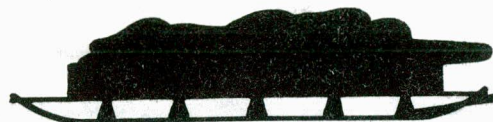


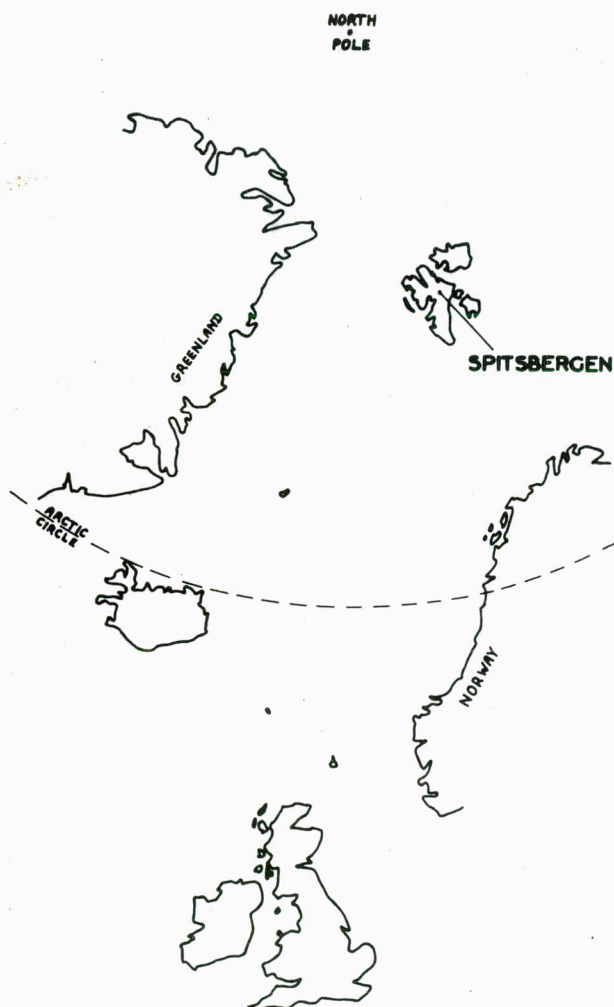
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# PCL SPITSBERGEN MANHAUL 1976

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**PRELIMINARY**

**REPORT**

**OCTOBER 1976**

Patron Sir Vivian Fuchs, FRS.

Expedition Team: Roger Daynes, FRGS, Bob Paterson, MA, BM, BCh, Nick Heddle, BA, MBKS, Jeremy Isserlis, BSc, Chris Rouan, BSc Bob Allkin BSc, Nigel Sutcliffe BSc.  
With Approval and Support of — the Royal Geographical Society.

— the Scientific Exploration Society.

Sponsored by the Exploration Society of the Polytechnic of Central London Students' Union.

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Account: PCL Spitsbergen Manhaul 1976

## Introduction

The seven man expedition team left Great Britain on 10th July for eight weeks to carry out biological and photographic work in Spitsbergen, Norway. For transport to and from the island a 70 ft former fishing vessel was chartered and this was also available to us as a support facility. We shared the vessel with two other expeditions which helped to reduce costs. On land the party travelled on foot, hauling stores and equipment over the glaciers on sledges.

The work programme included three main projects,

1. Botanical investigations.
2. Human physiology related to sleep patterns in polar regions.
3. The shooting of a 16 mm colour/sound film of the expedition and the environment.

Project 1. was intended to be a continuing programme during the expedition from the moment the party landed, with specimens being taken from the different areas through which the party travelled. However, Woodfjorden and the area to the West of it were chosen as principle areas for investigation. The second project would also be a continuing one but with control periods before leaving the UK and after returning. Project 3, the film, was to be shot almost entirely in Spitsbergen and according to a basic script prepared beforehand.

This preliminary report, prepared within a month of the expeditions return, describes events in the briefest details only - that the expedition travelled to Spitsbergen, followed certain routes and carried out certain projects, and that the party returned to the UK safe and well. It is felt that it was a successful venture in so far as can be judged at the present time; it was certainly a very enjoyable one. Several months must now pass whilst the data are processed and the film edited. A detailed report will be produced during the Summer of 1977.

The original plans were ambitious but flexible, depending on the prevailing conditions. In fact, some modifications were needed in order to concentrate efforts to best effect - some of the biological work unfortunately had to be cut and the route finally taken was shorter than originally planned. These changes were necessary because of the soft snow conditions encountered on the glaciers during a Summer of quite bad weather, which caused several other expeditions to abandon or curtail their plans.

## Biological Projects.

Here the main effort was devoted to collecting specimens of insects and all groups of plants including lichens and fungi for positive identification and further study later in the UK. As complete a collection as possible was made of the species present at each site. The main area was at the Southern extremity of Woodfjorden. Here five habitats were sampled including the beach and moraine area at the tip of the fjord, the slope of a sandstone hill up to a height of 800 ft and a river valley from it's mouth to a mile inland. Further sampling was carried out at three inland sites between Woodfjorden and Kongsfjorden. Soil samples were also taken at many sites for later microbiological study.

In addition, bird and other animal life encountered was recorded, some meteorological measurements taken and plankton hauls made off the coasts of Spitsbergen and mainland Norway. Lichenometrical studies, which were to have involved determining a growth curve for lichens, were not possible as suitable dated surfaces bearing lichens were not found in any of the areas visited.

## Human Physiology.

The sun remained above the horizon throughout the period spent in Spitsbergen. To assess the effects of this on sleep, six members of the team kept a continuous record of their sleep patterns and sleep quality, beginning

prior to departure from the UK and continuing for a further period after returning. For a time the subjects also slept blindfolded for comparisons to be made with normal sleeping conditions. Furthermore, an attempt was made to determine the Basic Rest Activity Cycle using the Stanford Sleepiness scale. Data acquired will be compared to that taken during control periods in the UK.

#### Filming.

3,200 ft of 16 mm colour negative film were shot under all kinds of weather conditions and the equipment used performed well. 3,400 ft of sound were also recorded for the non-sync. sound track. Editing is now starting in order to produce a 30 minute colour/sound documentary of the expedition and the arctic environment as the expedition party experienced it.

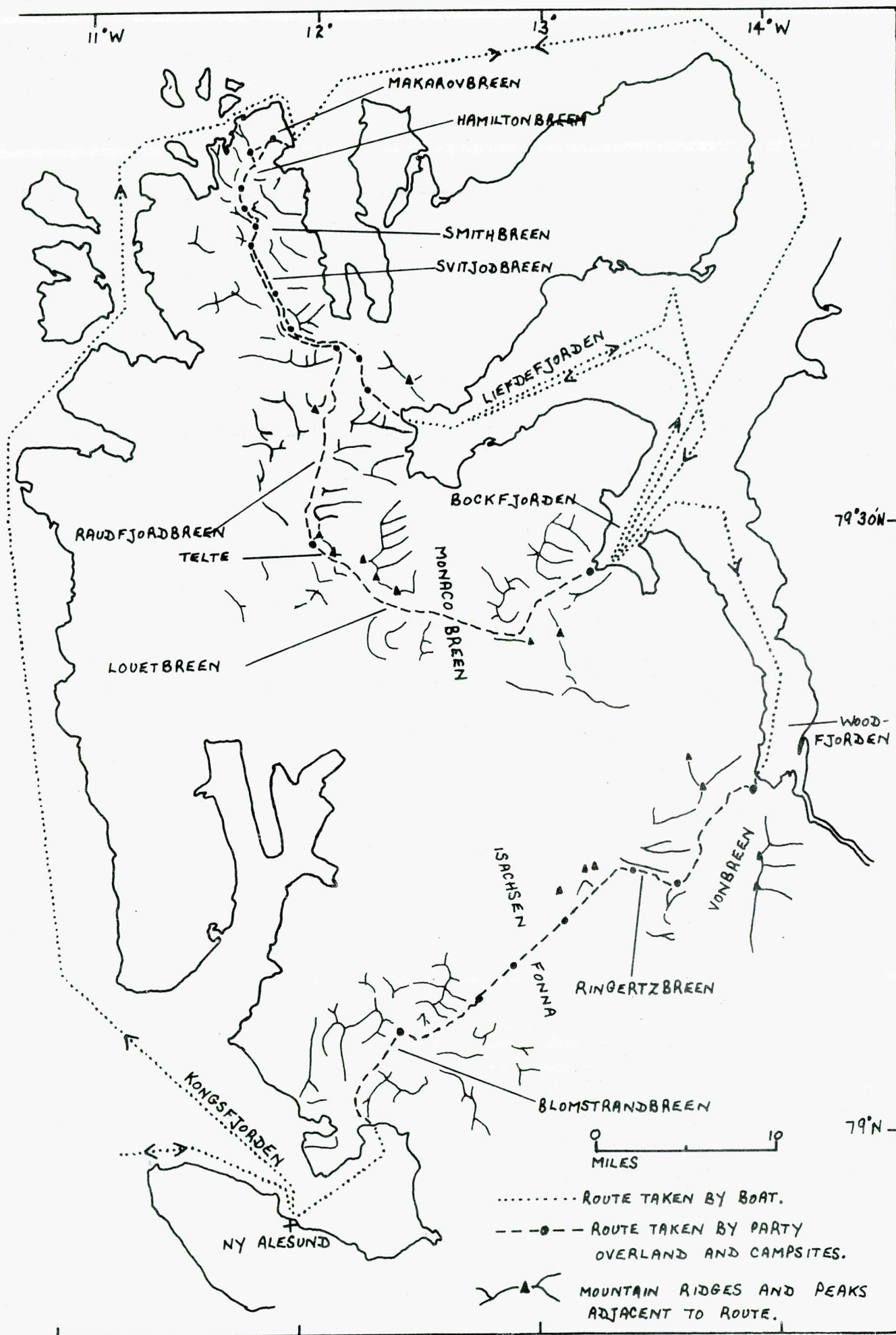
#### Weather and Travelling Conditions.

When the expedition returned to Ny Alesund there were indications from the small resident population that the Summer weather had been particularly bad this year. In fact, other parties had returned home early or curtailed their plans.

Virtually all the travelling done by the party - just over 100 miles (neglecting relaying of sledges) was on the snow or ice surfaces of the glaciers. In general, glaciers were bare of snow up to about the 1200 ft level. Sometimes this situation was a good one for sledging and walking because the crevasses and melt streams were visible and good progress could be made, pulling both sledges at once, and with dry feet. At other times, these snowless surfaces held various depths of slush, sometimes a foot or more deep, which was not at all conducive to pleasant progress. Higher up on the glaciers snow surfaces were generally soft which made sledging very difficult. Except on four days the skies were mostly overcast and, with precipitation, whiteout and bad visibility were generally the case when the compass was the only reference point for navigation. Though usually bad, the weather was extremely changeable and there were rarely two consecutive days with the same weather pattern. However, there were no travelling days lost because of the conditions and, apart from the extra effort and concentration involved, there were no navigational problems.

#### Medical.

Health was good save for minor ailments such as insomnia, blistered feet, rectal haemorrhoids, cuts, etc. All members suffered from fatigue, especially during the final traverse of the inland plateau when nutritional requirements were particularly high. Mental health was in general good and morale generally high.



### SKETCH MAP OF NORTH WEST SPITSBERGEN

## Diary.

Friday 9th July. We left Regent Street, London, in the late afternoon after loading the expedition effects, and then picked up those of the Cambridge Spitsbergen Expedition from Cambridge before driving overnight to Edinburgh.

Saturday 10th. Arrival in Granton near Edinburgh where our boat, the Motor Yacht Copious waited to be loaded. In all, thirteen people sailed aboard Copious - six of our expedition team, four members of the Cambridge Spitsbergen Expedition, the Captain and two crew members. The expedition doctor would be flying to Bodo on the Norwegian coast on 14th July and we would call there to pick him up.

Sunday 11th - Monday 19th. The journey was relatively calm and warm across the North Sea to the Norwegian coast. A rota system was established for watch-keeping and domestic duties and otherwise, time was spent reading on deck, sewing manhaul harnesses, preparing the sledges, etc. Unfortunately, we had to put into Alesund on the Norwegian coast on the morning of the 13th for repairs to the engine. We were able to leave again on the evening of 14th after meeting our doctor, who had been rerouted to Alesund at the last minute and who was able to bring the spare parts we needed to complete repairs. After refuelling in Svolvær in the Lofoten Islands on 16th, Copious sailed direct for Ny Alesund, Spitsbergen, once more through fairly calm waters.

Wednesday 21st. Ny Alesund was reached late on Tuesday night and the Cambridge Spitsbergen Expedition party and stores put ashore before sailing for Longyearbyen, arriving 16.30 hrs.

Thursday 22nd. The Cambridge Leys School party arrived by air in the early morning and were embarked with their stores and taken to their base at Brucebyen. On the way back to Longyearbyen, a call was made on the Russian coalmining town at Pyramiden.

Friday 23rd. Copious refuelled at Longyearbyen and then left for North West Spitsbergen and our own starting point, the Makarobreen (breen = glacier).

Saturday 24th. The Makarobreen was reached at 13.30 hrs and most of our party and stores were put ashore, though two of the party remained aboard to travel round to Bockfjorden to lay a dump for our future use. The five on shore back-packed stores onto the glacier to a suitable campsite about 600 ft up and a mile inland. (Time/distance: 5 hrs/1 mile.)

Sunday 25th. Two of the shore party walked to the Northernmost point on the coast, Flathuken, to look for a reasonable landing site for the returning boat. However, there was none suitable and Copious returned to the Makarobreen again to land the two remaining team members. Arrangements were made to meet the boat again on 6th August in Bockfjorden, and she sailed at 1800 hrs.

Monday 26th. The start of the long sledge haul to Bockfjorden. The sledges were relayed up the Makarobreen until the route was found to be blocked by a wide crevass at the top. From there, everything needed for a camp was back-packed to a camp site further up on what we thought was the correct route at about 1500 ft. Navigation was from the maps and aerial photographs since visibility was very low. (Time/distance: 7 hrs/1.5 miles)

Tuesday 27th. It became clear that we were not where we should be and the day was spent, in whiteout and fog, determining exactly where we were and where the correct route lay. It was a salutary lesson in the caution with which we should read the maps available (contours every 300 ft) and the aerial photographs.

Wednesday 28th. The sledges and remaining equipment were taken from where they had been left at the crevass on the Makarobreen, down across Hamiltonbukta to a suitable place along the route on the Hamiltonbreen. The same camp was used as on 26th and 27th. (Time/distance: 10 hrs/1 mile)

Thursday 29th. Camp was broken and the loads were back-packed in two lot down to the sledges which were then relayed up the Hamiltonbreen. Crevasses,

whiteout and soft surfaces again slowed progress, but the weather cleared briefly at midnight to show us the way ahead. (Time/distance: 8 hrs/1½ miles)

Friday 30th. The sledges were again relayed, nearly to the col between the Hamiltonbreen and the Smithbreen. (Time/distance: 5 hrs/1 mile)

Saturday 31st. Over the col and down towards the Smithbreen with the sledges together until the convex slope and crevasses leading onto the glacier meant relaying and following a more devious route. Camp was made below the bird cliffs on the South East ridge of the Rubinfjellet. (Time/distance: 6 hrs/1 mile)

Sunday 1st August. An uphill struggle all day but with wonderfully clear weather and spectacular views. The sledges were relayed up about 1500 ft onto the Svitjodbreen at about 2,300 ft where we camped on the col in cold, clear weather, though in rather an exposed situation. (Time/distance: 12 hrs/1 mile)

Monday 2nd. The gamble failed and we had to break camp three hours later as the wind rose, together with the temperature, turning the surface on which we were camped into slush.

It was obvious that we would not now be able to reach Bockfjorden as previously arranged with the boat, at our present rate of progress. A party of two, Chris and Roger (A) therefore left today to walk to Bockfjorden (36 miles) in order to keep the appointment with the boat and to travel on her to Liefdefjorden to where the sledge party would now head.

(A) Starting slightly ahead of (B), good progress was made and a tent pitched for breakfast opposite the Portierbreen. A route down the Svitjodbreen and Cheaveaubreen then led to a camp near the moraine which separates the Cheaveaubreen from the Raudfjordbreen. (Time/distance: 9 hrs/8 miles)

(B) After the early start and relaying the sledges further along the Svitjodbreen a stop was also made for breakfast. The rest of the day was spent relaying to a camp opposite the Portierbreen. (Time/distance: 11½ hrs/2½ miles)

Tuesday 3rd. (A) A day spent climbing slowly up the Raudfjordbreen into falling snow and 25 knot winds. The soft surfaces hardened as the col with the Lilliehookbreen was reached and camp was made between Solen and Telte in whiteout and unconfirmed position. (Time/distance: 9½ hrs/10 miles)

(B) A further day of relaying on soft surfaces for modest gain, camping beneath the bird cliffs to the East of Byttane. (Time/distance: 8 hrs/2½ miles)

Wednesday 4th. (A) Camp was broken in whiteout and the compass followed towards the Telte Pass. Here the fog lifted and we were pleased to find we were where we should be. From the Pass, down onto the Louetbreen through soft snow, then slush and melt streams. The weather was clear over the three mile wide Monacobreen and the surface crisp ice. In the centre of the glacier, with calm weather and beautiful views, we stopped to brew tea before continuing the journey across and up the Oberstbreen and down to Bockfjorden by the Friedrichbreen. We camped by the dump layed from the boat on 25th July. (Time/distance: 17 hrs/18 miles)

(B) The route down the Cheaveaubreen was followed where icy surfaces allowed both sledges to be moved at once, down past the camp where (A) spent the night of 2nd. The moraine was crossed and sustenance taken before again double-hauling the sledges up onto the Raudfjordbreen. The surfaces, though icy, became very hummocky with many melt streams and crevasses. (Time/distance: 17 hrs/4 miles)

Thursday 5th. Copious arrived at Bockfjorden at 10.30 hrs and camp was broken. Part (A) boarded and then sailed for Liefdefjorden, anchoring a mile off the South West edge of the Idabreen. This looked from the boat to be the best route for the sledge party to take and be picked up from. Radio contact made with (B).

(B) After the radio sched. with (A) on board Copious, the route was followed towards the South side of the Idabreen. The surface improved and camp was pitched in the centre of the glacier on bare ice. (Time/distance: 6½ hrs/1½ miles)

Friday 6th. (A) landed late in the morning after further radio contact with the sledges, and walked up the glacier to check on the route at the ice-front.

and to meet the sledge party with assistance if required.

(B) the South side of the Idabreen was followed and (A) met up with.

Both parties were back on board by the early evening and we all sailed to South of Reindyrflya for the night, anchoring by the islands near Worsleyhamna. A group went ashore to explore and visit the old hut.

Saturday 7th. Copious sailed for Bockfjorden to retrieve the dump (plans having now having been reassessed in the light of the previous sledging experience). Our revised plans took us direct to Woodfjorden where the party, stores and equipment were put ashore for the botanical work and in preparation for the eventual journey across the inland plateau to Kongsfjorden. A more permanent camp was set up in the terminal moraine of the Vonbreen, near some freshwater pools.

Sunday 8th. Copious sailed at 10.00 hrs after arrangements had been made to pick the party up from the terminal moraine of the Blomstrandbreen on the West coast of the island on 26th August. Bob P. and Jerry spent the day shifting stores and sledges up towards the Vonbreen in preparation for the journey over, whilst the others investigated a route into Woodfjorddalen for the botanical work. The melt water outflow from the Vonbreen however, and quicksand, prevented direct access and time was spent searching for alternative routes - inconclusively.

Monday 9th. Chris, Bob A. and Nigel made a start on the botanical work whilst the rest again tried for a route into Woodfjorddalen. Eventually it was decided not to persevere with this since whichever route we took would be long and dangerous; time would be better spent investigating the moraine and more readily accessible coastal areas. More stores were taken up towards the Vonbreen.

Tuesday 10th - Sunday 15th. Roger and Bob P. left on a six day recce trip to the Blomstrandbreen. At least one party had failed to find a route down it in previous years but we hoped to do so as it was our most expedient way back to the boat. The rest of the party were concerned with botanical work during this time.

#### The Recce Trip

Tuesday 10th. The moraine was followed up on the North West side of the Vonbreen, then across the Fraenkelbreen and Rubinbreen onto the Ringertz-breen. The map suggested that the Ringertz-breen was the most suitable route up onto the inland ice and the Isachsenfonna. There were two icefalls, one at the lower end which proved not too difficult, and one at the very top which we reached in whiteout and bad visibility. Here we were forced to camp amongst the crevasses and chasms. (Time/distance: 10 hrs/10 miles)

Wednesday 11th. It took an hour and a half to clear the crevasses before the plateau was reached; surfaces deteriorated during the day and camp was made somewhat earlier than usual in the hope of harder surfaces the next day and a less frustrated party. (Time/distance: 6 hrs/5 miles)

Thursday 12th. Soft surfaces were the order of the day all the way to the Blomstrandbreen, and, with whiteout and wind too, a rather energetic day resulted. No great problems were found in negotiating the ice-falls (of ill repute) and camp was made further down the glacier on the only moraine visible, the glacier thereabouts being deep in slush. The rain poured down and this was 'Camp Wet'. (Time/distance: 10 hrs 11 miles)

Friday 13th. A further reason for coming this way was to make contact with the Cambridge Spitsbergen Expedition party at Ny Alesund to confirm our return route on 26th; we felt from what we had seen of the Blomstrandbreen by now that it would be a reasonable passage for the sledges. To make contact we had to reach a position which was in reasonable 'line of sight' for our VHF radios and we walked down the glacier another mile to the best place for this. Weak contact was made though with sufficient strength to get the message over, and, our job done, we could now make tracks back towards Woodfjorden. The route down the glacier was followed up, this time with falling snow and in whiteout, and camp was made near the top in quickly freezing conditions. After the previous nights soaking, pitching the tents was something of a problem. (Time/distance: 10 hrs/10 miles)

Saturday 14th. Different tactics were employed this morning - rucksacks were laid on foam mats inside large polythene bags and hauled - much less energetic. This, combined with somewhat better snow surfaces made the going easier, but still the whiteout and winds persisted most of the time. (Time/distance: 7 hrs/7 miles)

Sunday 15th. The morning was foggy but fortunately the only landmarks that were visible were those we needed at the top of the Ringertzbreen and we were therefore saved another day of staring at the compass. A better route was followed down the Ringertzbreen - we could now see right across it and were able to avoid the top ice-fall. Then back down the Vonbreen to the camp amongst the terminal moraine. We met the rest of the party bringing more stores up onto the glacier on our way back and were all relieved to see each other safe and well. (Time/distance: 10 hrs/14 miles)

Monday 16th. More stores carried up to the Vonbreen, leaving only one more carry for tomorrow.

Tuesday 17th. The Woodfjorden camp was evacuated and the last loads taken up to an empty sledge on the Vonbreen which was then hauled up to a camp just below the first ice-fall of the Ringertzbreen. This left a fully laden sledge to be collected tomorrow. (Time/distance: 12 hrs/7 miles)

Wednesday 18th. Chris and Nigel investigated the flora on the cliffs and moraine of Falsen Slottet and also proved a route for the sledges up through the ice-fall. The rest of the party returned for the other sledge, hauling it up to the ice-fall camp.

Thursday 19th. The sledges were taken up through the ice-fall one by one, and the camp sledge then hauled almost to the top of the Ringertzbreen. Here very strong winds forced a camp to be made before the plateau was reached. (Time/distance: 6 hrs/3 miles)

Friday 20th. Bob A. and Nigel spent time on the Fortunafjellet cliffs whilst the second sledge was collected from lower down and taken up onto the Isachsenfonna for two miles in falling snow and whiteout - would we ever find it again?

Saturday 21st. No change in the weather which was very windy. The camp sledge was taken up to join the other and from here, to everyone's great relief, it was possible to haul them both at once - well, just! Camp was eventually made a mile from a small nunatak near the Tre Brodre mountain group. (Time/distance: 7 hrs/5 miles)

Sunday 22nd. Another windy night and the sledges needed digging out in the morning. It was still possible to double haul them although the surfaces became very soft later in the day; when one of them turned over we felt it had had enough too and we camped. (Time/distance: 5 hrs/4 miles)

Monday 23rd. Very soft surfaces again and whiteout and snow. Camp was pitched at the head of the Blomstrandbreen and the weather miraculously cleared to give us outstanding views of the surrounding peaks and of Krossfjorden beyond. (Time/distance: 5 hrs/3 miles)

Tuesday 24th. A beautiful cold, clear morning. Breakfast was eaten with the tent door open to admire the views down the Blomstrandbreen. However, the fog rolled up the valley just as we were about to start off and the ice-falls were negotiated in whiteout from memory of the recce trip. The fog rolled back down again in the evening once again allowing us views of great beauty. (Time/distance: 7 hrs/4 miles)

Wednesday 25th, Thursday 26th. We hoped once more to make contact with the Cambridge Spitsbergen Expedition but had no luck on this occasion. Camp was broken and we moved off while Bob A and Chris sampled the flora on the Svansen and Mercantonfjellet cliffs. The route took us diagonally across the Blomstrandbreen, over five wide melt streams, to keep to the Eastern side. Hummocks and then crevasses forced us over to the centre and we put a tent up for a rest, brew and something to eat after a long recce ahead to check that we were in fact

going to be able to get right down to the terminal moraine; we were now only a couple of miles from it. The route we then followed appeared to be the only possible one, and certainly a very exciting one through the icy hummocks with both sledges together. The moraine was reached at 0600 hrs on 26th and tents were pitched, food eaten and sleep attempted. (Time/distance: 15 hrs/6 miles)

On the radio sched with the boat we learnt that we should be picked up at about midday, the long journey over. Everything was loaded aboard and after the short trip across Kongsfjorden to Ny Alesund, there were washing facilities and many good things we had been looking forward to for a long time. The outgoing Cambridge Spitsbergen Expedition gear was loaded aboard and we were also entertained by the Norwegian Station Commander of Ny Alesund before finally saying our goodbyes to Spitsbergen at 20.00 hrs.

Friday 27th - Thursday 9th September. The return journey was considerably rougher than the outward passage. We made for the Norwegian coast, sighting land on 30th about midday and passing through the Lofoten Islands again to refuel at Sortland on 31st. The weather was sufficiently bad on the night of 31st/1st September to look for a secluded anchorage whilst the storm blew itself out at sea. By 3rd we had travelled down the coast as far as Alesund, keeping within the islands for the calmer weather there. Across the North Sea we headed for Eyemouth, arriving early on 7th and where most of the party aboard left the boat for appointments ashore. This left two of our party to stay on board to travel down to Harwich where cargo was unloaded on 9th September.

#### Acknowledgements

The expedition would not have been possible had it not been for the tremendous help we received from so many different sources. Help came in many forms - advice and encouragement, grant-aid, material donations, discount terms and many others. In particular we would like to thank the Exploration Board of the Polytechnic of Central London and the Students' Union of the Polytechnic for their early support and financial assistance. The team would also like to express their thanks to the very many people who gave freely of their time, advice and help in all kinds of ways. We hope we may be forgiven for not including them all on the list, for it would otherwise be an extremely lengthy one; their continued encouragement was invaluable throughout the eighteen months which the expedition took to organise.

#### Grant-aid

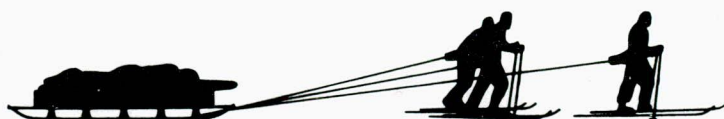
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## THE AREA

Spitsbergen is the largest island in the Svalbard group, which is under Norwegian sovereignty and situated almost midway between the North of Norway and the North Pole. The islands are mountainous and largely glaciated. The West coast of Spitsbergen, indented by many fjords, is reached by a warm branch of the Gulf Stream and this allows navigable water during the Summer months at a higher latitude than elsewhere in the Arctic. These lands of the 'mid-night sun' support a small permanent population engaged in coal mining, and settlements are established in the fjords of the South West coast of Spitsbergen.

Polar bear, arctic fox and reindeer are indigenous to the island group; musk oxen and hares have been introduced. Lively breeding grounds of sea birds are found in the coastal areas during the Summer months and the sea contains several kinds of seal, fish and some whales and walrus. Relatively rich vegetation occurs in the ice free valleys and beneath bird cliffs, colouring the scenery during the few weeks of the arctic Summer.

The expedition will be travelling mainly in the area at the North West tip of Spitsbergen, North of Ny Alesund. The six man team will manhaul supplies and equipment over the glacier 'highways' (still a very efficient means of movement in polar regions) and carry out scientific work and collect ecological specimens from around the nunataks and ice free valleys. An important part of the expedition work will be still photography and the shooting of a thirty minute 16 mm colour film.

## EXPEDITION WORK

Ecology. The area is of interest to the ecologist for several reasons. Over the past years the climate has been warming up and some glaciers have been observed to be retreating. These changes may have an important bearing on the vegetation of the area and fresh colonisation may be apparent. The team will be concerned with this aspect and will also be making a careful collection of selected fungi, lichens and vascular plants. It is expected that some of the specimens will be species previously unknown on the island or this far North.

Fungi are of interest for research into new antibiotics and some lichens and mosses have become established as indicators of pollution. A collection of these and other specimens will also aid an understanding of the growth and spread of vegetation in polar regions and relevant meteorological parameters will be recorded by the team. Still photography will be used to record specimens in situ for identification purposes and for use where ever good quality colour photographs are of value to illustrate accurately the colour and growth of the vegetation of the island.

Human Physiology. Human sleep in polar regions is subject to some marked changes. Extremes of daylight affect the stability of the sleep and waking rhythm and a loss of 'deep sleep' occurs in men living in the Antarctic. This latter is thought to be directly consequent on the intense 24 hour daylight of polar Summer, though mental causes (such as anxiety) have not been excluded. A summer expedition in Spitsbergen provides a suitable environment for resolution of this uncertainty. Electroencephalographic observations of the expedition members' sleep, using a miniature tape recorder employed in the Antarctic, will be made. These, and control observations, can be made with very little interference to a man's sleep.

Cine Photography. The object of the film is to record the arctic scenery and wildlife encountered by the expedition and it will also investigate traces of previous polar exploration and activity in the area. Members of the team will be seen carrying out their research and a brief examination will be made of the purpose of each project. The progress of the expedition will be illustrated by animated maps. The format will be 16 mm and the film, in colour, will last approximately thirty minutes on the screen.

Still Photography. 35 mm and 2-1/4" square colour and monochrome film will be used to obtain a detailed record of the expedition. The scientific work will be illustrated in this way and it is hoped that much of the photographic material will be of value from an educational point of view, from it's description of the environment and features and of the ecological work of the team.

Past work in the area has been and will continue to be researched and it is hoped that our report will be of use to Norwegian workers as well as to institutions and individuals in the UK. In an area where few people go there is much we could usefully do. We hope to concern ourselves with other ecological aspects though the primary objectives of the team are as described.

#### TEAM

- Roger Daynes FRGS. Leader age 33. Two years experience with British Antarctic Survey at Halley Bay as meteorologist 1972/74 and base commander 1973/74. An assistant leader with British Schools Exploring Society expedition to Iceland 1975. Mountaineer. 2nd year student of scientific photography (BSc) at the Polytechnic of Central London.
- Bob Paterson MA;B.M.,B Ch. Medical Officer age 32. Following hospital service was medical officer with British Antarctic Survey at Halley Bay 1971/72, and there investigated physiological changes in sleep patterns consequent on the Antarctic seasons. This work has been presented as thesis for D.M.
- Nick Heddle BA (Phot.Arts). Photographer age 25. Graduate of Polytechnic of Central London and lecturer in photography and documentary film production. Certificate of Merit at First International Film Festival for films on the human environment 1973. Two films as official British entries in the Grenoble Film Festival 1974. Mountaineer.
- Jeremy Isserlis. Ecology projects. Age 25. 3rd year BSc (hons) Life Science student at Polytechnic of Central London. Member of PCL biological expedition to Tunisia 1974. 3 years in police force, mountaineer, married.
- Julian Steventon BSc (hons) Life Science. Ecology projects. Age 23. Graduate of Polytechnic of Central London. Early years spent in Africa. Extensive travel in Europe particularly Scandinavia. Experienced in sailing and in use of inflatable boats.
- Chris Rouan BSc (hons) Zoology. Ecology projects. Age 24. Graduate certificate in Science Education and certificate in educational technology (production of audio-visual aids). Teacher of ecological subjects and experienced in ecological fieldwork, sailing and mountain walking.

#### ORGANISATION

Field Work. During six weeks in Spitsbergen the team will manhaul between selected areas, spending several days in each to carry out the expedition programme. The plan has always been that the various projects should complement each other and the team will therefore be able to concentrate fully on it's work. This has been arranged to need the minimum of equipment and materials and relaying of loads should be unnecessary. Training for the fieldwork and for travelling in the arctic environment will continue in the UK before leaving for Spitsbergen.

Timetable. The expedition will be in Spitsbergen from the end of July until the beginning of September 1976. Stores and equipment will travel by sea to the area whilst the team goes via Norway and flies to the island from Tromso. The expedition area will be reached using two inflatable boats to cross Kongsfjorden and Krossfjorden from Ny Alesund.

Budget. A summary of the expedition's costs for 1976 is shown below and which takes account of some help already received.

|                |              |
|----------------|--------------|
| Travel         | £1400        |
| Food           | 250          |
| Freight        | 100          |
| Equipment      | 800          |
| Insurance      | 150          |
| Fuel           | 50           |
| Administration | 200          |
| Photography    | 800          |
| Maps           | 50           |
| Report         | 200          |
|                | <u>£4000</u> |

## SUPPORT

Finance. Team members themselves are contributing nearly one third of the total budget. It is hoped to raise additional funds to balance expenditure from the following main sources,

- Sponsors and grant aid institutions
- Sale of cine film and sequences
- Advertising and commercial photographic publicity
- Sale of articles and photographs

The Polytechnic of Central London is a major sponsor and has already generously given financial support. Despite the prevailing gloomy financial situation in the country we believe that the expedition is still a very viable proposition which has worthwhile aims. We are therefore pressing ahead with our plans though their successful conclusion is to a large extent dependant upon our appeal for further help.

Advice. We have received help and advice in planning the expedition from many sources. These include,

- Norwegian Polar Institute, Oslo
- The Norwegian authorities in Svalbard
- British Museum (Natural History)
- Institute of Mycology, Royal Botanical Gardens, Kew
- Polytechnic of Central London Life Science Department
- University of Lancaster Botany Department
- Scientific Exploration Society
- Young Explorer's Trust
- World Expeditionary Association

Research has been carried out at the Scott Polar Research Institute and the Royal Geographical Society and to all these and many other institutions and individuals we owe much for continued advice and encouragement.

## REPORT

A full report containing a record of the expedition's scientific and other achievements will be produced within nine months of the expedition's return to the UK. It will also contain details of the expedition organisation and planning and also of the problems of the environment encountered in Spitsbergen for the benefit of future parties to the area.

All correspondence should be addressed to

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104-108, Bolsover Street,  
London W1.

unless otherwise stated.

