was therefore chosen as the route for what we then considered our reconnaissance-in-force, but which later proved to be the extent of our entire effort. An added advantage of this route was its unobstructed view from Base Camp, facilitating the daily radio contact which was maintained between Base and all high camps. Smooth movement of men and supplies was greatly aided by this arrangement.

On Easter Sunday, April 19th, the climb itself began in earnest with the dispatch of two climbers and eight Sherpas for the establishment of Camp I. Steck and Unsoeld led up a long talus slope which split the cliffs a safe distance to the left of the area marked on our "avalanche schedule" as unduly hazardous. An excellent site for Camp I was located at the top of the cliffs near the end of the talus and just short of the snout of the prominent medial moraine. Here the rock had been polished into massive slabs by the action of the near-by glacier and a deep hollow had been gouged out which now caught the melted out-run from the fall which was less than 300 feet away. The result was an emerald pool about a hundred yards across. Its waters were of the

purest clarity and, even more remarkable, this pool never froze during our stay. The mile-long lake at the snout of the Barun Glacier was frozen solid for a long while after our arrival, but the Emerald Tarn maintained a fairly steady temperature of about 41°F. Camp I was placed on a handy gravel bed only a few feet from the edge of the lake at an altitude of about 16,500 feet.

The medial moraine leading up from Camp I proved an impracticable route because of its succession of vertical ice steps, from 10 to 15 feet high, which were often menaced by precariously perched boulders frozen into the ice. A most satisfactory alternate route was pioneered by Steck and Unsoeld up the talus slope to the left of the icefall above Camp I and then across the center of the two icefalls on a long ascending traverse to the center of the main glacier which sweeps down from the col. From a distance these two icefalls appeared hopelessly tangled and twisted, but once entered they proved to offer a well-surfaced highway to Camp II. Successive small pond platforms of smoothly frozen ice were conveniently joined together by gently sloping ice inclines with only a relatively few rough spots to mar the smooth saunter to Camp II at 18,000 feet.

While overlapping relay teams of climbers and Sherpas flagged the route with specially prepared bamboo "willow wands" and thoroughly stocked Camp II, Steck and Siri with Gompu and Tashi reconnoitered the route to Camp III. They had hoped to place it on the col itself, but a late start and poor visibility had forced them to drop their loads some 500 feet short of the crest, after putting up an excellent route over the monotonously fatiguing snowfields below the col. On April 26th four climbers and four Sherpas established Camp III less than 200 feet below the col at an altitude of about 21,500 feet. A platform had to be carved out of the discouragingly steep slopes before Meyer and Unsoeld could be established for a try at Camp IV the next day. The other six went back down for another relay, planning to come up the next day in support.

Both cold and wind were extreme the next morning, limiting operations to an unsuccessful search for a better campsite in the vicinity of the col. After an hour or two, the advance party was forced back into its tent to recuperate. Later in the day, they

made a final attempt to pick out a route to Camp IV, reaching a position on the rapidly steepening slopes of the South Face from where a possible route back to the crest of the ridge was visible. Bulges of rock and ice on the crest of the ridge immediately above the col ruled out the first 500 feet of the crest as a possible route, forcing us onto the face as the only alternative.

On April 28th Houston and Dunmire arrived at Camp III while Meyer and Unsoeld returned to Base. The next day the attempt on Camp IV by Steck and Long was soon blotted out by heavy clouds which not only stopped the attempt a few hundred feet above Camp III, but also destroyed all contact with Base Camp until the party returned on May 1st. Heavy snow on the mountain had driven them back and put a stop to operations for four days.

During this enforced delay, we enjoyed the first formal function of the Barun Valley 'Dining Is Such Sweet Dalliance' Society—a ceremonial dinner honoring Sir Edmund Hillary and Bill Bevan who graciously made the trip up from their near-by Base Camp for the occasion. The apparently barren Barun itself supplied us with the main course—roast Ram Chukor a la Thon-dup; while our resourceful M.D., Dr. Bruce Meyer, supplied the liquid refreshment, tapped from deep within the dim recesses of his well-lined medicine chest and composed of purely medicinal ingredients, such as formaldehyde and the like.

By May 5th the snow had consolidated sufficiently and Houston and Unsoeld reopened the route to Camp III. Remaining at Camp III as support, they watched Long and Dunmire get a good start at 0630 in putting the route up to Camp IV, which was hopefully aimed at the ridge at about 23,000 feet. Despite the early start, a point only about half way to the projected site was reached. The snow slopes were steep enough now to require considerable belaying and, at their highest point, the two men had reached a rock band where they left our first serious piton.

The following day Houston and Unsoeld were away by 0530—a near-record for the trip—and, with the help of the wands and steps left by the party of the previous day, reached the previous high point at about 1300. The clouds were already solidly upon them with visibility quite poor while the snow-covered rock band proved stubbornly difficult. Three pitons were driven

for safety in the next 40 to 50 feet. From the top of the band, at about 22,300 feet, a narrow snow gully was traversed steeply to the left for three slow rope-lengths. Deep, very poorly consolidated powder snow necessitated piton anchors in the gully walls and cut progress to an exhausting minimum. By 1500 they appeared to have reached the final large snow band which traversed back to the ridge crest at an easy angle, but visibility was barely 100 feet by this time, so it was impossible to verify their position exactly. Two rappels were made on the return down the gully and over the rock band, but even then the descent was extremely slow and Camp III was not reached until 1810.

On the following two days, May 10th and 11th, the extremely high wind prevented further operations above Camp III, so the time was spent in enlarging the snow cave which had come to serve as a cafeteria-warehouse-day room at Camp III. Largely because of Bill Long's efforts, it grew to accommodate about 10 men comfortably and proved an invaluable asset in resisting the high winds which were so common at this camp. A smaller excavation served as a wind-proof rest room which established our facilities at Camp II as absolutely plush in comparison with its earlier bleak inhospitality.

Previous efforts had made it apparent that Camp IV would have to be located about half way to the site which we had hoped to utilize. A location on the face itself would have to be constructed although the prospect did not look encouraging. On May 12th the wind moderated enough to allow Long and Unsoeld with two Sherpas to get up to the final snowfield below the rocks and carve out a small platform upon which to dump their tents, stoves, and food units. One hundred and fifty feet of fixed rope anchored to ice pitons greatly improved the route across the steep snow slopes just below Camp IV.

Steck and Meyer were ready to consolidate Camp IV the next day when Long was suddenly stricken with paroxysmal auricular tachycardia, as diagnosed by Dr. Meyer. The attack lasted about three-quarters of an hour, with Bill's pulse hovering about the 200 mark. Digitalis injections brought eventual relief, but no further travel was possible that day. In the afternoon Siri and Dunmire arrived to support the consolidation of Camp IV, but as the weather continued poor it was decided that further efforts

above would prove unrewarding for a time, so on May 14th all six climbers at Camp III descended to Base Camp.

For four days at Base Camp the weather held foul with a daily weather report predicting worse to follow. The predicted lull which is supposed to set in about two weeks prior to the arrival of the monsoon was certainly coy about putting in an appearance. Through special arrangements with All-India-Radio we were receiving daily reports on Himalayan weather and the progress of the monsoon, neither of which looked very encouraging. By May 18th our time margin had become so slim that it was decided that another start must be made despite the weather.

The following morning, Steck and Unsoeld left with two Sherpas to reopen the route to Camp III on what was clearly to be our last attempt. Encouragingly enough, the weather broke clear and bright despite ominous reports from the radio. Camp III was reached in two days and one carry was made to IV under a blazing sky and a total lack of wind. A dysentery attack suffered by Unsoeld prevented the scheduled occupation of Camp IV, and by the time the support party of Long and Meyer arrived at Camp III, the weather had again deteriorated.

In the following days several attempts to reach Camp IV were completely frustrated by the weather before Long and Steck finally broke through. A tent platform was out of the question because of the continual flow of granular snow down the snowfield. These waves occasionally reached the proportions of small surface avalanches and would have soon buried any tent erected. Steck and Long were therefore forced to burrow into the slope. A small, cramped tunnel was scratched out beneath the surface and a tarp rigged as a trap door to keep the snow out. The extreme angle of the slope demanded a belay every time anyone was forced to step outside the entrance of the icy retreat.

For four days Camp IV was occupied with but little abatement in the weather. One try at Camp V carried a few hundred feet up the face, but snow and wind stopped all attempts far short of the crest of the ridge. By now Camp III was occupied by Siri, Houston, Dunmire, and Meyer, while Unsoeld was taking a stomach cure below at Camp II. Fritz Lippmann, the eighth member of our climbing party, had unfortunately been suffering from a stomach ulcer ever since our arrival at Base Camp and



CAMP III AT 21,000 FT.
ON SADDLE OF
SOUTHEAST RIDGE
Looking southwest,
with Barun Valley
in middleground.
Photo, W. Siri



CAMP III
ON MAKALU
Sherpas preparing
for trip to Camp IV.
Photo, W. Siri

had been denied any extended participation in the climb itself. His supervision of the Base Camp commissary had done much, however, to increase the benefit of our occasional rest days.

By May 28th, when Steck and Long returned from their stay at Camp IV, it was obvious that the summit was out of the question. We had to accept the fact that the monsoon would reach us within little more than a week and the weather, if anything, appeared worse each day. It was decided to have at least one more go at establishing Camp V on the ridge, from where it was hoped to get a much clearer estimate of the further difficulties involved on this route.

Dunmire and Unsoeld therefore occupied Camp IV on May 29th and the next day pushed up to the rock band with two Sherpas. The weather had closed in early in the morning and it had been snowing lightly during the several hours of their climb. By the time they had installed a 50-foot rope ladder across the pitch of difficult rock, conditions prohibited any further advance. The two Sherpas were exhausted by this effort and the next day were forced to return to Camp III with Dunmire. The same day Long came up with the last three Sherpas who were in condition for another try. On June 1st Long and Unsoeld, with the Sherpas, Gompu, Mingma, and Kippa, finally reached the crest of the ridge and established Camp V at about 23,000 feet. The rope ladder greatly helped this effort, but the weather was nearly prohibitive. Between 12 and 18 inches of fresh snow fell at Camp III during that day and only the steepness of the slopes, which continually drained off the granular fall, prevented the advance party from being seriously menaced by avalanches. Unsoeld was once more suffering from dysentery, so it was Bill Long, in a magnificent demonstration of endurance, who broke trail all the way to Camp V.

This highest camp was set on a level snowfield atop a rounded rock knob on the very crest of the Southeast Ridge. From the camp the ridge could be seen to stretch away at an easy angle as far as the Great Gendarme, which is easily visible on the ridge just below the break where the ridge levels off. No apparent obstacles occur over this stretch of some 2000 feet and progress should be rapid here, given the proper snow conditions.

The high point was established on June 2nd, a few hundred

feet above Camp V, but the weather was still very threatening and snow began falling again at 1300. The final descent began on June 3rd with Long and Unsoeld coming down to III in a blinding snowstorm all the way. The going was extremely delicate on the snow band just below Camp V and it was only the piton anchors put in the rocks just above the band which enabled the party to check the frequent falls which were occasioned by the extremely unconsolidated snow. The report had been received that the monsoon would strike the Makalu area within two days and that the storm would be continuous until then, so little time was lost in evacuating the mountain. The actual arrival of the monsoon was entirely unnoticed by our party. No detectable difference could be distinguished between what was supposed to be the monsoon and what we had been experiencing over most of our stay in the Barun. All agreed that it was a very peculiar season—and we were most unfortunate to have chosen it for our attempt.

The march out to Joghani was enlivened chiefly by an increasing concern over the dwindling contents of our cash box. As successive relays of porters were paid off, our margin of solvency was rapidly reduced until it appeared likely that we would be forced to borrow from our Sherpas in order to insure the salvage of our 50 loads. Ang Tharkey, to whom we were already so deeply indebted for his competent handling of our approach march, blithely waved aside our worries, assuring us that he and his boys had plenty of funds to see us through to Joghani, where our own reserve could be secured from Calcutta. However, his expert management of the coolies eliminated even this necessity and we were just able to reach the border under the power of our own currency.

By way of brief summary of the accomplishments of our expedition mention might be made of the following:

1. The thorough establishment to an altitude of 23,000 feet of the lower half of an interesting and difficult route on Makalu and the positive demonstration that this route will go to at least about 25,000 feet. This effort was made with only the loss of three toe-nails among the entire party of 10 sahibs and 14 Sherpas, despite weather which set a casualty record among Himalayan climbing parties.

2. The collection of a significant addition to the known body of data available concerning both man's acclimatization to altitude and his physiological reaction under stress. Dr. Pace's program was not only most ably conceived, but also relentlessly carried out—despite occasional strong protests from his reluctant subjects.

3. The collection of a good set of bird and mammal specimens from the area by Bill Dunmire, whose determination with the shotgun was even known on one occasion to over-step the limits of the local livestock.

4. The collection of information on the topography of this poorly mapped region, accompanied by a set of representative geological specimens by Bill Long.

5. The collection of an amazing plethora of Himalayan insects by our biologist, Dr. Laurence Swan. Larry not only demonstrated his own enviable zeal with the bug net, but communicated his enthusiasm to the Sherpas who contributed an endless stream of local wildlife to his collection bottles. Even an unwary chicken or two were seen to fall prey to the questing nets.

6. The acquisition of considerable information concerning the problems encountered in organizing Himalayan expeditions today. The fact that our trip was conceived, planned, and successfully executed according to schedule by a group of novices in the Himalayan field will, we sincerely hope, act as an encouragement to future American Himalayan ventures. That our mistakes and painfully gained insight into the details of organization may be readily available to interested groups, a careful report is being prepared for filing with the American Alpine Club.

7. And, of course, of primary importance to the individual climbers composing our party was the unparalleled experience of gaining a first-hand acquaintance with the greatest mountain range on earth through the privilege of making the first attempt on one of its finest peaks. Our entire party joins in thanking deeply all those many friends who helped make this privilege possible.

Summary of Statistics

ATTEMPTED: Makalu, 27,790 ft., Nepal Himalaya; previously unattempted, second highest unclimbed peak (if Lhotse

MAKALU, 1954

is considered part of Everest), and fourth highest mountain in the world.

HEIGHT REACHED: 23,200 ft.

PERSONNEL: Leader, Dr. William E. Siri; Deputy-Leader, Dr. Nello Pace; Dr. Laurence Swan, Dr. Bruce Meyer, Allen Steck, Richard Houston, Fritz Lippmann, William Dunmire, William Long, and Willi Unsoeld.

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W. U.

