Chamlang 1991

Expedition Report

The First British Ascent

Andrew Pollard

Andrew Knight

Contents

acR25231

Expedition Team

Andrew Knight (leader)

Andrew Pollard (leader)

David Collier (scientific officer)

Carolyn Knight (expedition doctor)

Richard Hancock (expedition botanist)

Annette Carmichael (climber)

Dave Gwynne-Jones (climber)

Angus Andrew (climber)

Neil Howells (climber)

Peter Pollard (climber)

Ngatemba Sherpa (sirdar and climber)

Ratnakumar Tamang (cook)

Ngawang Sherpa (kitchen boy)

June (kitchen boy)

ITINERARY

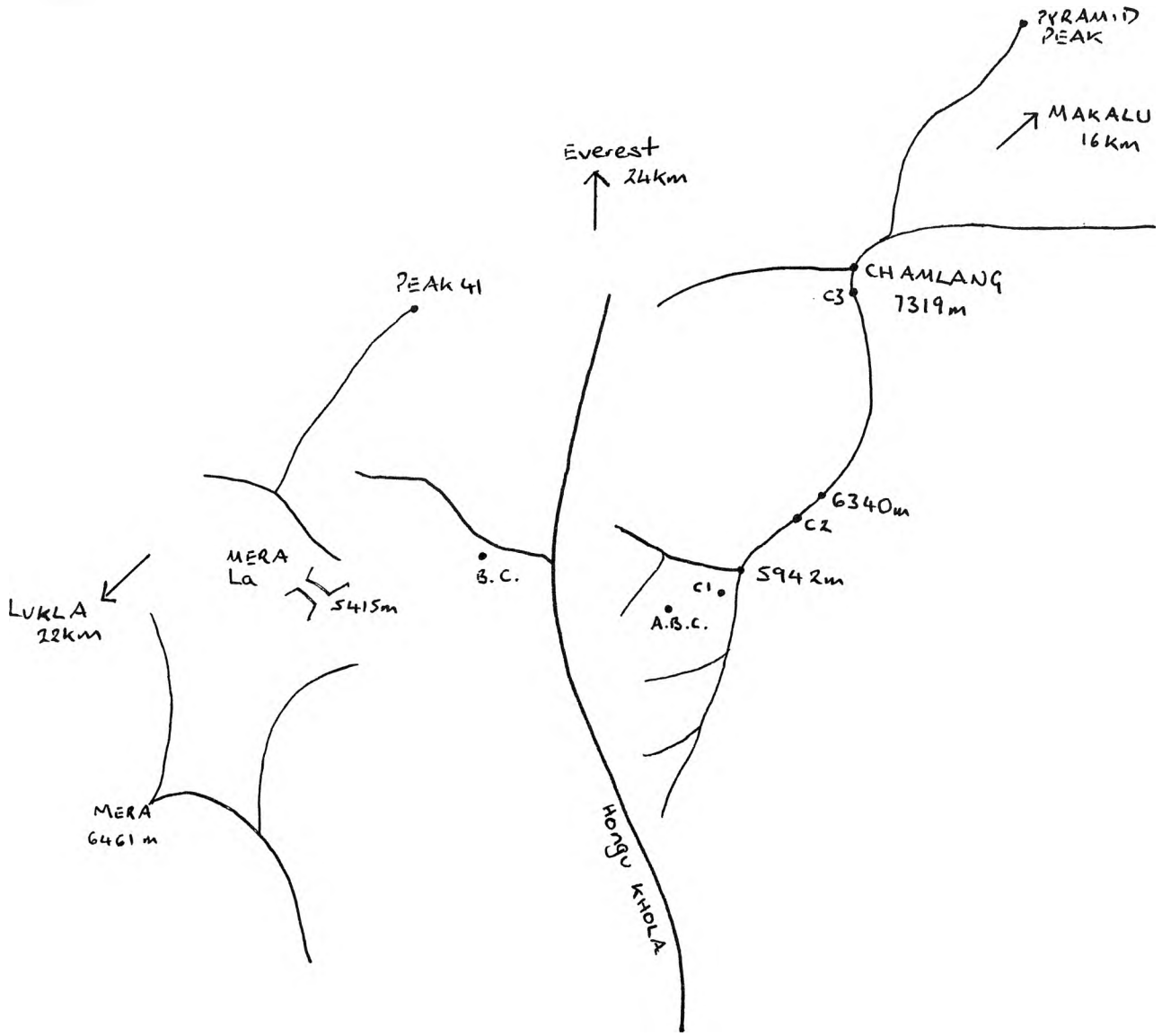
September 1991

12-13th	London - Kathmandu
14-15th	Kathmandu
16th	Kathmandu - Hille (1955m)
17th	Hille - Mongmya (433m)
18th	Mongmya - Sultibari (430m)
19th	Sultibari - Tumlingtar (450m)
20th	Tumlingtar - Katighat (495m)
21st	Katighat - Goti Bazaar (800m)
22nd	Goti Bazaar - Phedi (1640m)
23rd	Phedi - below Salpa Pass (3000m)
24th	Over Salpa Pass (3350m) - Gudel (2030m)
25th	Gudel - Khiraule (2550m)
26th	Khiraule - Chalem Kharka (3535m)
27th	Chalem Kharka - Khola Kharka (4158m)
28th	Khola Kharka - Clearing by Hinku Khola (3500m)
29th	Hinku Khola - Naulekh Kharka (4350m)
30th	Naulekh - Khare (4950m)

October 1991

1st	Khare - Mera La (5415m) - Mera B.C. (4950m)
2nd	Mera B.C. - Chamlang Base Camp (4700m)
3-5th	Chamlang B.C. - exploration of West side of South Ridge
6-7th	Chamlang B.C. - exploration of route to Camp 1
8th	BC - ABC (5170m)
9th	ABC - C1 (5740m)
10th	C1 - Start of South Ridge of Chamlang
11th	C1 - First Rock Tower
12th	C1
13th	C1 - First Rock Tower
14th	C1 - Second Rock Tower
15th	First Rock Tower - C2 (6280m)
16th	C2 - C1
17th	C1
18th	C1 - C2
19th	C2 - Bivouack (6840m)
20th	Bivouack - Summit (7319m) - C2
21st	C2 - C1
22nd	C1 - BC
23-26th	BC
27th	BC - Mera BC
28th	Mera BC - Naulekh
29th	Naulekh - Tashingding
30th	Tashingding - Chatterbung
31st	Chatterbung - Lukla (2804m)

HONGU VALLEY AND CHAMLANG



BIG BIRD FLAPPING WINGS

At 12.30pm on 1st August 1990, Andrew Knight and I met in the bar of the Ski Club in Eaton Square to plan an expedition. We spent the afternoon reading in the library of The Alpine Club about peaks and valleys in Nepal and realised that we didn't know where to start. By the end of the day we knew where to start. After another week of almost continuous research one mountain, Chamlang, had caught my imagination.

Chamlang, which in the Sherpa dialect means "Big Bird Flapping Wings", at 24,012ft (7319m) was first climbed in 1962 by a Japanese team on the South Ridge, a route repeated by the Koreans in 1987. The Mountain has also been climbed via the West Ridge (Japanese in 1986), the most recent was an ascent by the Germans in 1990 on a variation of the original West Ridge route. Our attempt at the South Ridge was to be the first British attempt. Chamlang was surveyed in 1954 by the New Zealand Barun Expedition, on which the British surgeon Sir Charles Evans, patron of our trip, was a member. The Japanese ascent (1962) was inspired by the survey in 1955 of Chamlang from the West by another Briton, N. Hardie, who wrote "Chamlang has a minor weakness in its line of defence when viewed from the West".

Thatcher resigned, Mr Hussain invaded Kuwait, Mr Major went to the Gulf and the might of the Allied forces fell upon Iraq. Meanwhile we received permission from the Nepal ministry of Tourism to climb Chamlang and our plans materialised. Finally, a team of 10 members formed consisting of 7 climbers, an expedition doctor (Andrew Knight's wife, Carolyn), an amateur botanist and our scientific officer, David Collier, led by Andrew and myself.

We arrived in Kathmandu in mid September 1991 a year after the expeditions conception and immediately began the struggle against beaurocracy and corruption to get the necessary permits, and to extract our freighted equipment from Customs before we could set out for Base Camp.

The march to base camp took two weeks and the variety was tremendous. We began our trek almost at sea level in the Arun Valley with temperatures in the sun of over 45°C and 100% humidity. These days were sweaty and I remember one evening drinking 5 litres of tea! On 21st September we left the Arun and headed West, gradually gaining height and cooler air. However, this brought a plague of leeches which seemed able to get into, through, up and down all articles of clothing for a feast. Carolyn's panicstricken screams on the discovery of one on her chest will echo throughout Nepal for centuries.

At Gudel, we were diverted from our planned route by a landslide in the Hongu valley at the head of which out of sight stood Chamlang. Instead we travelled further West before turning North where eerie forests dripped with damp moss and the mist hung around in the still air. We dropped down from a ridge into the Hinku Valley and after a day fighting through more forests we emerged above the tree line into warm high Alpine scenery, Yaks and Yak-herders in abundance.

During the trek, David, was conducting his experiments in a frenzy. The expedition members were enticed into his tent late at night, even invited into his sleeping bag to be connected up to a selection of gadgets measuring everything from arterial oxygen saturation to blood pressure. Our Nepali staff were fascinated by his flashing lights and rude mechanical noises and sat for hours watching. At least they were impressed, but in true Bart's tradition we were all reluctant subjects, taking great care to see every oppurtunity to scorn the progress of science. I believe there is a tremendous amount of data, shortly to be released on an unsuspecting Physiological Society.

Richard our botanist - called "the old man" by the Nepali's collected seeds endlessly. A most curious occupation. For Richard, the pinnacle of the trip was a discovery about the sex life of the gentian which didn't turn me on at all!

From Naulekh at the head of the Hinku valley, we headed East ascending to 5400m and crossing the Mera La (Mera pass) below which we made our Base Camp. From the Eastern side of the pass we had our first view of Chamlang an enormous sheer face of snow, ice and rock, "the big bird". It was breath-taking and wonderful and I was filled with doubt that we could climb it.

Because of a strike by some of our porters it took several days to ferry loads across this glaciated pass and I stayed behind to escort the porters while the rest of the team set up Base.

It was on the second trip that a 12 year old apprentice porter developed acute abdominal pain and was carried down to Naulekh. I spent a worried 12 hours trying to exclude a surgical problem (appendicitis and one week away from a hospital), while all the medical supplies were with the rest of the team at Base Camp. Finally, diarhoea supervened, I pronounced a diagnosis of gastroenteritis, and he was fully recovered the next morning to my relief!

On 4th October I arrived at a deserted Base Camp, the others who had gone in two parties to reconnoitre a route to the South Ridge of Chamlang were expected back on the next day. Base Camp (4700m), in the early morning sun was glorious. It was a grassy place strewn with large boulders beside a babbling brook from the banks of which hung cold fingers of ice. Before the sun was hot our wigwam shaped base camp tents were covered in frost and frozen condensation inside the tent from the night fell as snow on our sleeping bags. The tents were pitched about 100m above the Hongu river, a wild torrent draining innumerable glaciers. Across the river and now 2.5Km straight up above a tremendous face of rock and ice stood the snow covered summit of Chamlang, golden in the sun. Beautiful and terrifying.

It was a different matter in the afternoons at base camp when freezing fog filled the valley and all was cold and damp. Richard was often to be found at these times wandering around camp in inches of

down muttering about how too long spent in the Hongu valley could wear a man down.

Over the previous two days a feat of engineering had been accomplished by various members of the team constructing a rope bridge across the Hongu river, facilitating access to Chamlang.

At lunchtime the two parties returned from their reconnaisance. Neither group had found a straightforward way to reach the South Ridge of Chamlang and the mood was solemn during the afternoon. In 1962, the Japanese took nearly two weeks to find a route onto the South Ridge, we didn't have that amount of time, if we were going to reach the top.

October 6th. Angus, Neil, Ngatemba and I left Base camp at 3.30am resolute in our determination to push a route onto the South Ridge of Chamlang. First we descended with difficulty down to the river Hongu, following the brook from Base in the dark. Then we headed steeply up the other bank of the river resting frequently weighed down by ropes, stoves, gas, axes crampons and gear for a bivouac. Initially, we followed a loose rocky ridge to the right of a glacier flowing West from the end of the South Ridge of Chamlang. Neil and Andrew on the previous day had thought that this might lead to a high point which would facilitate access to the mountain. Soon as we approached steeply sloping snow covered rocks it became clear that we didn 't have the resources or the time to push this highly technical route.

Instead we dropped down onto the moraine below the snout of the glacier, passing a meltwater stream amongst the loose unconsolidated boulders and noting the place as a possible site for Advance Base Camp. From here the glacier snout dominated the view East. We could see why Andrew had ruled it out as a route as in several places there were old avalanche tracks scarring the snout and beautiful toppling ice towers overhung part of the route. We felt that in the early morning cold the risks would be acceptable. We pressed on taking the glacier on its left up loose rocks before traversing across a threatened platform to the right side of the glacier. From here the climb was straightforward on steep snow but exhausting with heavy rucksacks at over 5500m. We bivouacked that night in a crevasse in thick freezing cloud.

Morning was clear and we found ourselves 100m below the crest of the glacier. The crest was a flat football pitch sized snowscape. On its right rose the South Ridge of Chamlang 250m to the blue skies. Here we chose for Camp 1, launching place for the skies.

Later that day back at base camp we reported to the rest of the team in the afternoon mist with excitement that we had cracked it. Furthermore, this was an original start to the route, the Japanese had started their climb further North and missed out the first part of the ridge.

On 8th October, the arduous task of load carrying began. The fittest of us carried 70lb rucksacks (35Kg) and it took all day to

reach the site for Advance Base Camp (5170m). We pressed on to Camp 1 (5740m) the next day and set up siege headquarters - a collection of 3 tiny tents in a desert of snow.

During the next two days two parties investigated the first part of the South Ridge and laid fixed rope down the 250m trade route to the start of the ridge. We could soon see that the first part of our climb was to negotiate two rock towers which barred access to the next part of the ridge. On the second day Angus arrived at camp in the dark filled with anxiety. He had descended the fixed rope expecting Ngatemba (our Sirdar) to follow but he had not appeared. We discussed a plan of action and concluded that it was not safe to search in the dark. At first light Ngatemba appeared, a small spec on the ridge moving slowly. He walked stiffly and silently into Camp 1 an hour and a half later, got into his sleeping bag and slept. He had spent the worst night of his career without shelter or bivouack equipment in high winds on the rocky ridge. The night before he had been unable to descend to warmth and safety as he didn't have a torch.

What's more, Angus and Ngatemba had struggled over the first rock tower to be faced by a seemingly impassable wall of rock on the second tower. Ngatemba was in bed all morning. Demoralised we talked all day about alternative routes, the danger, and giving up. Finally, we decided to push the ridge. However, Andrew who had only been married a few months made the brave descision to turn back. For him the danger was unnacceptable. Peter, my elder brother, a man of hidden depth, wild ginger facial hair and enormous apetite, had not acclimatised well and he agreed to support us carrying loads of food and equipment from base camp to Camp 1 alone. This thankless task of support was the key to our success preserving our strength now that we were reduced to a climbing team of 4: Neil, Angus, Ngatemba and myself.

Our next task was to make the first rock tower safe and we spent a day fixing rope in a rising traverse on loose rock. All day our hands and feet dislodged boulders which tumbled down thousands of feet to a distant glacier to the East.

Angus and I needed a rest day after that hard day's climbing and we spent the next day at Camp 1 while Neil and Ngatemba pressed on to the second rock tower with more fixed rope, planning to bivouack that evening and go further in the morning. At the same time Dave and Annette carried a load of food and gear up the fixed rope to be picked up later. They had a marvellous day and returned buzzing.

The next day, we rose early and climbed the fixed rope along the first rock tower. At one point I turned round to see Angus sitting with his head bowed on his chest, emotion hidden behind his reflective goggles. Later he joined me at the spot where Neil and Ngatemba had spent the previous night and he was clearly quite shaken. Whilst unclipped from the fixed rope he had stumbled and fallen onto his left shoulder narrowly escaping an enormous fall to his death.

It was nearly midday and we spotted the other two already on the top of the second rock tower some 4 hours ahead of us but just within earshot. Neil shouted that they were going on.

That afternoon was the most glorious climbing for me. We descended from the first rock tower to take a line between the snow plastering the West face of the ridge and the second rock tower above. We were carrying heavy loads of climbing equipment and food to dump in preparation for the summit bid. The climbing was mostly staightforward on nasty soft snow but with the safety of fixed rope that the others had left. Every now and then our progress was hampered by a difficult rock pitch (grade Severe/Very severe) but this was exhilirating in the thin still air, brilliant sunshine and dramatic scenery of the high Himalaya. Behind we could see Camp 1 and ahead was the summit of Chamlang and in the distance to its left the black South West face of Mount Everest looking most unfriendly.

At the end of the fixed ropes we buried our loads in a small cave, blocking the entrance with climbing hardware as protection against theft of food by ravens. These enormous birds had been a repeated problem for us pecking holes and ripping our tents and then spreading the contents of packets of noodles and cup-a-soups about any empty campsite.

Angus and I returned to Camp 1 that night, while Neil and Ngatemba established Camp 2 at 6280m on a thin snow arete on the crest of the South ridge of Chamlang -

Base Camp visible as a collection of red dots far below.

That night I lay awake for a long time. We were almost in a position to go for the summit. We all wanted a rest at base camp, some real food and a wash but this would make us very short on time and the long walk back to Camp 1 would undo some of the good to be gained by a rest at Base. The next problem was who to send for the summit. Neil and Ngatemba were the strongest. Angus had the most technical expertise and I wanted to go because it was my expedition. Finally, I decided to send the two strongest, realising that this would probably exclude me. Neil and Ngatemba returned the next afternoon and Andy & Peter's arrival with buffalo fried rice and cooked potatoes decided our fate. We would rest for two days at Camp 1 and then all 4 go for the top together.

On 18th October we set off for Camp 2, fixing the last 100m of the second rock tower and arriving to pitch tents in the aftternoon mist. We ate well on our stocks of food, frozen potatoes reheated in soup, and slept soundly.

The morning of 19th was fine and we set off over the frozen snows northwards at 7.45am. The morning was a long and terrific ridge bash with incredible exposure and hardwork as the sun softened the snows. We climbed as two pairs, Neil and Ngatemba ahead breaking trail. By mid afternoon we reached the feared rock band which had dominated our conversation as we viewed the mountain from base camp. This had been the crux of the climb for the Japanese on the

first ascent. Neil led the climbing on the rock band, 50m of technical rock (VS/HVS) followed by a steep ice slope. Above this we roped together again as a four, Neil still leading. We were now on steep, unconsolidated snow, 3m deep and we found ourselves almost swimming to stay on the mountain. Neil fell. Angus shouted "he's off". There was nothing I could do, I was struggling to make any upward progress myself let alone arrest a fall. He whizzed past me and momentarily I realised that we were all about to plummet down the West face over the rock band, seven and a half thousand feet (2300m) down, pulled by the rope. Then it was all over, he stopped just past me, incredibly held by Ngatemba, I don't know how.

As darkness fell we clambered into a crevasse and dug out places to sleep, brewed and spent a fitful night at 6800m, short of air and desparately cold.

The morning of 20th October was again clear, but as we climbed out of our crevasse leaving behind all of our bivouack equipment the full force of a high altitude Easterly wind hit us. Painful spindrift struck all exposed flesh and dropped chilling flakes inside clothing. The slopes were straightforward now and at 10.50am we stood on the summit of Chamlang at 24,012ft (7319m).

Unkown and unseen, Peter was watching us through a 1.2m lens from base camp as we reached the summit of Chamlang more than 2 Km above him. From the summit of Mera (6476m), Andy Knight, Anette, Carolyn and the two Dave's shared in our success.

Ngatemba took out a Nepali flag and we all posed beside him for photographs. The wind was terrific, burning our faces and taking breath away. Neil took off his gloves to take some pictures and his fingers were frostbitten within seconds. We hurried down from that unpleasant spot to escape the cruel wind.

In no time we reached our bivouack, packed up, had a drink and set off for Camp 2. Just below the bivouack we had to abseil, to cross that dangerous unconsolidated snow that had caused us problems on the ascent. We had little climbing hardware left with us and three 50m abseils to perform. On the first, we placed a snow stake as an anchor and Neil and Angus abseiled down. I followed and as I descended the stake began to pull out of the soft snow, my full weight relying on it. Ngatemba stood on the stake and I thrust my axe into the snow and climbed the rest of the way down. We descended the rock band without problem and Neil and Ngatemba set off for Camp 2 at a terrific pace.

At a rock step some distance along, Angus made a belay and I descended as he played out the rope. I followed the footsteps in the ice that the others had made ahead of us but after a few steps the ice gave way and I was left hanging in my harness over the West face, held by Angus. We could afford no more near misses.

It was dark as we climbed along a knife edge of snow following our footsteps of the day before back to Camp 2. The wind was still roaring but with less ferocity than it had 7 hours previously when

we had stood on the summit where, now, in the dim moonlight a plume of snow was blowing unrelentingly East. I was staggering with exhaustion after 10 hours of climbing at high altitude. My mouth was completely dessicated and lips caked and swollen. I couldn't see Angus but I heard him groan behind and then the rope came tight between us. He had stopped. I turned back to find out what had happened. I found him half buried in a crevasse which split the ridge and into which he had stumbled in the dark. Snow had packed in on top of his legs. He couldn't move. For 15 minutes I lay in the snow vigorously digging him out. I stopped occasionally with waves of nausea brought about by the exertion and coughed and retched down the precipitous West face of the ridge. At 7.00pm we collapsed into Camp 2. Neil and Ngatemba Sherpa had been back an hour and had some hot orange ready and we sat rehydrating in silence and relief.

We arrived at Camp 2 after dark and spent many hours eating and drinking without conversation. We had done it but the elation was numbed by exhaustion.

Two days later, as the mist swirled up the Hongu valley, we returned to Base Camp to be reunited with our base camp staff and the rest of the successful Chamlang Expedition team. Andrew Pollard

The Chamlang Expedition 1991

Botanical Report

Primary Objectives:

1) To collect Herbarium specimens on behalf of Edinburgh Royal Botanic Garden (RBG) especially those from the undercollected genera such as Graminea (grasses) and Juncaceae (rushes) which are poorly represented in Herbaria, and those genera such as Gentiana and Saxifraga where confusion exists. The RBG stressed that it preferred a smaller number of well prepared specimens to the "vacuum cleaner" approach, as large numbers can overwhelm the collector if conditions in the field are adverse.

2) To collect seed of the high alpines (over 4500m) for the RBG, with seed of smaller trees from 3500m upwards for the Liverpool University Botanic Garden who were especially interested in Sorbus,

Salix and Betula and Clematis sp. from the climbers. A surplus of seed was also aimed for to provide a more general distribution to expert growers known to me from Bristol to Fort Augustus, including a few specialist nurserymen.

3) To collect soil and plant material specimens for Glaxo PLC Research Department.

4) To make any field observations of interest, especially as unusually for a botanical expedition, we would be staying in one place for about one month.

Results:

1) A total of 31 Herbarium specimens were obtained from the genera requested: 5 Gentiana, 3 Saxifraga, 4 Juncaceae, 19 Graminea (an unexpectedly high figure from this altitude) plus 1 Ephedra, a primitive genus which takes the place of grasses under certain conditions. These have now been submitted for examination at Edinburgh RBG, who have also been sent a seed list.

2) A total of 103 collections of seed were made, with especially large numbers of Primulas and Gentians in sufficient quantity to enable a wide distribution. Of particular interest is a good quantity of the very difficult woolly Saussureas, which has seldom been available. Perhaps the greatest prize is a very strange habiate, Eriophyton Wallichii, of which I am unaware of any previous introduction. A possible explanation for this was discovered while cleaning; initially I was convinced that there was no seed present until the accidental discovery that the plant holds its ripe seed in a very unexpected place, at the nodes of branches and the main stem.

A total of 20 people and institutions have been sent the seed lists, a copy of which with the seed notes is attached. The response to date has been ver positive, indeed flattering!

3) The total of 20 soil and plant material samples requested by Glaxo were collected and have now been gratefully received.

4) Two noteworthy observations were made: Firstly the existence in large quantities of Lilium nanum up to 4950m. The two most widely available floras give a maximum altitude of 4300m and 4500m respectively. Seed has been collected in quantity of this high altitude dwarf form, although whether it maintains its character in cultivation remains to be seen.

Of much greater interest was the seeding behaviour of the autumn Gentians - G. ornata and G. depressa. These flower so late in the Himlayan autumn that there has even been speculation that they hold

SEED COLLECTIONS. CHAMLANG 1991 EXPEDITION

RH 1 Lilium Nanum. Common in alpine turf around Chamlang Base Camp at 4750m.

RH 2 Compositae ? Carlina. Solitary seed head, no others found. Base Camp 4750m. Very hairy stem to 4".

RH 3 Cremanthodium Decasnei. Common in turf and on rock around B.C. 4750m.

RH 4 Compound Umbellifer. 3" tall, no lvs remaining. B.C. 4750m.

RH 5 Simple Umbellifer. V.occasional compound; White florets, dark eye, 1" - 3". Fairly common on rocks around B.C. 4750m.

RH 6 Morina Sp. To 6" basal involucralbract, 1 pr opposite leaves, all very spiny. Bracts to multiple flower heads. Large seed. B.C.4750m.

RH 7 Leguminoseae ? Astragalus Dopianus. Not common, found in more sparsely occupied areas of gravel in alpine turf. Leaves to 1", leaflets to ¼" pods extending beyond leaves. Silvery hairs on reverse of leaves and pods. Plant totally prostrate. B.C. 4750m.

RH 8 Primula sp. probably Atrodentata. Common around B.C. in turf 4750m. but all except 1 plant had shed seed. Central resting bud, yellow farinose surrounded by small toothed hairs.

RH 9 Androsace sp. Found growing in the cushion of Androsace Delavayi. Found once only on N. slope on N. side of huge boulder. 4750m.

RH 10 Androsace Delavayi. - found as RH 9.

RH 11 Androsace sp ? Lehmannii. Fairly common in turf and on banks of the N. facing slope of valley from Mera La to B.C. 4900m to 4750m.

RH 12 Primula sp Sec. Minutissimae. Rosettes to ½" fruiting stem to 2". Found only in damp hollows. 4800m.

RH 13 Unknown. Prostrate Shrub. to ½" fairly common on N. slope of valley as RH 11; absent from S. slopes. Forms (in seed) a dense woolly cover so thick that it appears to be a snow patch from a distance.

RH 14 Meconopsis Horridula. Very dwarf form, 4"-6", 5200m on lateral moraine to Advance Base.

RH 15 Waldheimia Glabra. - located on above.

RH 16 Lilium Nanum. (see RH 1). Solitary seed head on plant 1" high at 4900m; far above maximum altitude (4300m) given in "Flowers of Himilaya".

RH 17 Aconitum sp 3". 4800m in Upper Honggu, in turf.

RH 18 Compositae; Totally sessile, leaflets on opposite mid ribs 2"-3" long, 4800m. Upper Honggu, in turf.

RH 19 Saussurea Simpsoniana. 5300m in scree and on N. side of boulders. Upper Honggu.

RH 20 Delphinium Glaciale. In scree 5300m. Upper Honggu; very scarce.

RH 21 Primula Caveana. From beneath huge boulder 5100m. Upper Honggu.

RH 22 Compositae. 2" Very reminiscent of dwarf Pulsatilla. 4850m. Upper Honggu.

RH 23 Primula Caveana. 5100m. Upper Honggu. Duplicate collection.

RH 24 Gentiana Algida. 5100m. In wet turf, Upper Honggu.

RH 25 Silene sp to 4" Base Camp 4750m.

RH 26 Cassiope Fastigiata. In turf and on boulders. B.C.4750m.

RH 27 Gentiana sp. 1 plant only found. Upright seed pods, box-like leaves, B.C. 4750m.

RH 28 Aconitum sp to 6". Dark blue fls.

RH 29 Primula sp Sec Minutissimae. B.C. 4750m. on rocks; 1" fruiting stem.

RH 30 Gentiana sp ? Ornata. Common in turf and on rocks around B.C. 4750m.

RH 31 ? Rumex sp. Common in damp places; plants to 12", large winged seeds.

RH 32 Gentia sp ? Ornata. Further collection as RH 30.

RH 33 Primula sp 9" Nivalid. Strap-like leaves, heads of 3 to 8 fls. N. slope up to Mera La in damp flush. 5000m.

RH 34 Saussurea Goss ipiphora. In loose scree on crest of moraine, before descent to Mera. B.C. 5200m.

RH 35 Delphinium Glaciale. South aspect below moraine in very loose scree; no other plants present. 5200m.

RH 36 Eriophyton Wallichii. At base of S. facing cliff in scree, 5200m.

RH 37 Saxifraga sp Sec. Porophyllum. From gravel flats below Mera glacier, 5200m.

RH 38 Cortiella Hookeri. - as above.

RH 39 Eriophyton Wallichii. - further collection.

RH 40 Delphinium Glaciale. - further collection.

RH 41 Tanacetum Gossipynum. Gravel beds and scree below Mera glacier, 5200m.

RH 42 Cremanthoduim sp. Site as above. To 9" with 2 pairs leaves, appears more robust than C. Decasnei.

RH 43 Unknown. Solitary plant 6", thin toothed leaves, multiple flower head, not found elsewhere. B.C. 4750m.

RH 44 Delphinium ? Brunonianum. 4850m. above B.C. in turf. 6"-9", hairy leaves blue and veined, black stamens. Abundant in 1 sheltered hollow.

RH 45 Aconitum sp. Tiny sp. 2" blue leaves, turf near B.C. 4800m.

RH 46 Primula sp. Coll on dry rock beside stream below B.C. 4700m. Tiny sp, sessile leaves, rosette ½" across, yellow farina, stemless fls.

RH 47 Androsace sp. From N. facing slope above lateral moraine lake 4800m ? probably same as RH 11.

RH 48 Primula sp. ? Nivalid strap leaves 8" flower stem. N. side of boulder above B.C. 4800m.

RH 49 Primula ? Rotundifolia. N. side of huge boulder on S. side of lateral moraine ridge above B.C. 4800m.

RH 50 Unknown. Epilobium type seed from plants on S. shores of moraine lake above B.C. 4800m.

RH 51 Ephedra ? Gerardiana. S. facing slope of lateral moraine 4800m.

RH 52 Swertia sp. 4" at foot of lateral moraine, 4750m.

RH 53 Ranunculaceae ? Anemone sp. Very reminiscent of Callianthemum from N. side of huge boulder on crest of lateral moraine 4800m. Site shared with

RH 54 Primula sp to 9" ? Nivalid. Site as RH 53.

RH 55 Primula sp Sec Minutissimae. To 2" in seed, below lateral moraine in damper patches. Probably as RH 12.

RH 56 Aconitum sp. 4" from below lateral moraine at B.C. 4800m. on S. facing slope.

RH 57
RH 58
RH 59
RH 60
) Gentiana sp of G. Carinata type from various sites on lateral moraine. probably G. Tillmanii

RH 61
RH 62
RH 63
RH 64
) Gentia sp ? Ornata also from above site.

RH 65 Swertia sp to 5". Deep violet fls, cluster headed from foot of lateral moraine, 4800m.

RH 66 Gentiana ? Carinata. As 61/64 from beside moraine lake on S. facing slope.

RH 67 Arisaema sp. dwarf to 9" in Juniper shrubs. Naulekh 4300m.

RH 68 Saussurea Gossipiphora. 5800m. on rocks below Mera glacier.

RH 69 Arisaema sp. 1 mile below Naulekh 4200m. As RH 67.

RH 70 Primula Glomerata. 4000m. below Naulekh on shady banks in Rhodo. woods.

RH 71 Meconopsis sp. 4'-5' with long thin seed pods in rocks, 4000m; much damaged by trampling animals.

RH 72 Meconopsis sp. 3'-4' in more open pasture than RH 71; different sp with heavily dissected leaves.

RH 73 Sorbus sp. 6' shrub growing in moist banks above Hinku River. 4000m. White fruits.

RH 74 Sorbus sp. Possibly same as RH 73, ½ mile further on similar site.

RH 75 Salix sp. to 10'. Site as above.

RH 76 Salix sp. to 12". 100m above RH 75, and common on drier slopes.

RH 77 Primula Glomerata. as RH 70.

RH 78 Betula Utilis. From a good form with polished brown peeling bark. On river bank of Hinku. 4000m.

RH 79 Gentiana Depressa. From S. facing turf banks, 4000m.

RH 80 Aconitum. 4', tall spire in Rhodo. woods.

RH 81 Gentiana Depressa. Further collection, as RH 79.

RH 82 Sorbus sp. To 15' with deep red fruits 3900m in Rhodo woods.

RH 83 Clematis sp. 3900m. covering Rhodos. Large palmate leaves.

RH 84 Primula sp. 9" under S.E. facing rock, 3700m. ? Geranifolia ?

RH 85 Primula sp.)
RH 86 Primula sp.) Collections kept distinct, as unsure of sp.

RH 87 Meconopsis sp. From red flowered form, very dissected lvs.

RH 88 Sorbus sp. Pink fruits)
RH 89 Sorbus sp. White fruits) from adjacent 8' shrubs on Hinku river bank at 3700m.

RH 90 Unknown shrub. With redcurrant-like fruits.

RH 91 Meconopsis sp. to 6' in dense Rhodo. forest. 3800m. Very dissected lvs, distinct from previously collected sp.

RH 92 Cremanthodium sp. Large sp. to 8" on S. facing rocks 4100m. on Hinku pass.

RH 93 Unknown sp. Lvs. curled around stem, red autumn foliage, very upright seed pods - possibly Hirculus section Saxifraga. 4100m.

RH 94 Unknown. Dwarf climber. Very attractive foliage reminiscent of Maidenhair fern. Tiny yellow seed pods (initially mistaken for fls.) ? Thalictrum. Pass up to Lukla, 3800m.

RH 95 Salix sp. To 5' on East side of Lukla pass, open branching sp. with moss hung bark, 3950m.

RH 96 Salix to 3'. Possibly dwarf form of RH 95. 4100m. East slope on turf scree.

RH 97 Primula sp. Sec Rotundifolia. 3600m. on West side of Lukla pass. Underneath giant rock.

RH 98 Rhododendron Thomsonii. 3600m. on West side of pass. Dense Rhodo. forest sp. to 10' but had flowered poorly.

RH 99 Clematis sp. Very large sp. to 25' Palmate lvs. 3000m. in Pine/Rhodo. forest on W. facing slope.

RH 100 Saussurea Gossipiphora. From scree and rocks on summit of Lukla Pass. 4700m. Fairly common on this site and seed ripe.

RH 101 ? Leguminoseae. Dwarf sp. ex Salpa Pass. 3400m.

RH 102 Leguminoseae. Dwarf sp. ex Salpa Pass. 3400m. Different sp. to RH 101.

RH 103 Leguminoseae. Larger sp. than RH 102 but more open habitat, so possibly same. All 3 above in clearings in Pine/Rhodo. woodlands on East facing slope overhanging rocks.

unripe seed until the snow melt next spring. As we were resident at base camp for virtually the whole of October, I was able to observe colonies mature from flower to seed and was surprised to find that once fertilisation takes place mature seed is produced in no more than 7 days. However, it was noticeable that in a majority of cases the flowers remained unfertilised altogether, and that those on the most exposed sites seemed to stand the least chance. This discounts wind as the pollenator; flying insects were few - mostly blown up from lower altitudes. The most likely pollenator is a beetle or similar ground loving or wingless insect. A further pointer in this direction was the number of pods damaged by a grub, within days of fertilisation.

An article, with photographs, is at the draft stage for publication in the Alpine Garden Society's bulletin.

The only failure, botanically speaking, was our inability to find a way into the Iswa valley. This was not entirely unexpected - the valley is known as one of the most innaccesible in Nepal, with few known routes, all very severe. However, the Upper Hongu is also very little known and only slightly more accessible and the best was made of our time in the valley, with worthwhile results and the great majority of objectives achieved.

R Hancock 6/1/92

Iswa valley and Peak 6340m

One of our objectives for the expedition was to enter the remote Iswa valley, running East-West directly to the East of the South Ridge of Chamlang. This was both for exploration and also because of the likely existence of subspecies of Alpine flowers in such a remote place. However, the access to the valley from Hongu has changed enormously since the survey expeditions of the 1950's when it was a relatively easy snowy pass. Now the glaciers on either side of the pass have receded to reveal a shear wall of rock which would require an expedition in its own right to cross.

Peak 6340m was one of our objectives for the expedition and we had hoped to make a first ascent. In retrospect, studying photographs and maps, it seems more than likely that this peak was a small rise on the ridge beside camp 2, a mere 50m from our tents, an easy snow slope leading up to it. We did not walk up!

Chamlang Expedition Accounts

Income

Grants and Gifts:		
British Mountaineering Council	£	700.00
Mount Everest Foundation Grant	£	800.00
Gift from Dr Charles Warren	£	100.00
Income from Expedition Members:		
Deposits	£	2000.00
Insurance premiums (8 team members)	£	880.00
Himalayan Kingdom's monies	£	13,251.00
Tips for Base Camp Staff	£	135.14
Income from Sale of Expedition Equipment:		
Mountain Quasar Tents x2	£	250.00
Epigas Stoves x5	£	25.00
Epigas 250g cannisters x60	£	72.97
Snow shovels x2	£	9.46
Payment for soil samples, Glaxo	£	200.00
TOTAL	£	**18,423.57**

Expenditure

Himalayan Kingdoms:		
Deposit	£	800.00
Balance	£	13,311.00
Insurance (8 team members)	£	880.00
Expedition Equipment (from Climber & Rambler)	£	996.50
Snow Stakes	£	30.00
Administrative costs prior to the expedition	£	125.00
High Altitude Food	£	252.36
Barrels for freighting Expedition Equipment	£	74.53
Drugs	£	98.50
Sundries (Tape, polythene, locks)	£	19.77
Freighting of Expedition Equipment to Nepal	£	335.00
Epigas, purchase and freighting	£	720.02
Customs in Kathmandu	£	65.55
Equipment purchased in Kathmandu	£	81.74
Administrative costs in Kathmandu	£	11.19
T- shirts for B.C. staff	£	23.48
Tips for B.C. Staff	£	143.25
Expedition dinner at Nanglo's Kathmandu	£	27.03
Excess trekking costs paid to Amtrek	£	141.18
Freight of scientific equipment to UK	£	50.00
Tent repairs	£	82.47
Expedition Reunion, Lichfield 29/2/92	£	105.00
Administrative costs/Expedition report	£	50.00
TOTAL	£	**18,423.57**

Scientific Report

Ambulatory blood pressure recordings were obtained, over 24 hr periods, from members of the expedition, at low altitude in the UK prior to departure, at c. 3000m in Kathmandu, during the walk in from 1000m to over 5000m, and then during acclimatisation at base camp (c.4800m). Additionally, 24hr recordings were made by 2 subjects during the ascent of Mera peak (c. 6400m), including a night spent at a bivouac at c. 5800m. Fortuitously, one subject (DJC) developed symptoms of severe headache, nausea and vomiting consistent with acute mountain sickness during one of the routine 24hr recordings. His symptoms rapidly subsided on descent from 5100m to 4800m, during the recording.

The technical difficulties encountered on the two rock towers on the Chamlang ridge (q.v.), made ambulatory recording to the summit of Chamlang impossible. The highest recordings were made at camp 1 (5800m). Nevertheless, the ambulatory recordings to the summit of Mera are the highest of which I am aware.

During the walk in to base camp it became obvious that ambulatory recordings were going to be of limited value due to the variable physical workload and huge range of ambient temperatures experienced. So, in addition, standardised recordings of supine blood pressure (Medilog ABP) and pulse oximetry (ear and finger), were performed in my tent each evening. Each test lasted 15 minutes during which the subject was covered with a sleeping bag, and on most occasions all ten members of the team were studied on each evening. This protocol proved to be exhausting, but was continued, less frequently, during the month spent at base camp.

During the stay at base camp, the three Medilog ambulatory blood pressure recorders used (Oxford Medical Limited) were validated by testing for pressure calibration (against a conventional mercury sphygmomanometer {Accuson}). The rates of pressure deflation in the ABP cuffs were also measured, and finally a comparison was made of blood pressure measured simultaneously using the ABP and by twin observer conventional sphygmomanometry.

Throughout the expedition, and at altitudes up to 5800m, data from the Medilog blood pressure recorders was down-loaded via a serial interface to miniature personal computers (Poquet PC, Poquet Inc.).

A strong relationship between pulse oximetry and both symptoms of Acute Mountain Sickness, and quality of physical performance at altitude was evident from experience at base camp. The relationship between oxygen saturation and performance was far more exquisite than I had anticipated.

It is hoped that the information obtained from this work will be analysed for communication to the physiological society at its Oxford meeting in July 1992.

Some observations, believed to be original, on the nature of ventilatory control during acclimatisation, made during the expedition to Chamlang, have already led to the formulation of research proposals, with Dr D. M. Band, (Department of Physiology, St Thomas' Hospital) to explore the mechanism of respiratory acclimatisation in a novel way.

The assistance of the Welcome Trust, The Mount Everest Foundation, The British Mountaineering Council and the Tallow Chandler's Company in supporting the research work on this expedition is gratefully acknowledged.

David Collier.

MEDICAL REPORT.

Preparations:

None of the team had pre-existing medical problems.

Immunisations;Standard immunisations were recommended and were administered by individuals GP's.These comprised; Tetanus,Polio,Meningococcus A & C,Japanese B Encephalitis Cholera,Typhoid,Hepatitis A (Gamma Globulin).Some of the team also decided to have Rabies Vaccine.

Anti-malarial prophylaxis; Standard for area.

Oral Contraceptive Pill;Female members of the team were advised to discontinue the O.C.P. at least 6 weeks before departure because of the increased risk of thromboses at altitude.

Water Purification;Tincture of iodine,2-3 drops per litre and left for 30 mins.Cheap and effective.

Personal medical kits;Anti-malarials,aspirin/paracetamol, plasters,sunscreen,lipsalve & personal medications.

Expedition medical kit;This was designed with a number of factors in mind;
(1)Treatment of minor illness.
(2)Treatment of altitude sickness. (AMS.HAPE.& HACE.)
(3)Emergency medical support for injury & serious illness until and during evacuation.
(4)The fact that the expedition was light-weight and low budget.
(see list below for contents.)

Medical problems encountered;

(1)**Gastroenteritis;**affected most members.Treated supportively,if necessary, with dioralyte and occasional doses of Lomotil.Presumed giardia gastroenteritis was treated with metronidazole.

(2)**Altitude Illness;**Most members suffered from varying degrees of AMS.on first reaching altitudes of 3500m. Symptomatic treatment with simple analgesics only was required.Symptoms recurred at various altitudes above 3500m but settled or improved sufficiently within 12hrs to make decent unnecessary.No cases of severe HAPE or

HACE were encountered amongst team members,however a French trekker developed severe HAPE/HACE whilst crossing the Mera La (5400m)and was moribund by the time a doctor from our team reached him.He died.No attempt appeared to have been made to evacuate him to lower altitude.

(3)**Cold Injury**;One climber developed frost bite after leading a technical rock pitch at 6800m.Finger tips blistered and discoloured.Fingers were cleaned and dressed on return to base camp and he was given prophylactic antibiotics.The frost bite resolved with no significant tissue loss.Several members developed minor frost nip during a crossing of the Amphu-Laptsa pass (5900m).Sensation returned in 4-6 weeks.

(4)**Health problems in Nepalis**;Our porters suffered a few minor cuts and abrasions but fortunately no serious injuries.One young boy developed severe abdominal pain.Appendicitis was a worrying possibility but fortunately he turned out to have gastroenteritis.An old porter who refused to wear sunglasses on the glacier developed snow-blindnes this settled with rest and steroid & antibiotic eye drops.
We were approached by a number of villagers asking for medical help,most had minor wounds,some septic,and these were treated with wound toilet & topical tincture of iodine,if necessary.One man was advised to go to his nearest health post (2-3 days walk!)for re-dressing.He was in danger of developing osteomyelitis.One man encountered was in severe pain with what clinically was terminal malignancy,we were able to give him moderately strong analgesics.We were conscious not to undermine the work of the local health care teams.

Overall we were extremely fortunate to encounter no major medical emergencies,and poor health spoilt no-ones enjoyment of the expedition.Our walk in over two weeks with gradual altitude gain was calculated to aid acclimatization and to minimise altitude sickness.I'm sure this was the main reason we avoided severe altitude problems and certainly contributed to everyones enjoyment of the higher altitudes.

Medical Equipment;

Stethoscope.
Sphigmomanometer.
Ophthalmoscope.
Suture equipment.
2 Chest drains + heimlich valves.
Assorted IV cannulae,needles + syringes.
2 IV giving sets.
Plasters,thick elastoplast + bandages.

Drug list;

Parenteral;	Omnopon
	Proclorperazine
	Dexamethasone
	1% Lignocaine
	Diazemuls
	Naloxone
	Piriton
	Adrenaline
	Atropine
	Frusemide
	2x 500ml Haemaccel
	2x 1L N/Saline
Tab's;	Dihydrocodeine cont.
	Paracetamol
	Aspirin
	Mebendazole
	Lomotil
	Quinine sulphate
	Gaviscon
	Temazepam
	Nifedipine
	Dexamethasone
	Amoxycillin
	Erythromycin
	Flucloxacillin
	Metronidazole
Drops;	Steroid eye drops
	Gentomycin eye/ear drops
	Chloromycetin eye ointment
	Flurocein eye drops
	Lignocaine eye drops
Sach';	Diorolyte
Sup';	Metronidazole
Inh';	Salbutamol
	Becotide
Cream;	Anusol

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We are grateful to the following companies for there support;

* Hoechst
* Rhone-Poulenc Rorer
* 3M
* International Medication Systems (UK) LTD
* Astra Pharmacuticals LTD
* Rechitt & Colman
* Windsor Health Care LTD
* Allen & Hanburys
* Parke Davis & Co LTD
* Upjohn LTD

Drs Andrew & Carolyn Knight.

Historical Appendix

Survey Expeditions

1953 Survey of Inikhu and Hongu valleys by J. Roberts.

1954 New Zealand Alpine Club Barun Expedition. Exploration and survey of the Barun, Iswa and Choyang valleys.

1955 Mount Chamlang survey expedition led by N. Hardie noted a possible route on the South Ridge of Chamlang.

Ascents of Chamlang Main Summit

1962 1st ascent of Chamlang main summit via South Ridge by Japaneses Academic Alpine Club of Hokkaido.

1986 2nd ascent by the Japanese via West ridge.

1987 A Korean-Nepalese expedition climbs the South ridge.

1990 A German expedition reaches the summit via the West ridge and West face.

1991 1st British Ascent led by Andrew Knight and Andrew Pollard

Ascents of Other Summits of Chamlang

1981 Reinhold Messner and Doug Scott climb to a minor summit of Chamlang at 7010m via North Face.

1984 Doug Scott and party climb the East Summit of Chamlang (7235m) via North East ridge and North Face and then traverse to the central summit (7180m).

1989 A successful ascent of the East summit via the North Face by a Netherlands womens expedition.

Expedition Equipment

Communal Equipment

2 * Wild Country Mountain Quasar Tents
12 * DMM Deadmen
12 * DMM Long Scrubes
50 * Petzl Headtorch batteries
20 * Petzl Headtorch bulbs
1 * 15mm tape (30m)
1 * 5mm cord (20m)
1 * 8mm polypropolene rope (220m)
1 * 10mm polypropolene rope (880m)
10 * Home-made snow stakes
120 * 250g cannisters epigas
5 * Epigas Stoves
2 * Snow Shovels
1 * Spring balance
20 * pitons
5 * barrels and Kit bags
5 * locks

Individual Equipment

8 or 9mm rope (50m)
2 man tent (various)
Plastic boots (Asolo/Koflach)
Berghaus thinsulate gaiters
Thermal socks (2 pairs)
Thermal Underwear
Fibrepile salopettes
Gortex Salopettes
Fibrepile Jacket
Gortex Jacket
Silk & Thermal balaclava
Thermal and Gortex gloves and spares
Glacier sunglasses and spares
Down sleeping bag
Expedition Karrimat
Bivouac sack
Axe, hammer and crampons
Water bottle
Headtorch
Harness
Ascendeur and Descendeur
Rucksack
Altimeter
Pen Knife
Pans, cutlery and mug

Acknowledgements

We would like to express our gratitude to the following: our patron, Sir Charles Evans; our sponsors including Mount Everest Foundation, British Mountaineering Council, Dr Charles Warren; Himalayan Kingdoms Ltd for organising a superb trekking service through Bikrum Pandey, their agent in Nepal; Steve Green of Climber & Rambler Ltd, Betws Y Coed, who helped and advised with purchase of equipment for the expedition; Mountain Equipment and Kodak who assisted with significant discounts on their products; Wholebake Ltd of Corwen and Shepherd's bay for their donation of hundreds of food bars; Rachel Duncan of the RGS photographic library and Bill O'Connor, for assisting in the search for photos of Chamlang; Expedition Freight Ltd; Aeroflot; Ministry of Tourism, Nepal; Nepal Mountaineering Association; Kathmandu Guest House. Our particular gratitude goes to all of our families and friends who have tolerated Chamlang with good humour.