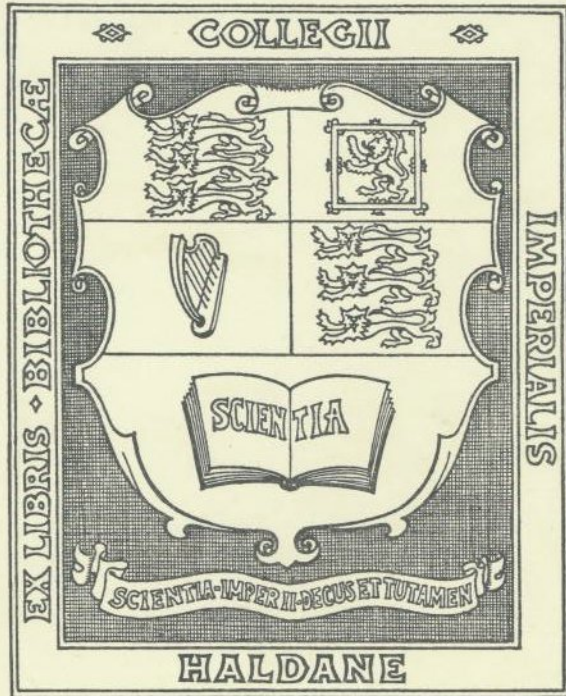


IMPERIAL COLLEGE  
OF SCIENCE & TECHNOLOGY

ARCTIC NORWAY

1957

THE EXPLORATION BOARD



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IMPERIAL COLLEGE EXPLORATION BOARD

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FROM IDEA INTO EXPEDITION.

The Imperial College Arctic Norway Expedition 1937 was originally conceived by the members of the Swiss Training Expedition for the Karakoram held in 1936. It was felt that those members of this Training Expedition not chosen for the final Karakoram team would be free to organize their own minor expedition and then apply to the Imperial College Exploration Board for funds.

There is a region of heart's desire,  
free for the hand that wills;  
land of the shadow and haunted spire,  
land of the silvery glacier fire,  
land of the cloud and starry choir,  
magical land of the hills;  
loud with the crying of winds and streams,  
thronged with the fancies and fears of dreams.

As the embryo expedition had a mountaineering background, Norway seemed the obvious choice for a minor expedition.

G.W. YOUNG.

Originally the choice of area was the Lyngen Peninsula, where, after consultations with Durham University Exploration Society, it was ascertained that work of a geological nature would be a useful addition to the exploration of the peninsula. However, the two geologists who wished to join the expedition were considered by the Board to be too inexperienced to carry out useful work in such an unknown area: accordingly the size of the party was reduced from six members to four and its aim changed from geological survey to mountaineering exploration. The Exploration Board offered to reconsider the proposal if financial support could be obtained from some outside source, such as the Mount

FROM IDEA INTO EXPEDITION.

The Imperial College Arctic Norway Expedition 1957 was originally conceived by the members of the Swiss Training Expedition for the Karakoram held in 1956. It was felt that those members of this Training Expedition not chosen for the final Karakoram team would be free to organise their own minor expedition and then apply to the Imperial College Exploration Board for funds to support it. Thus it was that three people began, in November 1956, the sometimes tedious task of preparing the ground before a firm proposal for an expedition could be submitted to the Exploration Board. As the embryo expedition had a mountaineering background, Norway seemed the obvious choice for a minor expedition. Originally the choice of area was the Lyngen Peninsula, where, after consultations with Durham University Exploration Society, it was ascertained that work of a geological nature would be a useful addition to the exploration of the peninsula. However, the two geologists who wished to join the expedition were considered by the Board to be too inexperienced to carry out useful work in such an unknown area: accordingly the size of the party was reduced from six members to four and its aim changed from geological survey to mountaineering exploration. The Exploration Board offered to reconsider the proposal if financial support could be obtained from some outside source, such as the Mount

Everest Foundation. Mr. M. Westmacott, of that organisation, held that the expedition stood very little chance of qualifying for a grant from the Everest Foundation for any area in Norway, but he did provide the expedition with some valuable contacts who were able to advise on four areas which were thought to be unclimbed. Chief of these contacts was Mr. Jack Ramsden who confirmed that Altevatn was "perhaps the best bet left". From the researches the expedition made it was obvious that there was no area which could be guaranteed as still being virgin country. Hence Altevatn, east of Bardu, on the Norwegian-Swedish border became the objective of the expedition whose intention was to explore the area, climb any mountains it held and take a photographic record from which, if required, a map could be constructed.

There remained only the raising of funds from an outside source and this was solved when the Goldsmiths' Company, to whom the expedition tenders its sincere gratitude, replied to a request for help with a grant of £50. This, together with personal contributions and a grant of £55 from the Exploration Board, made the expedition solvent and so, towards the end of March, the organising became practical rather than theoretical.

The members of the expedition, with their ages, expedition and pre-expedition jobs and departments were as follows:-

D.A. BAXTER, B.Sc. - 22 - Postgraduate, Concrete technology,  
Leader and Organiser, Food, Finance,  
Travelling Arrangements.



P.E. FAWKES, 22 - 3rd year Civil Engineering, Photographer and  
Surveyor, Surveying and photographic equipment.

THE EXPEDITION

M. GORB, 19 - 2nd year Civil Engineering, Clothing.

A.M. HODGSON, 20 - 2nd year Chemistry, Camping and climbing  
equipment.

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embarkation on the Swedish Lloyd S.S. "Arctasia". After a  
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with Swedish Lloyd officials in Gothenburg about 1400 cigarettes  
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the rail journey to Stockholm. Southern Sweden with its open  
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We spent the night in Stockholm, did some sightseeing the following  
morning, and then set out on the third stage of our journey  
by the "Nordpilen" express up the tree-clad east coast of  
Sweden and then across to Narvik (map 1). This 26 hour journey  
was a most irritating one, for we had no seats and the country  
through which we travelled was hidden by mile upon mile of  
pine forests. However, our first view of Norway, as we glided  
down beside the blue waters of the Rombaksfjord into Narvik  
was a lovely setting to the end of this long journey.

We were now in the "Land of the Midnight Sun" and  
at midnight as we retired to our sleeping bags on a mosquito-ridden  
hill above Narvik, thankful that our 1800 mile, 5 day journey  
was over, it was still as light as a winter's afternoon in  
London.

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THE EXPEDITION

meat, beans and potatoes, we were ready to continue our journey to Altevatz, our ultimate objective, which lay about seventy miles to the north-east (map 2). The first with the dreary first stage down to Tilbury Docks and subsequent embarkation on the Swedish Lloyd S.S. "Brittania". After a very pleasant and hot two day boat trip we haggled unsuccessfully with Swedish Lloyd officials in Gothenburg about 1400 cigarettes which had gone astray, and then set out on the second stage; the rail journey to Stockholm. Southern Sweden with its open undulating plains, was quite pleasant but its appeal soon palled. We spent the night in Stockholm, did some sightseeing the following morning, and then set out on the third stage of our journey by the "Nordpilen" express up the tree-clad east coast of Sweden and then across to Narvik (map 1). This 26 hour journey was a most irritating one, for we had no seats and the country through which we travelled was hidden by mile upon mile of pine forests. However, our first view of Norway, as we glided down beside the blue waters of the Rombaksfjord into Narvik was a lovely setting to the end of this long journey.

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The following day, after a meal of "Lappskaus", a concoction of meat, beans and potatoes, we were ready to continue our journey to Altevattn, our ultimate objective, which lay about seventy miles to the north-east (map 2). The first 50 miles to Setermoen we covered by bus, catching one of the numerous buses which leave Narvik at midnight. At 3 o'clock in the morning we were set down in the small town of Setermoen. Sleepy-eyed, we stumbled off to pitch our tent, while a Lapp and his family in their blue and red national costume, who had been selling souvenirs in Narvik, were driven off in a Chevrolet! Later that day a local inhabitant took us and our 800 lb. of equipment on to Altevattn in a small lorry, by way of a very rough track and several small rivers.

The scene which lay before us at the end of the track was rather disappointing from the mountaineering point of view, with wide marshy valleys and round-topped hills (fig. 3). Kirkestind, 5120 feet, which lay six miles to the north of our base camp, looked the most interesting and we laid plans to explore this group from a nearer vantage point. While pitching our first camp at Altevattn we met a Norwegian Army sergeant who, inside ten minutes, managed to convey to us by sign language that there was no magnetic declination around Altevattn and that there was an artillery range on the hillside in the direction which we shortly intended to explore. He also told us the times of firing. To our surprise, a Lapp from the nearby

mountains were uninteresting from a climber's point of view. Lapp encampment could speak English and we learned from him that he owned six thousand reindeer, which made him quite a rich man, and that he wintered his herd in Sweden and spent the summer at Altevatn.

The journey of six miles from our base camp at the west end of Altevatn to within a mile of Kirkestind was a gruelling one. We were carrying 70 lb. loads through thick willow scrub, across marshes and then over a steep ridge into Luotnavagge and the trek took us two days. We pitched our camp at the foot of Kirkestind on a moraine which formed one of a number of small islands in a large rapidly melting snowfield, through which walking was very wet and slushy. The weather, being hot and sunny, brought out the mosquitos, which plagued us incessantly in spite of liberal applications of the mosquito sticks which we had brought from England. Later on, we did find temporary relief from mosquitos with a Norwegian oil called "Finn Oljen".

During the following four days both Maddanipa and Kirkestind, the highest mountains in the area, were climbed. The climb on Kirkestind was repeated and a round of shots taken from the summit with photo-theodolite and compass (fig. 4). The many cairns we could see on the surrounding mountains added to our conviction that the area was not as unexplored as we had hoped. More or less continuous low cloud and rain prevailed and two attempts at surveying were thwarted. The surrounding

mountains were uninteresting from a climber's point of view. Snow conditions were unfavourable due to the warm weather and the rock that was vertical enough to encourage climbing was wet and badly weathered. To the west of Kirkestind, just north of Setermoen and 20 miles distant, lay a more interesting group of mountains, by name Istind. They had a more Alpine character, with sharp ridges and fine peaks, and it was our intention to move to this area after a fortnight at Altevatn.

(115.6). On 16th July, four days after setting up our advanced camp near Kirkestind one of our party fell. Our plans, for that day, were to split up into two pairs. While Fawkes and Baxter were surveying on Maddanipa, the other two, Hodgson and Gorb, would try to put up a rock route on the buttress on the south face of Kirkestind. However the weather deteriorated again, low cloud settled onto the mountain tops and it started to rain, so the surveying was postponed. Meanwhile the two rock-climbers had ascended about 150 feet and then started to descend after heavy rain made things difficult. About mid-afternoon, while abseiling to avoid 50 feet of treacherous slimy slab, a piton came out and Hodgson fell a clear 50 feet onto a steep scree slope, fracturing both legs, one arm, hip and teeth. There followed thirty hours of grinding rescue work. The extreme length of time before Hodgson was admitted to hospital was due to the rough country. The rescue team, engineers from a construction camp at Innset, 9 miles away, arrived fifteen hours after the accident at 6 o'clock the following morning, bringing to a much

greater extent and his rather rough passage during his rescue, with them a nurse. Overnight, Hodgson was made as comfortable as possible; ice-axes were utilised as makeshift splints and a flysheet was erected over him. The nurse took over from us and performed miracles (fig. 5). Never before had we been so happy and relieved to see a nurse. At 9.30 a.m. we started the long struggle back, down the steep, large-bouldered scree slope, across the soft snow of the valley and up over the ridge (fig.6). Every forty yards the people carrying the stretcher had to change sides and every 80 yards they rested and three reserves took over from the most tired. The stretcher with Hodgson swathed in bandages and blankets was heavy, very awkward to handle and needed seven people to manage it successfully. Nine hours were thus spent in manhandling the stretcher down the valley towards the Norwegian construction camp at Innset. We were still only about two thirds of the way to the ambulance when to our relief, for we were apprehensive about fording a wide river (fig.7), a Norwegian Air Force helicopter, sent for in the morning, arrived and took the injured man directly the forty miles to Narvik hospital.

In our exhausted state, we were very thankful for the warm hospitality shown to us by the local people. After a night spent with them we moved back into the mountains, collected our equipment, said goodbye to our rescue team and the nurse and returned to Narvik to find Hodgson in excellent hands. Although beginning to feel the effects of his injuries to a much

greater extent and his rather rough passage during his rescue, his condition was much better than we expected.

At this point we would like to record our deep gratitude to everyone involved in Hodgson's rescue and subsequent stay in Narvik hospital. The eleven Norwegians from the construction camp, who formed the rescue party, worked like trojans. The nurse we all admired very much for her pluck and stamina in carrying out a man-sized job. The helicopter crew, who saved us much agony, we were very thankful to see. The surgeon at Narvik hospital was responsible for the injured man's splendid recovery and although extremely busy, took great pains to explain to us the extent of his injuries and his subsequent progress. Thanks should also be extended to various people who visited the casualty while in hospital, especially the Norwegian Army Captain and his Scots wife who also lent their house to Hodgson's parents so that they could be near him. In no small measure the success of the rescue operation benefited from the courage and determination of Hodgson himself, who remained conscious practically the whole time and thus was able to give valuable advice whilst we manoeuvred him about.

Here I quote from a report to the Goldsmiths' Company, compiled by P.E. Fawkes;

"It is at times like this that climbers have to face the regrettable fact of causing considerable trouble and anxiety to others. But accidents do not prevent them from

S.E. of Narvik (Map 2), with a month's supply of food. pursuing the 'mystery of mountain climbing'. The non-mountaineering public is apt to regard this sport as an irresponsible way of getting into danger, and so endangering the rescue parties who go out to help, but we might as well all stop driving motor-cars or playing rugby. As Raymond Greene said on the centenary of the Alpine Club not long ago, "I mean 'mystery' not to imply something which you cannot understand, but in the older sense of a 'religious truth' divinely revealed, especially one beyond human reason" (that anyhow will appeal to non-climbers!) and also 'a handicraft' in the old guild sense, like the 'mystery' of the goldsmith! At the time of the Matterhorn disaster the Alpine Club was violently attacked for encouraging a sport which offered its followers in the words of the Times, 'the equal alternative of an idle boast and a horrible death'. 'It is magnificent', a leading article cried, 'but is it life? Is it duty? Is it commonsense?' The members of the club answered in effect that even if it was neither duty nor commonsense it WAS life, and they went on climbing."

On 25th July, after having spent three days in Narvik from the ferry to the sea, we travelled a winding dusty track making arrangements for the injured man, during which time we were assured that he was in good hands and progressing well, along the bottom of the narrow valley, passing on either side very small farms which suffice to maintain the people during the long winters. These small farms and houses, with their



S.E. of Narvik (Map 2), with a month's supply of food.

Storsteinfjell was recommended to us by the British Vice-Consul in Narvik. The guide book 'Rock Climbs in Arctic Norway' describes the area as one of the most isolated mountain ranges in Arctic Norway. It consists of a long ridge with many peaks, adjoining the Storstein glacier. To the west of it lies Kuinar<sup>o</sup>ckka, which is another interesting mountain, whilst to the south is the Ippo<sup>o</sup>ckka-Ippovarre group. The rock is granite, the rock faces are very steep and climbing is good. Although there is still unfinished work of an Alpine character, there are very few peaks left which could prove to be first ascents. Jack Ramsden and his party visited the area in the early summer of 1956 and made about fourteen first ascents, mostly around the Ippo<sup>o</sup>ckka-Ippovarre group, which, he considers, may well have been the last big area of unclimbed peaks.

The journey by bus and ferry up the beautiful Skjomen fjord and Skjomen valley was a memorable one (figs. 8 & 9). Frostisen, a peculiar glacier of 37 square kilometres, 3500 feet above sea-level, lay on our right as we chugged up the fjord in perfect weather. On our left were the long series of vertical granite slabs of Kongbakkstind and Samnestind. Having transferred from the ferry to the bus, we travelled a winding dusty track along the bottom of the narrow valley, passing on either side very small farms which suffice to maintain the people during the long winters. These small farms and houses, with their

green and carefully tended fields, were never situated far

We reached our new top camp, at an altitude of 4000 feet, from the fast flowing glacial river, from which, during the summer, the men fish at all hours of the night and day. Towering above us, on both sides, were long, steep, glacier-jagged summits of Storsteinfjell. From the sea, thirty miles away, low cloud and mist was creeping up the fjords and valleys, like rivers of cotton wool, to form a silken slowly shifting sea of cloud which gradually broke in huge waves over the mountain ridges. This was a bad omen for the coming weather, for by six miles away at the head of Nordalen, a valley opening out in the morning, our tent was shut in by dense mist and intermittent rain, which stayed with us for the following eight days. Many trips with heavy loads over very steep and wild ground we finally occupied our base camp on 29th July. This base was sited at an altitude of 1600 feet by the side of the river Nordelva (fig. 10), where the valley flattened out in its upper reaches; thus it was a convenient base to support high camps in the Ippočokka-Ippovarre group, Kuinarčokka and Storsteinfjell.

Two days later, we had consolidated this camp, sorted out provisions for a week and moved up onto the Unnariepasvarre snowfield (fig. 11), hoping to climb as many peaks as possible in the Ippočokka-Ippovarre group.

The date was now 30th July and the expedition was established as before with a base camp and a top camp, this time in the Storsteinfjell Massif. Hodgson's accident had thus caused a fortnight's delay.

Whilst Gorb descended into Skjomedalen to obtain more paraffin and tobacco, Fawkes and Baxter placed a food-cache just below Kuinarčokka. During the night the clouds lifted, and for the first time in five days we once more had a view of the lower slopes of the surrounding hills. This encouraged us to

rove back to our high camp. The weather improved a little and we reached our new top camp, at an altitude of 4000 feet, at the end of a long hot day (fig. 12). The sunset that night formed a fiery glowing backcloth to the black silhouette the jagged summits of Storsteinfjell. From the sea, thirty miles away, low cloud and mist was creeping up the fjords and valleys, like rivers of cotton wool, to form a silent slowly shifting sea of cloud which gradually broke in huge waves over the mountain ridges. This was a bad omen for the coming weather, for by the morning, our tent was shut in by dense mist and intermittent rain, which stayed with us for the following eight days. Many times we ventured out from our tent, but did not get far. After having spent a day and a half in our two-man tent, the three of us decided to climb a small peak at the head of the snow-field. If from there we could still see no break in the weather, we were to return to base and take stores up to the other side of the valley for a week's climbing in Storsteinfjell. And so, finding no break in the cloud, we went down to base, where the mist had turned into rain, leaving the tent to face the elements alone.

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move back to our high camp. The weather improved a little and we managed to climb Ippovarre, 5000 feet (fig. 13), and a small peak of 1367 metres, just north of Ippočokka. Ippovarre is believed to have been climbed for the first time in 1956, so we were just a year too late to 'bag' a first ascent. Our route lay up the north face of the mountain, just to the right of a large overhanging buttress, then onto the ridge and so up to the summit. The ridge was a fine, sporting one but without real difficulty whereas the climb up the ridge was mainly a scramble over rather rotten rock. Peak 1367 metres was attained by a hard scramble and we could find no cairn on top and, as we are unable to find records of this peak, this may well be a first ascent.

After our two reasonable days, the sun declined to appear again and as the thick mist seemed to be back for some time, we struck camp and moved back from the Ippočokka-Ippovarre group (fig. 15) to our base-camp down in the valley. After two days in base, the weather had not improved, so Gorb and Baxter set out to walk to Narvik, 25 miles away. We had to walk, apart from the ferry, because funds were low. As it was we got to within three miles of Narvik but, being unsure of our position, we caught a bus for the remaining distance. Hodgson was much better, although still having a little trouble with his stomach. His parents had arrived for a week in Narvik so as to be near him and had been lent a house by a Norwegian Army Officer, Kapt. Ludvik

Smaaskjaer, and his Scottish wife. These two people had been visiting Hodgson while we were away and we ourselves were subsequently treated very hospitably by them. As it was, we stayed overnight in their house, had a wonderful bath, visited our tent containing the excess equipment and food, paid another visit to Hodgson and returned to Skjomen by bus. A curious incident came to light in Narvik, which later was found to tie up with things that had been happening, unknown to us, while we were climbing in Storsteinfjell. All our kitbags, left behind in Narvik, had been opened and rather clumsily tied up again. Five or six dozen bars of chocolate were missing, which we put down to local children, and our personal kit-bags were refilled again, partly with macaroni and oats.

On our return to base in Nordalen, with more supplies of sugar, the weather showed signs of improving and we were prompted to move further into the Storsteinfjell Massif with a week's stores. It was August 15th and during our last week we intended to explore as much as possible around Kuinarčokka and Storsteinfjell. With light packs and the weather once more fine, the journey was easy going, and we were able to fully appreciate our first sight of Kuinarčokka, 5000 feet, in its entirety, nursing its glacier over a thousand feet above us (fig. 16). We pitched camp at the foot of the mountain, quite near to a camp belonging to an Oxford University Expedition, one of whose members joined us at dinner that night. Kuinarčokka

right kept us on our toes. By luck, in the darkness, we provided us with our best rock climb as well as some interesting snow and ice work. Our route onto the mountain lay through the ice-fall which descended from two arms of the mountain to the south east (fig. 17). After first ascending glacier-worn slabs through numerous small waterfalls, we passed over the glacier snout and thence up into the ice-fall, until brought to a full-stop by a vertical morass of huge ice-blocks thirty feet in height. Suddenly two rending thuds broke the silence and a long crack appeared in an ice-block towering above us. Silently and quickly we retraced our steps down the glacier walk through boulder strewn valleys and up a steep snow slope, and to the ridge on our right. Here we were repulsed again, this time by overhangs, so we trudged across the glacier, above the ice-fall, to the foot of a short steep ridge running north east. It was six o'clock before we stepped onto this ridge, the sun was already settling towards the horizon and a cold wind started to blow in from the sea. We took a chance on whether we would be able to find an easy way off the mountain in the dark, and reached the top of the main summit a little over two hours later (fig. 18). The last few pitches were climbed just as the sun was setting and the view of the last reddish rays of the sun lighting up the complete Storsteinfjell range was very beautiful. The 800 foot climb had been most exhilarating; one or two of the pitches were mild severe standard and a cold wind and a sheer drop of 1500 feet to our

right kept us on our toes. By luck, in the darkness, we found the only easy way off the mountain first time.

The excellent weather continued to hold and we made the most of it with a good scramble along the ridge Nikkistind, just west of Kuinarčokka. Again, this mountain was climbed for the first time only the previous year. It afforded magnificent all-round views (fig. 21), and particularly of our next day's objective, the five mile long high level ridge stretching from Iversdalfjell to Stortind (figs. 19 & 20).

Next day, we were away by 8 a.m. and, after a hard walk through boulder strewn valleys and up a steep snow slope, we reached the north end of the ridge by 1 p.m.. The ridge was very broad initially but narrowed considerably. By 6.30 p.m., after a strenuous scramble, we had reached the other end. No climbing was necessary apart from an 80 foot slab. We finally reached camp at 10.30 p.m., after an 18 mile march, exhausted but happy that we had had the opportunity of building a few cairns, for we believe that ours was the first traverse of this ridge. The average level of the ridge was 4300 feet and it had afforded magnificent views, on the one side into Storsteinfjell and on the other into Skjomen and its blue fjord.

In order to climb the rest of the Storsteinfjell mountains we placed a camp further in, at the head of a small glacier, called 'Keble' glacier by the Oxford University Expedition which had been surveying it. However, the tent was pitched in

blinding sleet and snow and the blizzard continued for the next two days, covering our tent which was lashed down with ice-axes and rope, with a drift of snow. It was now time to return to Narvik, and we left this camp without even having put our heads outside the tent-flap, except for necessities.

Having struck our base-camp and carrying large packs and heavy reindeer antlers we strode down Nordalen, in fine weather again, but with a feeling of regret that we had to leave Storsteinfjell itself, now covered in its first blanket of winter snow, largely unexplored.

Upon arrival back in Narvik, we found, to our astonishment, that there had been a hue and cry after us for three weeks; we had been reported missing when our unattended tent outside Narvik was found by the police and searched. This explained why, at our last visit to Narvik, we had found that all our kit-bags had been opened. The loss of our chocolate remains unexplained. An interview with the Police Constable of Narvik explained what had happened. He had given the information that we were missing to the Reuter news agency and reports had appeared in all the big Oslo newspapers and some of the London papers causing unnecessary concern to our families and the College. Although we had not given information as to our future whereabouts to the police when we originally left Narvik, the British Vice-Consul, who had given us advice on where to climb, knew of our plans and Hodgson, in hospital, knew exactly where we were.



MOUNTAINEERING NOTES

Hodgson was now progressing exceptionally well.

He had the cast off his left leg, after only five weeks, and his right one was not likely to need an operation after all.

One of our last three days in Narvik was reserved to climb Rombakstötta, Narvik's Matterhorn, rising east of the town on to the Narvik peninsula, a silent witness to the famous Narvik battle in 1941.

Kapt. Smaaskjaer and his wife again showed us great hospitality. We each had a glorious bath, meals and two bottles of Brennwein to send us on our homeward journey.

So ended our expedition; it did not go exactly according to plan, but it was nevertheless interesting, exciting and unforgettable.

The highest mountain in the area, Kirkestind, was climbed twice in very wet snow; so was Maddenippa. Neither mountain had such to recommend it, and, it was apparent from these summits that the surrounding mountains could offer very little more. However, 20 miles away, in a north westerly direction, lay a group of mountains called Istind. These appeared to be far more interesting but, unfortunately, we were not able to explore them. They are quite close to a main highway, so that it is unlikely that they would prove to be first ascents, but new routes could be guaranteed.

Skarsteinfjell and its adjacent mountains have been

MOUNTAINEERING NOTES

described in the account of the expedition. As already stated there is much fine rock and the potentialities for Storsteinfjell was by far the more interesting from a mountaineering point of view. Unfortunately, just recently the last of the virgin peaks have been ascended and it may be unclimbed, was found to be quite well populated. The development of a hydro-electric scheme, based on the lake mountains in Norway. The weather we experienced there was Altevatn, was in progress with the necessary construction camp situated at Innset. The Norwegian Army were using part of the area as a gunnery range. The lake, according to a local game-keeper, was a summer retreat for fishermen and certainly there were a number of huts on the shore and one or two rowing boats being used for fishing. The mountains although quite high were rounded humps, and the little rock that looked climbable was unsound.

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Storsteinfjell and its adjacent mountains have been

described in the account of the expedition. As already stated there is much fine rock and the potentialities for new routes will last for years. Unfortunately, just recently the last of the virgin peaks have been ascended and it may well be that this range was the last big area of unclimbed mountains in Norway. The weather we experienced there was bad and we were able to explore only the more accessible mountains. These included Kuinarčokka, one of the highest, and the five mile Stortind ridge, of which we may have made the first traverse.

As a stop-gap, Stornain was chosen as a suitable area for us to explore; it was, incidentally, a very good one. The mountaineering exploration was continued insofar as the weather permitted, but work with the photo-theodolite was abandoned because we were now reduced to three people and had only three weeks at our disposal. In any case it was known that the area had been explored and climbed; and as it turned out, the weather would have been an insurmountable obstacle.

In all, eight mountains were climbed and a long ridge traversed, entailing many miles of valley walking.

Not the least valuable part of an expedition lies in the experience of organization which it entails. All of us have experienced to some extent one of the most acute problems

CONCLUSION

It is pertinent to consider whether the expedition achieved its purpose, which was principally mountaineering exploration with, secondly, the recording of photographs with a photo-theodolite in case a map should be needed by a future expedition to the area.

It was very unfortunate that an accident occurred so early on, depriving us of one of our number and causing a disruption of the work of the expedition in Altevatn. As a stop-gap, Storstein was chosen as a suitable area for us to explore: it was, incidentally, a very good one. The mountaineering exploration was continued insofar as the weather permitted, but work with the photo-theodolite was abandoned because we were now reduced to three people and had only three weeks at our disposal. In any case it was known that the area had been explored and climbed; and as it turned out, the weather would have been an insurmountable obstacle.

In all, eight mountains were climbed and a long ridge traversed, entailing many miles of valley walking.

Not the least valuable part of an expedition lies in the experience of organisation which it entails. All of us have experienced to some extent one of the most acute problems

of making an expedition "work"; the problem of preserving harmony among the members of a party. We have broadened

our experience of the outside world; we have seen part

of another country, another sector of the human race and

how it lived - the small crofts of Skjoldalen, the expanding

ore town of Narvik, and the sophisticated capital of Sweden.

| Item                    | Quantity | Weight (lb) | Calories | Protein (g) | Carbohydrate (g) | Fat (g) | Vitamin Content |
|-------------------------|----------|-------------|----------|-------------|------------------|---------|-----------------|
| Chocolate               | 153      | 4.5         | 773      | 7.7         | 54.4             | 37.4    | 11.0 I.U.       |
| Sugar                   | 108      | 3.5         | 398      | -           | -                | 47.3    | -               |
| Syrup                   | 81       | 1.6         | 130      | 0.16        | -                | 32.3    | -               |
| Milo                    | 124      | 1.2         | 149      | 16.3        | 13.0             | 21.6    | .54 mg.         |
| Merlitta                | 124      | 0.5         | 62       | 5.8         | 7.3              | 3.9     | 14 I.U.         |
| Cheese                  | 117      | 2.5         | 392      | 7.1         | 9.8              | -       | 380 I.U.        |
| Whey Milk               | 133      | 1.3         | 258      | 10.3        | 11.0             | 14.5    | 432 I.U.        |
| Maceroni                | 90       | 0.9         | 81       | 1.6         | -                | -       | -               |
| Dehydrated Meat         | 89       | 0.7         | 190      | 3.0         | 5.6              | 10.0    | 10 I.U.         |
| Dehydrated Vegetable    | 35       | 2.4         | 204      | 8.4         | -                | 26.5    | 22.4 I.U.       |
| Jam                     | 21       | 1.5         | 107      | 0.15        | -                | 26.4    | 3.0 I.U.        |
| Island Mint-cake        | 125      | 1.4         | 175      | -           | -                | -       | -               |
| Salt                    | -        | -           | -        | -           | -                | -       | -               |
| Coffee                  | -        | -           | -        | -           | -                | -       | -               |
| Soup (pkt)              | 90       | 1/3 pkt     | 30       | -           | -                | -       | -               |
| Special bar ration HF/5 | 160      | -           | -        | -           | -                | -       | -               |
| Fruit nut bars          | 100      | 1.5         | 150      | -           | -                | -       | -               |
| Isosoda powder          | -        | 1.33        | -        | -           | -                | -       | -               |
| Hot Waxolac             | 176      | 0.3         | 53       | 1.1g        | 4.9g             | 1.1g    | -               |
| Total                   |          |             | 4651     |             |                  |         |                 |

Certain items, for instance Special Bar Ration HF/5, were kept for emergency purposes only, whilst other items, which were not used, have not been included in this list.

The quantities in the table give the amounts of each food actually consumed. In point of fact the amount of food actually taken, 500 lb, was considerably in excess of the amounts indicated, due to our numbers being reduced early on during the expedition.

APPENDIX 1 - Diet

The food consumed by the expedition is indicated in the following table:-

| Item                    | Calories / oz | Ozs /man day | Total Calories | Protein Content | Fat  | Carbo-Hydrate Content | Vitamin Content |
|-------------------------|---------------|--------------|----------------|-----------------|------|-----------------------|-----------------|
| Oats                    | 111           | 2.3          | 256            | 5.2g            | 3.8g | 28.5g                 | .31 I.U.        |
| Biscuits                | 116           | 7.7          | 893            | 4.1             | 2.9  | 29.1                  | .20 m.g.        |
| Margarine               | 218           | 2.2          | 480            | -               | 26.5 | -                     | 495.0 I.U.      |
| Chocolate               | 168           | 4.6          | 773            | 7.7             | 54.4 | 87.4                  | 11.0 I.U.       |
| Sugar                   | 108           | 3.5          | 378            | -               | -    | 47.3                  | -               |
| Syrup                   | 81            | 1.6          | 130            | 0.16            | -    | 32.3                  | -               |
| Milo                    | 124           | 1.2          | 149            | 16.3            | 13.0 | 81.6                  | .54 m.g.        |
| Horlicks                | 124           | 0.5          | 62             | 5.8             | 7.3  | 8.9                   | 14 I.U.         |
| Cheese                  | 117           | 2.5          | 292            | 7.1             | 9.8  | -                     | 380 I.U.        |
| Dried Milk              | 138           | 1.8          | 248            | 10.8            | 11.0 | 14.5                  | 432 I.U.        |
| Macaroni                | 90            | 0.9          | 81             | 1.6             | -    | -                     | -               |
| Dehydrated Meat         | 89            | 0.7          | 190            | 3.0             | 5.6  | 10.0                  | 10 I.U.         |
| Dehydrated Vegetable    | 85            | 2.4          | 204            | 8.4             | -    | 26.6                  | 22.8 I.U.       |
| Jam                     | 71            | 1.5          | 107            | 0.15            | -    | 26.4                  | 3.0 I.U.        |
| Kendal Mint-cake        | 125           | 1.4          | 175            | -               | -    | -                     | -               |
| Salt                    | -             | -            | -              | -               | -    | -                     | -               |
| Coffee                  | -             | -            | -              | -               | -    | -                     | -               |
| Soup (pkt)              | 90            | 1/3 pkt      | 30             | -               | -    | -                     | -               |
| Special bar ration HF/5 | 160           | -            | -              | -               | -    | -                     | -               |
| Fruit nut bars          | 100           | 1.5          | 150            | -               | -    | -                     | -               |
| Lemonade powder         | -             | 1.13         | -              | -               | -    | -                     | -               |
| Nut Pemmanic            | 176           | 0.3          | 53             | 1.1g            | 4.9g | 1.1g                  | -               |
| <b>Total</b>            |               |              | <b>4651</b>    |                 |      |                       |                 |

Certain items, for instance Special Bar Ration HF/5, were kept for emergency purposes only, whilst other items, which were not used, have not been included in this list.

The quantities in the table give the amounts of each food actually consumed. In point of fact the amount of food actually taken, 500 lb, was considerably in excess of the amounts indicated, due to our numbers being reduced early on during the expedition.

The following firms supplied food free of charge:-

|                                |                                 |
|--------------------------------|---------------------------------|
| Anglo-Swiss Food Products Ltd. | Soup                            |
| Bovril Ltd.                    | Pemmican                        |
| Cerebos Ltd.                   | Salt                            |
| Glaxo Laboratories Ltd.        | Dried Milk                      |
| Huntley and Palmers Ltd.       | Canned Rich Cake etc            |
| Horlicks Ltd.                  | Horlicks and Special Bar Ration |
|                                | HF/5                            |
| Kavli Ltd.                     | Cheese                          |
| Nestle Co. Ltd.                | Milo and Nescafe                |
| Quaker Oats Ltd.               | Oats and Macaroni               |
| Robert Wiper                   | Kendal Mintcake                 |
| Scott and Bowne                | Vitamin Tablets                 |
| Tate and Lyle Ltd.             | Sugar and syrup                 |
| Wm. P. Hartley Ltd.            | Jam and Marmalade               |

In addition the Ministry of Food supplied dehydrated vegetables free of charge.

The following firms supplied food at reduced prices:-

|                              |                                    |
|------------------------------|------------------------------------|
| Cadbury Bros. Ltd.           | Chocolate                          |
| Carr & Co. Ltd.              | Life-boat Ration Biscuits          |
| Reckitt & Colman Ltd.        | Instant Potato and Lemonade Powder |
| Mapleton's Nut Food Co. Ltd. | Fruit-nut bars and Nut Pemmican    |
| Van den Berghs Ltd.          | Margarine                          |

In addition the Ministry of Food supplied dehydrated meat at cost price. Philip Morris & Co. Ltd. and W.D. & H.O. Wills supplied cigarettes free of charge.

Various firms required reports on their products, but the most interesting part of our diet was the dehydrated meat and vegetables supplied by the Ministry of Food. These were cooked in a pressure cooker and formed a substantial part of our daily rations. A report on our experiences with these foods has been forwarded to the Ministry of Food.

APPENDIX 2 - Equipment

|            |                                      |                          |                |
|------------|--------------------------------------|--------------------------|----------------|
| Camping: - | 2 Meade Tents                        | 1 Greenland Pyramid Tent |                |
|            | 4 Sleeping Bags                      | 4 Air-beds               |                |
| Cooking:-  | 2 one pint Primus stoves             | 1 Small Canteen          |                |
|            | 1 half pint Primus stove             | 2 Water Buckets          |                |
|            | 1 Rover Canteen                      | 1 Can opener             |                |
|            | 1 Set of Billies                     | Primus Spares            |                |
|            | 1 Pressure Cooker                    | Funnel                   |                |
| Climbing:- | 2 Full Weight Nylon Ropes            | Pitons                   | 122 9 4        |
|            | 1 Three-quarter weight<br>Nylon Rope | 1 Piton Hammer           | 24 13 1        |
|            | 100 ft. Nylon Line                   | 5 Karabiners             | 7 6 11         |
| Transport  | 4 Pack-frames                        | 12 Kit-bags              | 1 11 7         |
| Sundries:- | Fuel-cans                            | Matches                  | 18 0 0         |
|            | Candle Lanterns                      | Polythene Bottles        | 3 5 11         |
|            | Candles                              | Polythene Bags           | 13 6           |
|            | Air Bed Pump                         | Tent Fabric              | 3 0 3          |
|            | Puncture Repair Outfit               | Tent Repair Outfit       | 3              |
|            | Ball of String                       |                          |                |
|            | Insect Repellant                     |                          |                |
|            |                                      |                          | <u>205 0 0</u> |

The surveying equipment, for the loan of which we are indebted to the Royal Geographical Society, consisted of:-

- 1 Camera and Tripod
- 2 Prismatic Compasses
- 2 Altimeters

Cora Ltd. supplied personal clothing at much reduced prices, for which we are very grateful.



APPENDIX 3 - Summary of Expenditure

| <u>Receipts</u>                                  |     |     | <u>Payments</u>             |     |      |
|--|-----|-----|-----------------------------|-----|------|
| £  | s   | d   | £                           | s   | d    |
| Donation from Imperial College Exploration Board | 55  | 0 0 | Fares                       | 122 | 9 4  |
| Donation from the Goldsmiths' Co.                | 50  | 0 0 | Food                        | 24  | 13 1 |
| Personal Contributions @ £25 per member          | 100 | 0 0 | Equipment                   | 17  | 7 0  |
|  |     |     | Photography                 | 7   | 6 11 |
|  |     |     | Maps                        | 1   | 5 6  |
|  |     |     | Postage & Stationery        | 1   | 11 7 |
|  |     |     | Additional travel in Norway | 18  | 0 0  |
|  |     |     | Sundries                    | 2   | 5 11 |
|  |     |     |                             | 194 | 18 6 |
|  |     |     | Insurance                   | 5   | 0 0  |
|  |     |     | Credit                      | 5   | 1 6  |
|  |     |     |                             | 205 | 0 0  |

APPENDIX 4 - Acknowledgements

Primarily our thanks must go to the College Exploration Board and the Goldsmiths' Company for their financial assistance in the Expedition. We are most grateful.

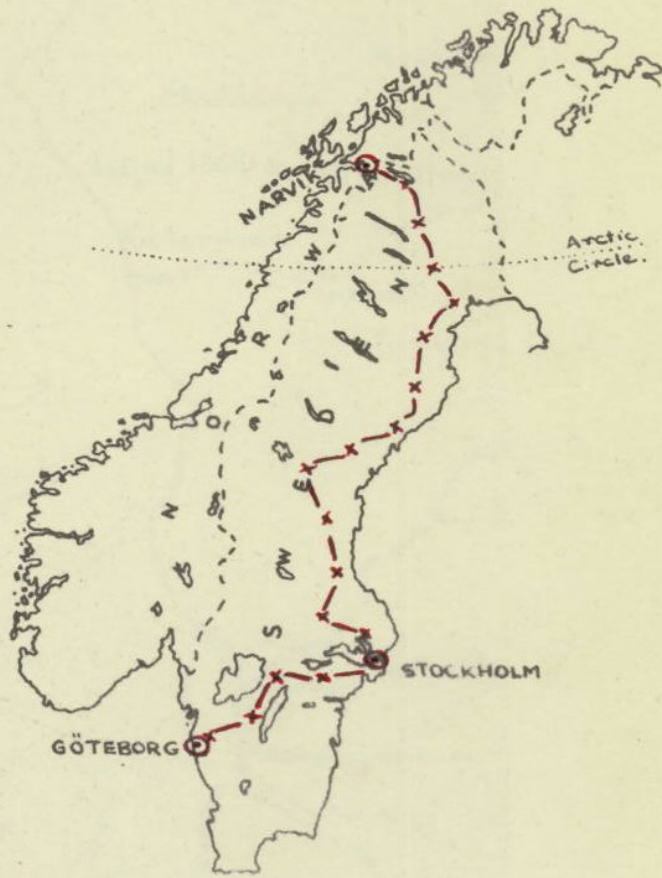
The College Supplies Department were of great assistance in the organizing of the expedition.

Individual members of the Exploration Board were very helpful and gave us much valuable advice.

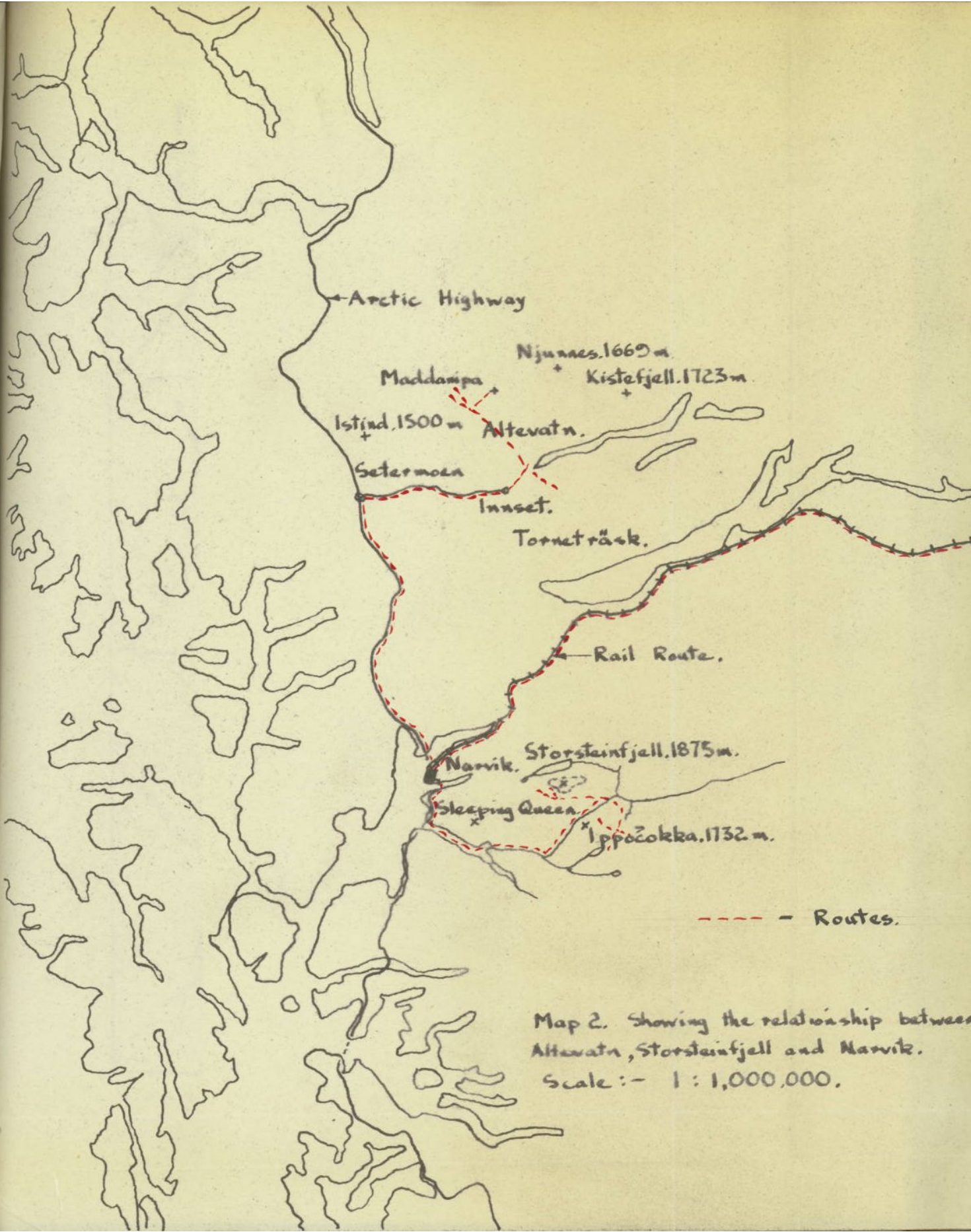
We would like also to acknowledge the assistance provided by the firms listed on pages 9 and 10. For the loan of surveying equipment we are indebted to the Royal Geographical Society.

Our sincerest gratitude we extend to all those who were involved in the accident, especially Jorunn Lysbakken, the nurse; Aage Irgens, the leader of the rescue party; Borg Junnson, the surgeon at Narvik Hospital; and Kapt. Ludvik Smaaskjaer and his wife who gave us the warmest hospitality.

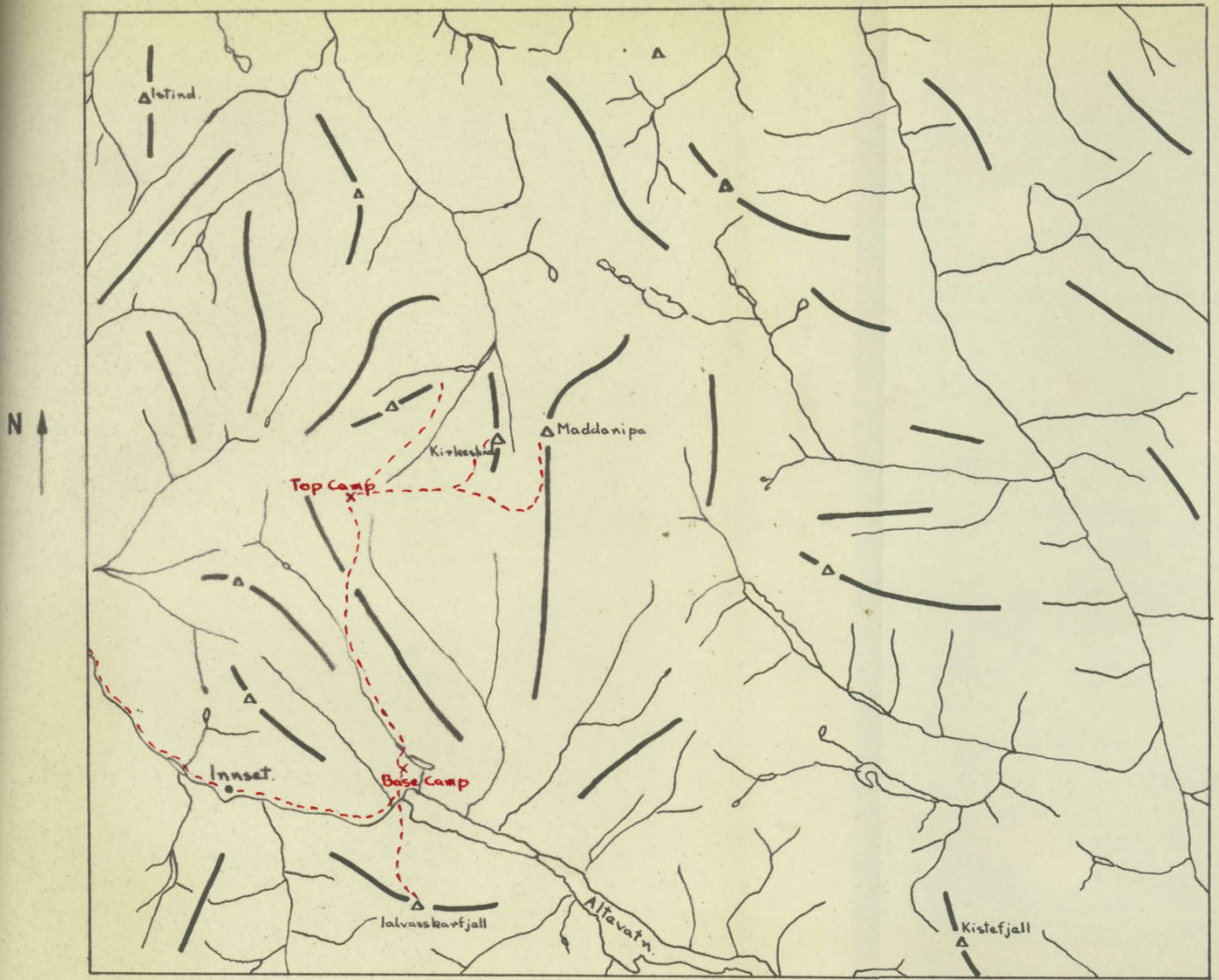
Map 1. Showing Journey from Gothenburg to Narvik.



--- boundaries  
-x-x-x- route

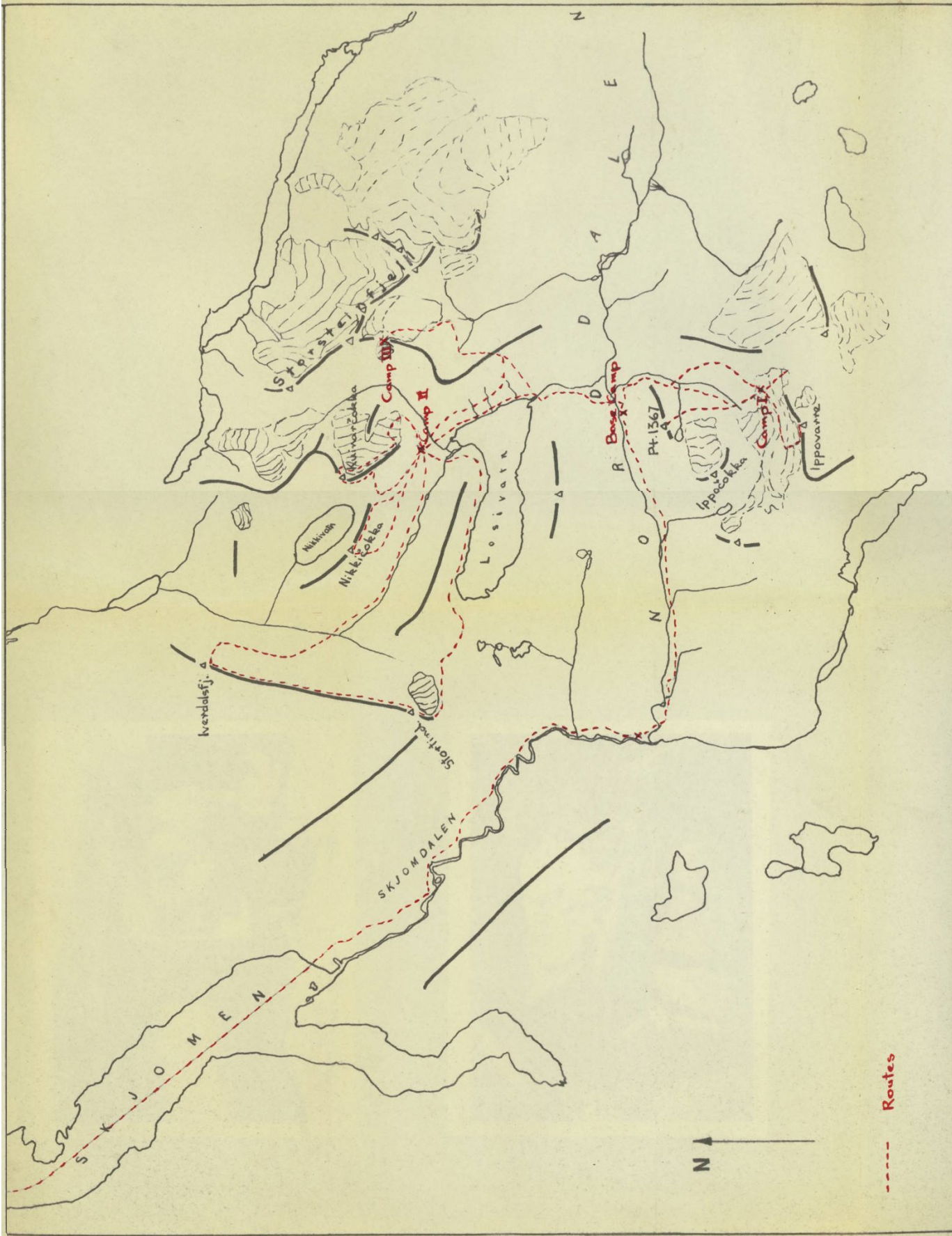


Map 2. Showing the relationship between Altevåtn, Storsteinfjell and Narvik. Scale :- 1 : 1,000,000.



--- Routes.

3. Sketch map showing the area north of Altevatr.  
Scale:- 1:200,000



4. Sketch map showing the Storsteinfjell Massif and the Ippočokka Group  
 Scale 1:100,000



Fig. 1. Arrival in Stockholm.



Fig. 2. Living off the Land.



Fig. 3. The West End of Altevatin.



Fig. 4. From the Summit of Kirkestind,  
looking to the East.





Fig. 5. Hodgson and Nurse Lysbakken



Fig. 6. The Rescue Party



Fig. 7 A Difficult Crossing.



Fig. 8 Skjomen



Fig. 9 Skjomdalen.



Fig. 10 Base at Nordalen

Ippovatte.



Fig. 11 Ippočokka-Ippovatte Group.



Fig. 12 Ippočokka from Camp I.



Fig. 13 Ippovarre from Camp I

Camp I



Fig. 14 Cwm between Ippočokka and Peak 1367m.



Fig.15. Kuinatčokka .

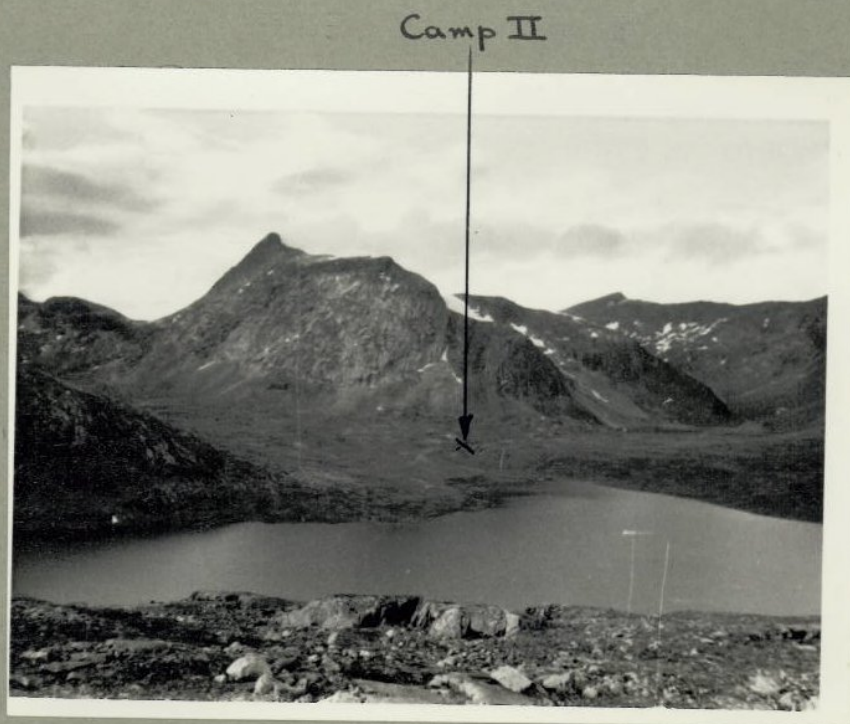


Fig.16 Kuinatčokka from Lösivatn .



Fig. 17 Ice-fall on Kuinarčokka

Camp I



Fig. 18 South-east ridge of Kuinarčokka from summit.



Fig. 19. Stortind from Nikkižokka.



Fig. 20. Stortind Ridge from Nikkižokka.



Sleeping Queen.



Fig. 21. 'Sleeping Queen' from Nikkičokka.



Fig. 22. On the Summit of Rombakstötta.



Fig. 23. Storsteinfjell Massif from Kumiarsčokka



Fig. 24. Rombakstötta.

