

SCOTTISH GARWHAL EXPEDITION 1992



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An attempt on the south-east ridge of Nilkanth (6596m)

PATRONS: W.H. Murray and Chris Bonington

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Cover photograph: the south-east ridge of Nilkanth from Holdsworth's Col. ABC was situated off the picture on the left, just beneath the dark brown rock wall. The 4th, 5th, 6th and 7th Pinnacles are the four large buttress/pinnacles in the centre of the picture [photograph G.S.Yardley].

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SUMMARY

In October 1992 four members of the Scottish Mountaineering Club made an attempt on the south-east ridge of Nilkanth (6596m) in the Garwhal Himal of India. The first part of the ridge is heavily pinnacled and the summit is protected by a 300m smooth granite slab capped by steep ice slopes. During a period of settled weather two camps were established on the ridge; the first at the base of the 2nd Pinnacle and the second near the top of the 2nd Pinnacle. The ridge proved to be technically difficult and very committing with much loose rock. A high point at the base of the 4th Pinnacle (c.5600m) was reached on 20th October, further than reached by any recent expedition to the mountain.

TEAM MEMBERS

Graham E. Little, 43 (leader): chairman of the Scottish Mountain Safety Group. A total of 25 years climbing experience with many first ascents in Britain on rock and ice. Expeditions to Baffin Island, South America and the Himalayas. Most recently; first ascent of west face of Panch Chuli II (6904m) in India with Chris Bonington.

David Saddler, 31 (treasurer): extensive climbing experience, particularly of Scottish rock and ice. First ascent of Rohini Sikhar (5990m) in the Kishtwar Himalayas.

Matthew G.D. Shaw, 31: 10 years climbing experience with mountaineering trips to the Alps, Pyrenees and the Sierra Nevada. Also climbed in the Canadian Rockies and Jordan.

Gareth S. Yardley, 26: 8 years climbing experience. Six trips to the French Alps. First ascents of Fang (5500m) and the west ridge of Paldor (5928m) in the Ganesh Himal, Nepal.

HISTORY (MS)

Nilkanth is not a large peak by Himalayan standards, but its spectacular form and prominent position overlooking the pilgrim town of Badrinath have ensured it attention. The mountain figures in Hindu mythology and its name translates as "Blue throat". This is one of the 1008 names of the God Shiva and refers to the myth that Shiva drank Halahal, the world's poison, which stuck in his throat saving mankind from decay and death. Its a sobering thought that Nilkanth holds all the world's evil within it. The name of the mountain is variously spelt as Nilkanth, Nilkantha, Nilakantha, Nilkanta and Neelakantha.

The early European pioneers were also quick to notice Nilkanth, C.F.Mead commented on its beauty on his reconnaissance of Kamet in 1911. Twenty years later Frank Smythe was inspired by the mountain during his approach march on the successful 1931 Kamet expedition, declaring Nilkanth the "Queen of Garwhal". The first serious attempt on Nilkanth was made by Smythe during the monsoon in August 1937 on his return from the famed Valley of Flowers. With Peter Oliver (of 1935/1936 Everest fame) he attempted the south-east ridge. This choice of route was made on the advice of R.L.Holdsworth who had crossed the col, which now bears his name, at the foot of the ridge (4750m). Smythe and

Oliver reached the ridge from a base camp on the slopes of the Khirao valley below Holdsworth's Col. From Smythe's account in *The Valley of Flowers* (see Bibliography) it appears that they found the ridge technically difficult. It is hard to match his description with existing topography but it seems that the notorious rock pinnacles were largely outflanked by various ledge systems. Just how high up the ridge the two intrepids reached is tantalizingly unclear and the subject of much debate - by the 1992 expedition at least. The crux of the south-east ridge, the great rock buttress below the summit, has not been reached but it is possible that Smythe and Oliver reached the highest point yet attained despite attempts by at least five other expeditions over the intervening 55 years. Further comments on Smythe's climb appear later in this report, but whatever their high point the sheer audacity of their attempt is unquestionable.

Two attempts were made on Nilkanth in 1947. The first, a pre-monsoon expedition led by Charles Wylie to the south-east ridge made no impression on the mountain and were turned back below the 1st Pinnacle. Undaunted they moved round to the north side of the mountain and reached the west col (c.5400m). Later that year a Swiss expedition visited the Garwhal and was led by André Roch. Their active itinerary is rumoured to have included an attempt on Nilkanth (probably from the north) but the account in the *Himalayan Journal* makes no mention of this.

In 1951 a New Zealand party visited the north side of Nilkanth. The party was led by H.E.Riddiford and included Edmund Hillary. They had a look at the west ridge but were thwarted by bad weather. A recce by the party showed a possible route from a col at the bottom of the north-east ridge, via an ice shelf across the north face to join the west ridge above its difficulties. The following year a British expedition led by T.H.Tilly tackled the west ridge, again from the north, and reached a point above the lower pinnacles. Bad weather curtailed the attempt but the route was confirmed as a "reasonable proposition". This was the last attempt on Nilkanth by a western expedition until 1989 due to restrictions between 1959 and 1989 on westerners venturing into the sensitive Indo-Tibetan border area.

In 1959 the first Indian attempt on the mountain was led by S.N.Goyal making an unsuccessful attempt on the north face. In 1961 the first ascent of Nilkanth was claimed by an expedition led by N.Kumar. They climbed the very avalanche prone north face after an attempt on the west ridge had been thwarted by icy conditions. The validity of the ascent was immediately disputed as it was made in poor conditions and the rather confused account suggested that only a subsidiary bump on the west ridge had been reached. An Indian Mountaineering Foundation (IMF) investigating committee decided to recognise the ascent as valid but, ambiguously, recommended that the peak should be re-ascended.

Border troubles with China in 1962 put pay to any return visit until 1974 when an Indo-Tibetan Border Police (ITBP) team made the first (and only) undisputed ascent of the mountain. The route was the same as tried by the 1961 expedition. As with earlier expeditions they had attempted the west ridge first but had been stopped by the technical difficulty. Because of the controversial nature of the claimed first ascent, no detailed account has been published of this ascent.

No further attempts were made on Nilkanth until 1989 when the southern side of the mountain was re-opened to foreigners: the Inner-Line runs along the west and north-east ridges of the mountain, effectively ruling out any approach from the north. The proximity of the border has also meant very high peak fees (currently US\$3000).

During 1989/90 three expeditions visited Nilkanth, all attempting - unsuccessfully - the south-east ridge. The first team was British and led by Duncan Tunstall. On initial reconnaissance an attempt was made to reach the west col from the south but was turned back by bad weather. Turning their attention to the south-east ridge the team reached the top of the 1st Pinnacle (c.5300m). This pinnacle has twin

summits and one has been named Point Allison (in jest) after Paul Allison, the lead climber in the group.

1990 saw two expeditions attempt the south-east ridge. An American expedition in August was followed by a British attempt in September led by Roy Lindsay. We have not come across any references to the American attempt, although they did leave their mark by way of numerous fixed ropes on the lower part of the ridge. We found that these abruptly terminated just below the top of the 2nd Pinnacle and, as the climbing thereafter becomes much harder, it seems likely that this was their high point (c.5550m). Roy Lindsay's team reached the same high point as the Americans but the weather precluded having a crack at the 3rd Pinnacle.

In summary Nilkanth has had only one verified ascent which was via the north face in 1974. The south-east, west and north-east ridges have all been attempted but to no avail. The 1992 Scottish Expedition was the sixth known attempt on the south-east ridge of Nilkanth.

DIARY (MS)

- 3/4 Oct Fly from Edinburgh to Delhi with Air France, stay at IMF.
- 5 Oct Shopping in Delhi. Overnight bus to Rishikesh.
- 6 Oct Bus from Rishikesh to Joshimath.
- 7 Oct In Joshimath organising porters, paraffin permit and camera permit.
- 8 Oct Bus from Joshimath to the bridge just before Hanuman Chatti. Walk up valley and camp above Khirao village.
- 9 Oct Walk from Khirao to "meadow camp".
- 10 Oct GEL+MS with porters take equipment to base camp (BC, 4400m). Porters leave for Joshimath. Team stay a second night at meadow camp.
- 11 Oct Establish base camp, heavy snow fall.
- 12 Oct Sort out base camp.
- 13 Oct Carry loads to advanced base camp (ABC, 5000m). GEL+MS return via Holdsworth's Col. Liaison officer arrives at BC.
- 14 Oct GEL+DS to ABC.
- 15 Oct GEL+DS find way on to ridge and start up 1st Pinnacle (Point Allison). MS+GSY to ABC.
- 16 Oct Ascend to Point Allison, ferrying some food, and return to ABC.
- 17 Oct Ferry loads up to Point Allison and establish Camp I on col beyond. GEL+DS remain at Camp I. MS returns to ABC.
- 18 Oct GEL+DS push route to top of 2nd Pinnacle, returning to Camp I.
- 19 Oct DS descends to ABC for supplies and returns to Camp I. GSY makes return trip from ABC to BC for food and fuel. GEL reconnoitres 3rd Pinnacle.
- 20 Oct MS from ABC to Camp I and then with GEL over 2nd and 3rd Pinnacles to col below 4th Pinnacle and return to Camp II, established by DS on flank of 2nd Pinnacle.
- 21 Oct GEL+DS+MS re-ascend 3rd Pinnacle before deciding to abandon the attempt due to the difficult and committing climb that lay ahead. High point 5600m. GEL to ABC, DS+MS to Camp I.
- 22 Oct Strip equipment from ridge and ABC and return to BC. Snowfall in afternoon.
- 23 Oct At base camp. Sirdar/cook descends to Joshimath to bring up porters.
- 24 Oct Abandon base camp. Liaison officer and porters return to Joshimath. Team descend to Panpatia Glacier and camp below south face of Nilkanth by small lake.
- 25/26 Oct Walk up valley, bivouac and return to lake camp.
- 27 Oct Walk out of valley past Khirao and catch bus to Badrinath.
- 28 Oct Bus from Badrinath to Joshimath.
- 29 Oct Bus via Rishikesh to Delhi.
- 30 Oct- Rock climbing with local Delhi climbers, first at crag at the Army Polo Ground in Delhi
- 1 Nov followed by two days at Dhauj rocks.
- 2 Nov Sightseeing trip to Taj Mahal.
- 3 Nov Leave Delhi on Air France flight.
- 4 Nov Arrive for day in Paris and fly to Edinburgh in evening.

THE APPROACH (MS)

We arrived in Delhi on Sunday afternoon, 4th October. The Monday was engaged in formalities with the Indian Mountaineering Foundation (IMF), changing money and shopping for food and equipment (see Appendices). The IMF provides pleasant enough dormitory accommodation at its headquarters and is a good place to meet the local rock climbing activists (the IMF has a climbing wall).

Delhi to Joshimath: all our business was completed in one day and the four team members and our liaison officer, Amit Sharma, left Delhi on the evening of 5th October bound for Rishikesh on the overnight bus. The bus left from the Inter-State Bus Terminal (ISBT) and no advanced booking was necessary. All the equipment (about 350kg) went onto the roof-rack without incident. Rishikesh was reached at around 4am. The cost of this six hour trip was 450 rupees (\$15) and this gave us the back six seats (not a good choice!) and use of the roof-rack. In Rishikesh we had to transfer between bus terminals and this resulted in a hilarious ride across town with the five of us and all the gear crammed into two auto-rickshaws! The bus to Joshimath left at 6am and took 13 hours (enough said!) and cost 487 rupees (\$16).

In Joshimath we stayed at the Kamet Hotel. The 7th October was spent buying vegetables, paraffin (kerosene) and hiring porters (see Appendices). Obtaining a permit for buying kerosene and, unbelievably, a tussle over camera permits caused unexpected hassle and delays.

Joshimath to Hanuman Chatti: most of the 13 porters assembled in Joshimath the morning of Thursday 8th October, whilst the remainder were scheduled to meet us at the bridge over the Alaknanda River (just south of Hanuman Chatti village and 20km north of Joshimath) from where our walk-in began. A local bus took us to this bridge in two and a half hours and cost 11 rupees per head. Dozens of buses ply this route as pilgrims galore make their way to Badrinath, at the end of the road, which houses one of the four most important Hindu shrines.

Our liaison officer, Amit, remained in Joshimath to try and solve the problem of the camera permit. After reaching base camp our Sirdar/cook, Sangram Singh, returned to Joshimath to escort Amit up to BC and to get a few supplies.

The walk-in: the approach to Nilkanth is very short by Himalayan standards, although the height gained is substantial with the road head at 2500m and base camp at 4400m.

From the bridge over the Alaknanda River we headed up the Khirao valley and on the first afternoon reached a camp site just beyond Khirao village, some 3km from the road. There is no habitation beyond Khirao (Khirao is only populated in the summer, up to 25th October) but a goat-herders track follows the valley towards the Panpatia Glacier. Immediately beyond the village this track climbs steeply up a tree covered ridge on the north side of the river and then contours at a level high above the valley floor. This track has provided the approach route for some previous expeditions to Nilkanth and was the route for our walk-out. However, on the walk-in we took a faint path to its right (north) which goes up a steep grassy rake. [Further to the right there is a deep gorge carved by a stream flowing down to the Khirao valley from Peak 5471.]

The top of the grassy rake lies at about 3500m and from here the first view of the pinnacles on the south-east ridge of Nilkanth is obtained. Between this point and the start of the ridge is a predominantly grass covered slope. Several ribs and valleys drop steeply down to the Khirao River. The site eventually

chosen for our base camp lay more or less in a direct line between the top of the grassy rake and the pinnacles on the ridge and was at an altitude of 4400m, approximately 1km south-west of Holdsworth's Col. Holdsworth's Col is the lowest point on the ridge between Nilkanth and Peak 5471 and lies at about 4750m.

The second night of the walk-in (9th October) was spent at a pleasant area of flattish meadow (c.4000m) with a small stream and three roofless goat-herders huts. On the 10th October GEL and MS accompanied the porters to look for a suitable base camp. A small level area at a height of 4400m, that looked as though it had previously been used as a camp, was chosen for base camp. Most of the slope above this point is covered in boulders rather than grass. A spring lay 100m to the east of this site and is probably the highest reliable water supply on the mountain.

The porters returned to Joshimath that day. GEL and MS returned to the meadow camp and on the following day (11th October), under heavy snowfall, the whole team moved up to base camp. The snow that day was merely a blip in an otherwise very fine spell of weather that lasted throughout our time on the ridge.

THE CLIMB (GEL)

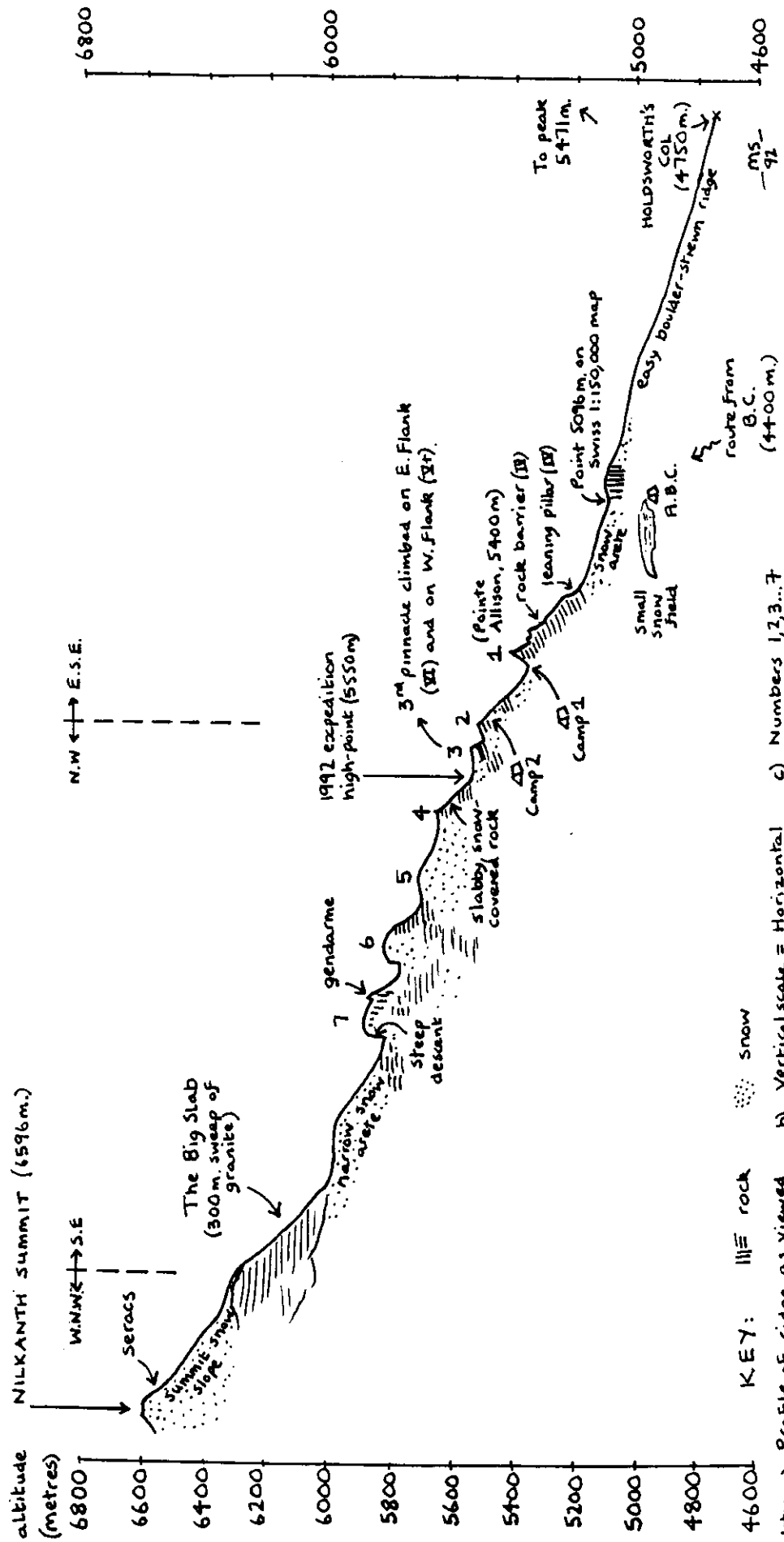
Although our choice of the south-east ridge of Nilkanth as an expedition objective was made at short notice (after permission to climb Panch Chuli II from the east had been refused) we were armed with a comprehensive knowledge of previous expedition activity on the ridge thanks to the generous help of Roy Lindsay (who led the 1990 attempt on the south-east ridge).

Base camp, sited on a level shelf to the east of an area of huge boulders and pinnacles at a height of 4400m, was established on 11th October in a snowstorm. The ascent of steep grass and a boulder field took us to an advanced base camp (on snow) at 5000m, just below a steep rusty wall. The remains of a small glacier lay west of the camp. Above this mini glacier lies a large loose rock wall which leads the way to the south-east ridge. This shattered rock wall holds much unstable scree and gave access to the ridge by following the general line of a pale band of rock, up and leftwards, until a short snow gully cuts up onto the crest. [According to Tunstall much of this scree was covered in snow during his attempt.] From a large spike of pale rock, where the gully meets the ridge crest, three easy mixed pitches along a classic alpine ridge led to its abutment with the foot of the 1st Pinnacle. To the east of the abutment lies a large leaning pillar with a steep open gully on its left. We climbed the left side of the open gully via cracks and ledges (50m IV, old fixed rope) as the right side, although appearing easier, was very loose. A further pitch on mixed ground led to a rightward traverse along a snow covered shelf. Another one and a half pitches of broken snow covered ground led to the base of a steep rock barrier.

This barrier has two lines of weakness: the left a formidable hanging groove; the right an easier angled shattered groove. The left hand groove proved to be the safer line and easier than appearances would suggest (40m IV, old fixed rope). The right hand groove is the outfall of a scree scoop above. 60 metres of scrambling over very unstable ground took us to a small col between the twin rock towers of the 1st Pinnacle on the left and Point Allison on the right. The steep ice gully dropping from the col was abseiled for 40m (old fixed rope) then a mixed traverse was made to gain a small snow col directly below Point Allison. After some snow levelling this provided a perfect site for one bivi tent.

A short level section of ridge ran up into a wide area of shattered rock which was climbed by a wide scree filled groove on the right to gain a little saddle. From this point a traverse right on steep soft snow linked into another wide, loose groove leading via short rock steps to two in-situ pegs at the top (old fixed

PROFILE OF NILKANTH S.E. RIDGE (AS VIEWED FROM THE SOUTHWEST)



KEY: III = rock . . . = snow

Notes a) Profile of ridge as viewed from imaginary S or SW viewpoints.
 (Eastern flank of ridge is steeper rendering possible traverse lines around pinnacles less likely).

b) Vertical scale = Horizontal scale = 5 cm per 1000m. All heights are approx.

c) Numbers 1, 3, 5, 7 refer to pinnacles on the ridge.

rope). Moving out of the groove we gained a small snow basin flanked by a rock edge on the left and a snow arete on the right. The snow in this basin proved desperately unconsolidated and it took over an hour to climb a 60m section close to the rock edge, swimming up thigh deep snow lying on rock slabs to a 'thank God' ledge and belay. One tent was later pitched at this point (Camp II). Thankfully firmer snow led up on the right to the steepening of the summit tower of the 2nd Pinnacle. A tricky rightward traverse, Scottish II/III, allowed a short, exposed descent down the arete to gain a big tablet of rock at the small col between the 2nd and 3rd Pinnacles.

In search of Smythe's by-pass ledge a line was first attempted on the west flank of the 3rd Pinnacle. This involved a promising start on steep sound rock to gain a descending, narrowing, slabby ramp ending in a cul-de-sac of overhanging loose flakes. These were surmounted in breath holding mode but the ground beyond did not give cause for optimism and a dignified retreat was made. The second foray up a short wide crack left of the arete gave some encouragement, leading to a ledge running out onto the more wintry east flank of the pinnacle. Needless to say this also proved to be bad news but in frustration a route was forced across it by dint of climbing more in keeping with a Scottish grade VI than the Himalayas. The most memorable sequence involved torquing off two axe tips, mantle-shelving onto same and then dynoing for a flat hold! The crest regained, an easy traverse led to a short descent onto the commodious snow col between the 3rd and 4th Pinnacles. The lower flank of the 4th Pinnacle looked slabby but fairly broken and not a major obstacle. However, this col proved to be our high point (c.5600m). In impending darkness an abseil descent was made directly down from the summit of the 3rd Pinnacle during the return to Camp II.

The following day another line was climbed on the 3rd Pinnacle, this time on the left of the arete, and followed roughly the line of the abseil descent of the previous day. This line climbed up a wall, a chimney and then followed a suicidal zig-zag traverse under, around and over evil piles of balanced blocks, 65m V+.

Whilst sitting, firmly lashed to a big flake on the top of the 3rd Pinnacle, the early afternoon cloud drew aside like a stage curtain to reveal my first really good view of the summit ice pyramid of Nilkanth, defended by a continuous slabby 300m rock barrier with a base at 6000m. I gazed in awe! It looked massive even at a distance of nearly two kilometres. An internal voice spoke to me very clearly. It said "get down". I made the long descent to ABC that day, whilst Dave and Matt occupied Camp I. The following day we stripped the ridge of all but a section of fixed rope on the 3rd Pinnacle and vestiges of the old American fixed ropes at a couple of other points. The descent from the 1st Pinnacle to ABC was made in a snowstorm. We all reached base camp that night and consumed what was left of the whisky!

GENERAL COMMENTS (GEL)

Heights: the heights quoted by some previous expeditions to Nilkanth have been based on the assumption that Holdsworth's Col is at a height of 5096m. This is in fact erroneous as the col, a relatively easy pass between the Khirao Ganga and the Rishi Ganga is actually at 4750m. The spot height of 5096m depicted on the 1:150,000 Swiss map (see bibliography), applies to a small less accessible col on the south-east ridge above the mini glacier where advanced base camp was sited.

Litter: it was depressing to find the site of our base camp strewn with plastic containers, tinfoil and rusty cans that had been ineffectively 'buried' in a shallow hole. Whereas it is sometimes difficult to dispose

of rubbish on the mountain, there are no excuses at base camp. At the end of our expedition we burnt crushed and buried both our rubbish and that of at least one previous expedition.

On the ridge abseil anchors were left and some short sections of the old fixed ropes. Most of the fixed rope was, however, removed.

Frankie goes to Nilkanth: the attempt by Frank Smythe and the enigmatic Peter on the south-east ridge of Nilkanth in 1937 (see chapter 22 in *The Valley of Flowers*) was either a flight of imagination (as some subsequent expeditions to Nilkanth maintain) or a very bold and futuristic piece of climbing. Although Smythe's description of the climb is, at times, difficult to relate to the topography of the south-east ridge, there are enough identifiable references to confirm that he had a fair knowledge of this complex feature. The pair were undoubtedly very fit and well acclimatised after their first ascent of Mana peak. However, Smythe dismisses the technical difficulty and looseness of much of the ridge, makes no mention of extensive snow covered sections (surely there would have been a lot of snow about high on the ridge in late August?) and doesn't mention any abseil descents. On the positive side, Smythe's description of 'a thin and elegant pinnacle with sheer sides falling into unknown depths....which proved to be more a step on the ridge than an isolated point' perfectly fits the 3rd Pinnacle, although if this was his idea of perfect granite ('the best that Chamonix can muster') I wouldn't like to climb on what he would consider to be poor rock!

If Frank and Peter did indeed reach the crest of the 4th Pinnacle, as can be inferred from his narrative and his description of their final view towards the great rock barrier and the summit snow and ice slopes of Nilkanth, then one can only marvel at their route finding, the speed of their ascent, their relative indifference to loose rock and their technical proficiency. Truly mountaineers well ahead of their time!

The veracity of Smythe's attempt will probably never be absolutely confirmed and indeed fits in well with the general mountaineering history of Nilkanth, with much doubt being cast on other expedition claims. We prefer to believe that Smythe did indeed reach the 4th Pinnacle, further than any other expedition has yet achieved, and that seismic activity has since altered the character of the ridge. [There was a magnitude 7.1 (M_{sz}) earthquake on 19th October 1990 which killed 2000 people in the Chamoli-Uttarkashi area.]

RECOMMENDATIONS FOR FUTURE EXPEDITIONS TO NILKANTH (GEL)

The south side of Nilkanth (currently the only approach open to foreign expeditions) consists of two ridge lines enclosing the true south face. The lower part of this face is a complex jumble of rock and ice with major objective dangers from rock fall and calving ice blocks from its hanging glacier. It would neither be an attractive nor sensible approach to the mountain. The west side of the south face is bounded by a superb rock ridge (the south-west ridge) running almost to the summit of the mountain. Access to the initial section of the ridge, being barred by a massive rusty wall (loose rock?), is problematic, but once gained it should give a magnificent, difficult and relatively safe 1600m climb on granite similar in appearance to the rock of the Piz Badile area of the Bregalia Alps.

The south-east ridge, attempted now by at least six expeditions, is not such an attractive objective as the south-west ridge. However, it does perhaps present the mountain's greatest challenge and, for the relatively modest height of Nilkanth, an exercise in very committing Himalayan Alpinism. The ridge is long and heavily pinnacled with the 7th Pinnacle and a huge 300m rock slab, both as yet untouched.

presenting major obstacles. In our opinion, two quite different strategies offer some hope of success. The first and perhaps most desirable would be a very bold, fast, lightweight, two person ascent in pure Alpine style. The second and more likely option would be a large expedition offering plenty of back up support for the lead climbers, involving a minimum of four camps on the ridge and using fixed ropes on the most technical sections to facilitate movement up and down the ridge.

Whichever method is employed, stone fall will pose a serious threat in the lower section and the technical difficulties of climbing the final 300m compact slabby rock barrier at 6000m will be challenge enough for any team! The route is likely to be at least Alpine TD.

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C: Maps

Garwhal-Himalaya-Ost and Garwhal-Himalaya-West: two sheets of 1:150,000 scale produced by the Swiss Foundation for Alpine Research. Our ost (east) sheet is dated 1955, the west sheet 1985. Nilkanth lies on the overlap of the two maps and, whilst both are adequate, the west sheet is slightly more accurate and clearer.

Leomann's 1:200,000 Indian Himalaya maps (sheet 8: Kumaon-Garwhal) gives a good overall sketch of the peaks in the area.

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Amit Sharma, expedition liaison officer
Felicity Smith (Dr), for medical advice and supplies
Wills Young, of ventura, California for supplying Patagonia gear cheap

APPENDICES

APPENDIX I: FOOD (GEL)

Base camp and below: the Himalayan foothills are not noted for their gastronomic delights! The staple diet relies heavily on rice, dahl (lentils) and flour (for chapatties or roties) with potatoes, onion and cabbage as a special treat! We bought much of this food, for use at base camp, in Delhi, except for vegetables which were bought in Joshimath. This basic fare did fill our stomachs and provide an additional incentive to get onto the mountain and break open the hill food! However, I can report that the Kwality [sic] restaurant in Badrinath, run by Brian Ferry in a marginal disguise, does offer a variety of quite palatable vegetarian dishes and by local standards is a model of hygiene and efficiency.

We did not eat any meat (as a matter of respect for our digestive systems rather than from any strong moral convictions). If you must eat meat it is wise to have some knowledge of the nature and timing of the animals death!

Advanced base camp and above: in preparing a high altitude menu (about 80kg of food, enough for 20 days for the four of us, for use above base camp were bought in Scotland prior to departure), four fundamental principles were adhered to:

- 1) All food, with the exception of drinks and soup, could be eaten without the need for cooking (immediate access/ saving on fuel).
- 2) An emphasis on foodstuffs with a high calorific value to weight ratio (expressed as a number of kilocalories per 100g).
- 3) A bias towards carbohydrates rather than fats (carbohydrates are more quickly and efficiently metabolised at altitude).
- 4) Foodstuffs that we would enjoy eating (the best quality version of a product was taken).

For exertion at altitude the ideal intake would be 5000-6000Kcal per person per day. In practice we were probably achieving 4000-5000Kcal. Fluid intake, always a problem at altitude (melting snow is time consuming and requires much fuel), probably averaged 2-3 litres per person per day as against an ideal intake of 4-5 litres. However, no serious dehydration problems were experienced.

In our opinion the following daily menu provides a convenient, appetizing and calorie rich diet for high altitude climbing and sufficient variety not to become monotonous.

Breakfast:	Kcal/100g (where known)
Whole wheat muesli (Sainsbury's)	330
Raisins, dates or banana chips (Real Foods)	265-520 resp.
Oatcakes (Sainsbury's)	440
Pure fruit spreads (Sunwheel)	-
Tea bags (Twinings)	-
Powdered milk (Sainsbury's)	460

During the day:

A choice/combination of the following:

Chocolate bars e.g. Galaxy, Snickers,	
Mars, Topic, Crunchie, Twix, Lion, Yorkie	340-525
Fudge bars (Epicure)	419
Liquorice bars (Panda)	340
Marzipan (Safeway)	405
Fruesli (cereal/fruit) bars (Jordans)	142/bar
Dried apricots (Real Foods)	170
Boiled sweets (Sainsbury's)	300-400
Lemonade powder (Real Foods)	-

Dinner:

Cup-a-soups (Sainsbury's)	-
Oatcakes (Sainsbury's)	440
Garlic puree (Sainsbury's)	-
Wild mushroom/herb pate (Granovita)	244
Cheese spreads, various (Primula)	255
Patum Peperium (Elsenham Quality Foods)	-
Tins of fish in rich sauces (tuna, herring or mackerel) (Sainsbury's)	200-300
Salted, roasted nut selection (Sainsbury's)	630
Shortbread (Sainsbury's)	495
Fig biscuits (Sainsbury's)	361
Powdered milk (Sainsbury's)	460
Tea bags (Sainsbury's)	-
Instant coffee sachets (Hag)	-
Instant chocolate drink (Cadbury's)	370

In contravention of principle (1), some instant noodles and instant potatoes were also taken on the hill! In addition to all the above a few base camp treats were taken i.e. rich fruit cake, custard powder, tortellini and whisky. The custard powder was the only unsuccessful item as it requires the water to boil at 100°C for it to thicken.

Talking of alcohol, the Garwhal is a 'dry' area, liquor being available only to permit holders (hotel owners etc). Even if you seduce a permit holder this will not guarantee a drink as the liquor stores are often out of stock! In states without prohibition, a variety of Indian beers can be purchased and the members of this expedition can highly recommend a well chilled Thunderbolt (strong, flavoursome with the kick of, well, a thunderbolt!).

APPENDIX II: FLIGHTS (MS)

All airlines flying from the UK to Delhi were approached with regard to offering favourable 'expedition rates' and, more importantly, giving us an excess baggage allowance. Air France came up trumps mainly thanks to the support of Alan Edgar, manager of Brightways Travels in Glasgow and Air France's General Sales Agent in Scotland Mr Edgar offered us return fares from Edinburgh to Delhi, via Paris, of £460 per person - a very favourable price. Moreover an excess baggage allowance was agreed

allowing us to take 200kg of equipment. A voucher was also issued to this effect for the return journey - this was vital when checking in at Delhi airport on our return as without it we would have to pay excess baggage charges on the way home.

A few days prior to departure to India it became obvious that with over 80kg of food together with our climbing equipment a 200kg allowance would be insufficient. A phone call to Alastair Hutchinson, Station Coordinator for Air France in Scotland, resulted in a more or less unlimited allowance and in the end we checked in 268kg of baggage.

The help thus provided by Air France was immense, the flights were comfortable and we had the added bonus of a day in Paris on the way back to sample the culinary delights of France.

APPENDIX III: EQUIPMENT (MS)

The lightweight nature of the expedition and the relatively low altitude of the peak meant that it was not necessary to purchase large amounts of expedition equipment as, to a large extent, the team members used their own existing equipment (or borrowed it from friends). Even so, most of the main UK equipment manufacturers were approached to see if they could provide gear either free or at a reduced rate. Responses were generally positive (Berghaus and Karrimor being notable exceptions) with special 'expedition prices' being offered. In the end, however, only the Cairngorm Rope Co. (ropes) and Rab Down Equipment (sleeping bags) were taken up on their exceptionally good offers. This was because the Tiso outdoor shop in Edinburgh offered us a 20% discount on all purchases which worked out better than many of the expedition rates that we had been offered.

A detailed breakdown of all the gear taken is not thought necessary here as most of it is what one would take for a winter day on the Ben, with a few extra thermals thrown in! In general all our equipment performed very well, but as the weather was extremely fine and stable the gear was not pushed to its limits.

Gear purchased in India: the following items were purchased at the Super Bazaar on Connaught Place in New Delhi: pressure cooker (664 rupees); large paraffin stove; pans; kettle; cups; spoons; spatulas; washing up bowl; washing powder; soap and toilet rolls. All items except the latter were used exclusively at base camp (we brought cooking utensils for use on the mountain from the UK). On the first night of the walk-in the stove was found to leak and was taken to Joshimath for repair. A large tarpaulin (450 rupees), for use as a mess tent, and paraffin were bought in Joshimath. In retrospect all the gear purchased in Delhi could easily have been bought in Joshimath.

Paraffin (kerosene): to minimise the equipment on the bus we decided to wait until Joshimath to buy the paraffin. This was a mistake as fuel is severely rationed in the Garwhal (but not in Delhi). A permit to allow us to buy paraffin had to be obtained from the local sub-division magistrate, who took a lot of persuading. The actual cost of the paraffin was ridiculously cheap. Two 25 litre plastic fuel containers were brought from Scotland as Indian fuel containers are of poor quality. We filtered all fuel before use.

Tents: five tents were taken: two Wild Country Quasars (for use by the team members at BC and later at ABC); one Phoenix Phortress (for use by the liaison officer at BC); plus one Wild Country Gemini and one Phoenix Photon single skin gortex mountain tents for use at ABC and on the ridge. Pitching on snow was easy as the tents are of a dome construction and boulders were used instead of tent pegs. The

absence of wind throughout the trip (outside the tent at least) meant that the tents were not tested to their limits. The tarpaulin was used as a cook shelter and was slept in by the cook (through choice!) even when the ~~the~~ were vacant tents at BC.

Cooking gear: at BC we had two Primus stoves in addition to the stove bought in Delhi. At ABC and and above two MSR X-GK multi-fuel stoves were used. The MSRs performed excellently on the paraffin; however, the primuses were not as good. Epigas stoves (our first choice due to their ease of use) were not taken because of the problems of shipping the fuel to India.

Personal clothing: all team members had widely different gear but were happy with their choices. Several thermal vests, long johns, fleece tops and salopettes and gortex over trousers and jacket seemed a good combination. GSY had a one-piece gortex suit (a second hand bargain) which looks good in the photos. MS and GSY took down jackets; these were a luxury item and were frowned upon by the two traditionalists (although borrowing them occasionally was ok). Again, the stable (but cold) weather meant that equipment was not fully tested.

Asolo (Superlites), Koflach (Ultra Extrem) and Scarpa (Vega) plastic boots were all represented. Each owner swore that his were the most comfortable. MS used vapour barriers throughout, even on the hot walk-out, and found them to keep the feet warm and the inner boot dry so that they do not freeze at night. Liberal use of foot powder is recommended to counter-act the inevitable sweaty feet. A bottle of superglue was very useful for sticking Yeti gaiters to the boots after the rand had been trashed (which happened all too soon). Leather walking boots were the only other foot wear taken to India and used on the approach and around BC.

Climbing gear: eight 50m ropes were taken, four 'leading ropes' and four old ropes for fixing. Some old fixed rope from the 1989 American attempt were found on the ridge, these were considered unsafe and not used. The technical difficulties meant that far more fixed rope was needed than had been anticipated. Fixed ropes and jumars were invaluable for ferrying loads. Lack of rope was a problem by the end. Had we reached higher up the ridge this would have presented big problems, committing us to a pure Alpine ascent and forcing us to re-climb pinnacles on the descent.

A standard rock climbing rack was used, together with a few pegs and lots of tape slings. Ice axes were used, but crampons and ice screws were not, although they would undoubtedly be needed higher up. Snow stakes were taken, but only used for tent pegs, although it is also likely that these would be needed higher up. Thin gloves were used for rock climbing but the rough rock meant that they were quickly trashed. Fluorescent orange marker ribbon was used to mark the route in case of descent in bad weather.

Other items: a snow-shovel was taken and used both at BC and ABC for clearing snow and levelling ground for the tents. A ski pole was a great aid when walking with heavy packs on steep or rough ground. Each team member took one compact and one SLR camera plus about 15 films (ASA 25, 50, 64, 100 and 200). Three of the team used Resource Enterprises (USA) head torches. Whilst the beam is not as powerful as that from Petzl head torches, the lithium batteries are extremely long lasting. Two lithium batteries each proved more than adequate.

Other items not yet mentioned that are worth taking include: an altimeter; compass; whistle; binoculars; spring balance (for weighing porter loads); large water containers; wide necked water bottles (Nalgene); spare fuel bottles; spares for stoves, crampons and axes; tent repair kit; sewing kit; Swiss

army knives; long lasting candles; cigarette lighters; pan scrubs; nylon cord; pocket calculator; lots of plastic bags and an Urdu phrase book. Books, playing cards and travel-scrabble were taken but barely touched (not enough bad weather!).

Liaison officer kit: The following equipment was taken to India for the liaison officer:

	Cost (£)
Vango Marco Polo 450 4/5 season sleeping bag	55.00
Tiso sleeping mat	5.50
Sprayway hydro-dry Outward jacket	36.00
Sprayway hydro-dry Horizon overtrousers	18.00
Javelin Super Thick jacket	36.00

The following cheaper items were also taken: Dachstein mittens; inner gloves; Wild Rover gaiters; two pairs of thick socks; Wild Rover balaclava; Duracell rubber torch; Swiss army knife; a MacInness Peck ice-axe and a Karrimor rucksack. All items except for the last two were bought new (total cost £201) and were kept by the LO at the end. The axe and the rucksack were cast-offs owned by the team members and, although offered to the LO, he declined to keep them after the trip.

We were also required to equip our LO with boots. The IMF had not notified us of Amit's shoe size before we left the UK and we decided to sort things out in Delhi. In the event we hired a pair of Koflachs from the IMF. As Amit had no desire to go above BC we did not need to equip him with technical equipment.

APPENDIX IV: PORTERS (DS)

Porters were required for the following purposes:

1. Carry expedition gear from the road head at Hanuman Chatti to base camp.
2. Load-carrying between base camp and advance base camp.
3. Carry expedition gear from base camp back to the road head.

We hired 13 porters and one sirdar/cook in Joshimath and travelled by public bus to the Khirao road head north of Hanuman Chatti. The carry to base camp took three days, although the porters were paid for four days. Three of the porters carried 2 loads each. Rates were: 80 rupees/day (160 rupees for double load) for a porter and 150 rupees/day for the sirdar/cook.

Porters bus fares to and from Joshimath were paid for by the expedition, and meals for porters were provided by the expedition during the periods of portage.

At base camp (11/10/92 - 23/10/92) we retained the sirdar/cook and one porter whose duties included cooking at base camp and portering loads to ABC.

On 23/10/92 the sirdar descended to Joshimath to bring up porters. We hired eight porters for 3 days to carry down base camp equipment, unused provisions, and excess personal equipment. In the event, the porters were quite lightly loaded, and made the carry in two and a half days as follows:

23/10/92 porters come from Joshimath to base camp;
 24/10/92 porters collect equipment from base camp and return to Khirao;
 25/10/92 Khirao - Joshimath.

APPENDIX V: EXPEDITION FINANCES (DS)

A Treasurer's bank account was maintained with the Bank of Scotland, Piershill Branch, Edinburgh, throughout the period of planning and until completion of the expedition. On a total deposit of £3,800 interest of £57.50 was earned over the one year period the account was operated.

Balance Sheet

Income

Scottish Mountaineering Trust Sang Award	£500
Mount Everest Foundation Grant	£500
Mountaineering Council of Scotland	£900
Personal contributions £875 x 4 team members	£3500
Interest on bank account	£57.50
Total Income =	£5457.50

Expenditure	UK	India	
Peak Fees	£1611.60	-	
BMC Insurance	£396.00	-	
Travel	£1840.00	£80.00	
Equipment	£356.93	£150.00	
Food	£400.00	£274.000	
Accommodation	-	£43.00	
Porterage	-	£280.00	
Total Expenditure =	£4604.53	£827.00	£5431.53
Balance =			£25.97

APPENDIX VI: MEDICAL REPORT (GSY)

Dr Anthony Lyons (Nottingham City Hospital) advised on the medical kit for the expedition and obtained many of the drugs and equipment for us at a reduced cost. Further drugs, equipment and advice were given by Dr Helen Shannon and Dr Felicity Smith, from Edinburgh. All have taken part in previous in Himalayan expeditions.

The team had a very limited medical knowledge and so two of the members (MS and DS) took part

in a weekend mountain first aid course at Glenmore Lodge during the summer. A full set of instructions was supplied with the medical kit by Dr Lyons.

Prior to departure all team members contacted their local doctors and received the required vaccinations and started taking malaria tablets (Paludrine and Chloroquine) as prescribed.

Medical kit: individual team members took personal medical kits containing basics such as plasters, cough sweets and second skin (for blisters). The main medical kit consisted of the following:

Antibiotics	Tinidazole	For giardia gut upsets
	Trimethoprin	An all-rounder for any other infection
	Ciproflaxacin	(Ciproxin) a broad spectrum antibiotic
Painkillers	Paracetamol	Better than you think and brings temperature down
	Diclofenac	Very strong. In both tablet and injectable form
	Temgesic	Very strong tablets. Need to be combined with anti-vomit tablets such as stemtil.
	Asprin	For minor aches and sprains and sunburn
Other drugs	Prednisolone	1% solution for snowblindness
	Chloramphenicol	Eye ointment
	Flamazine cream	For burns including sunburn
	Cannestan cream	For fungal infections
	Stemetil	For vomiting and nausea
	Lomotil	For diarrhoea
	Kaolin + Morphine	Solution for upsets stomach and diarrhoea
	Temazepam	Sleeping tablets
	Benylin	For coughs
	Frusemide	Strong diuretic which can temporarily relieve pulmonary oedema (better to descend quickly though)
	Dexamethasone	A steroid that can help relieve cerebral oedema but better to descend

Other items taken were: a drip set (including needles); steristrips; triangular bandages; melolin; zinc oxide tape; crepe bandages; rehydrat; antiseptic cream; lip salve and sun block. In the case of a serious accident the advice was to get to the All India Medical College in Delhi as it is the most westernised. Under no circumstances allow a blood transfusion as the blood is not screened for HIV. If a transfusion is needed it is essential to get evacuated to the UK.

Medical incidences during the expedition: the trip was mercifully free of incidents. All water consumed below base camp was either boiled or treated with iodine or puritabs. There were a couple of cases of diarrhoea and these were treated using Lomotil with a course of Trimethoprin or with Kaolin and Morphine solution. Cut and damaged fingers were a result of climbing at altitude on rough, cold rock but these soon healed back at BC.