

**The Scottish  
Mountaineering  
Club Greenland  
Expedition 1998**

44

## **Scottish Mountaineering Club, Greenland Expedition 1998.**

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Acknowledgements

## Scottish Mountaineering Club, Greenland Expedition 1998.

### 2 Summary. Colwyn Jones

The aim of this three week expedition was first ascents of a number of unclimbed peaks in the western part of the central Staunings Alps. The peaks lie in a remote, uncharted region in the High Arctic, north of the 72nd parallel in North East Greenland. The area can only be reached by a prolonged trek across glacier terrain or by ski-plane or helicopter landing in the interior of the mountain range.

There were eight members in the team and their personal endeavour and physical fitness was tested on this continuation of the strong explorative association between Scottish Mountaineering and this remote Eastern Coastal Mountain range of Greenland.

During the 1950s and 60s many of the peaks in the area, got British names as Scottish Mountaineering Club and Junior Mountaineering Club of Scotland members, forced first ascents in this remote area. As these early pioneers discovered, travel by ski is the norm up the huge glacier highways which reach the centre of this glaciated wilderness helped by 24 hour Arctic daylight.

We approached the area in a ski-equipped Twin Otter chartered from Flugfélag Íslands of Akureyri in Iceland, which flew us to Constable Point, a commercial airport with a gravel airstrip which serves the remote community of Scoresbysund. After refuelling, and collecting equipment which had been airfreighted in advance of the personnel, we flew to the Sefstroms Glacier in the Western Staunings Alps and landed on the 6th May, two days later than planned due to bad weather.

Next day an attempt on two unclimbed peaks between Attilaborgen and Trinity failed but allowed exploration of the local complex glacier system. The main glacier was called the **Essemcreebrae** with the northerly branch named the **McKenzie Glacier**. The **Inner Sanctum** was the name given to the glacier basin between Trinity and the Helmspids.

A fine snow peak lying between Sussex, Magog and Cantabrigia on the Cantabrae glacier was climbed and named **Hecla** (2400m) and graded PD. The glaciers flowing into the Cantabrae either side of this peak were called the **Great Cumbrae** and the **Little Cumbrae**.

On the 9th of May the highest of four unclimbed peaks on the dividing ridge between the Upper Sefstroms and Grantabrae glaciers was climbed and called **Tillyrie** (2415m) grade AD. A first ascent of the unclimbed rock spire south of Emmanuel named **Tupilaq** (2450m) grade TD was also made. During the descent one climber sustained minor facial injuries when a loose block was dislodged by an abseil rope.

On the 10th May a first ascent of a small southerly outlier of Kapelle was named **Rabsontinde** (1640m) grade F.

On the 11th of May second highest of the four unclimbed peaks on the dividing ridge between the Upper Sefstroms and Grantabrae glaciers was and named **Coltart** (2395m)and graded PD+.

On the 12th of May it snowed heavily for 24 hours but next day an unclimbed snow peak south-east of Coltart was climbed and named **Seanearbheinn**. It was graded PD+.

On the 15th May we started skiing back to Mesters Vig via the Kirkbrae, Col de Pulkes, Lang Gletscher, Trumpington Col, Schuchert Gletscher, Skel Pass, Skeldal and then pack ice to Mesters Vig air strip. It was reached at 1.30am on the morning of the 21st. The party returned to Iceland later the same day.

The team would like to express their appreciation to the following bodies who supported the expedition with grants: The Mount Everest Foundation, The British Mountaineering Council and The Gino Watkins Trust.

### 3 Expedition Members

**Joint Leader: Stephen Reid (43)**, British, Shop Proprietor, 15 Alpine seasons (summer and winter), extensive winter and summer climbing in the UK with many new routes established. Member of the 4 man 1995 British Ulta Expedition to the Hunza Valley, which reached 6000m on the then unclimbed 7388m peak then retreated due to stonefall. Ski-mountaineering. Member of the successful 1996 SMC Greenland Expedition and with, Jonathon Preston, made the first ascent of the NW Ridge of Danseketinde (TD). Member of the AC, FRCC and CC

**Joint Leader: Colwyn Jones (39)**, British, Consultant Dental Surgeon, 7 Alpine seasons, including two to the Czech Tatras, also Borneo and the USA. Qualified ski instructor and has ski-toured in Norway, France, Austria, Italy and Switzerland. Extensive experience of winter and summer climbing in the UK. Leader of the successful 1996 SMC Greenland Expedition and with, John Bickerdike, made the first ascent of the S Ridge of the Hjornspids (TD). Member of the AC and SMC.

**John Bickerdike (47)**, British, Production Manager, Nine Alpine seasons to date and three to the USA. Ski mountaineer, rock and winter climber. First British Ascent of the North Ridge Direct Les Droites. Member of the successful 1996 SMC Greenland Expedition and with, Colwyn Jones, made the first ascent of the S Ridge of the Hjornspids (TD). Member of the SMC, ex-member ACG.

**Brian Shackleton (45)**, British, Production Manager, 18 Alpine seasons and 2 to Norway. Extensive experience of British winter and summer climbing. First British ascent in 1995 of Nando Kot. Member of the successful 1996 SMC Greenland Expedition. Member of the SMC and Scottish Ski Club (President 1998/9).

**Jonathan Preston (41)**, British, Mountain Guide, 13 Alpine seasons, 3 Himalayan expeditions, as well as trips to the Corderilla, Mt Kenya, Alaska, Canada and the USA. First ascents of Laspa Dhura and Nand Bhanar in the Garwhal, first British ascent of S Face Nando Kot, Jarau 'D', Corderilla, first ascent, Mt Hunter, S Face, Mt McKinley, W Face. Member of the successful 1996 SMC Greenland Expedition and with, Stephen Reid, made the first ascent of the NW Ridge of Danseketinde (TD).

**Colin Read (50)** Co-director Joinery Company. Climbed extensively in the UK winter and summer, numerous first ascents of Lakeland rock climbs (including Lord of the Rings, Scafell). ( alpine seasons also the pyrenees, France, USA, Spain. Leader (and summiteer) of the successful 1976 British Expedition which made the first ascent of the SE Face of Changabang. Considerable ski-touring experience.

**John Peden (48)** Consulting Civil & Structural Engineer. Extensive rock and winter climbing in Scotland including a number of new routes. 25 years ski-mountaineering in Scotland. Five summer alpine seasons and two ski-touring trips. Climbs in Kenya, Lesotho and Saudi-Arabia. Six previous expeditions, one to arctic Norway and five to Northeast Greenland. Eight first ascents of peaks in Greenland and first ski-traverse of the Staunings Alps (1992). Oban MC, SMC.

**Chris Ravey (29)** Engineering Geologist. Extensive climbing experience in Britain. Four summer alpine seasons and one to the Atlas. Has also climbed and/or trekked in the Czech Republic, the Pyrenees, Southern Spain, Hong Kong , Thailand, Tien Shan, and the Karimabad area of the Karakorum. SMC.

## 4 Expedition Aim & Objectives. Colwyn Jones

### Aim.

The aim of the expedition was to have a safe and successful mountaineering expedition in the Central Staunings Alps in the North East Greenland National Park.

### Objectives.

The primary objectives of the expedition were the ascent of a number of peaks which are believed to be unclimbed (see map);

Two unclimbed peaks of about 2700m between **Attilaborgen** and **Trinity** on the south side of the Sefstroms Glacier.

A number of unclimbed peaks on either side of the upper Sefstroms Glacier and an outlying peak on the Cantabrae Glacier.

A number of secondary objectives were also defined.

Two peaks on the West Ridge of the Massif formed by **Bolvaerket** (The Bulwark) and **St Bartholomews Tårn** (Tower).

An attempt at the unclimbed south ridge of **Dansketinde** the highest peak in the range.

An attempt at the intimidating North face of **Bersaerkertinde**. This face has repulsed at least 2 attempts at climbing it and will only be attempted if conditions are ideal.

The commercially available maps are known to be inaccurate and of such a small scale that they do not contain sufficient detail for serious expedition planning. The necessary information could only be found in photographs from the only known aerial survey done in 1958. This information plus expedition reports from 1961, 1986 1989, 1994 and our own expedition in 1996 allowed the identification of unclimbed peaks and a flat area of the Sefstroms glacier where the ski-equipped aircraft can land safely.

The best map we have been able to obtain is hand drawn from an original in a guide book written by Donald Bennett in 1972. The information our research has provided has allowed us to add extra details and improve the original.

One further objective was to improve the accuracy of the available maps and we will be using global positioning satellite hand sets to do this. This information will be available for future expeditions to the area.

# S.E. Staunings Alps, SMC Greenland Expedition 1998





## 5 INTRODUCTION. Colwyn Jones

The target for the Scottish Mountaineering Club East Greenland Expedition 1998 was the Northern Staunings Alps lying between 72°N to 72° 30' N and 24° to 26°W.

While confined to base camp by heavy snowfall I read a characteristically terse description of Greenland in the sailing exploits of H W Tilman in the area; 'Mischief in Greenland' published in 1964. I reproduce it below for your information.

*"If we accept the continent of Australia, Greenland is the largest island in the world. Geologists, by the way, darkening counsel as they sometimes do, now say it may be two islands. They think that at one point beneath the icecap there is a trough which is below sea level. Assuming, however, that it is one island it is so large that if it plunked down over Europe it would extend from the north of Scotland to the Sahara and from the Bay of Biscay to the Po valley. The whole is covered with an ice-cap thousands of feet thick except along the coasts where there is a strip of ice free country varying in width from one mile to one hundred miles. The ice-cap covers more than nine-tenths of the land and at one point rises to a height of 10,000 feet. In 1950 the population was about 22,000, confined to small towns and settlements along the coastal strip, mainly on the west coast. They are of mixed European and Eskimo descent. The country belongs to Denmark and there are neither roads nor railways".*

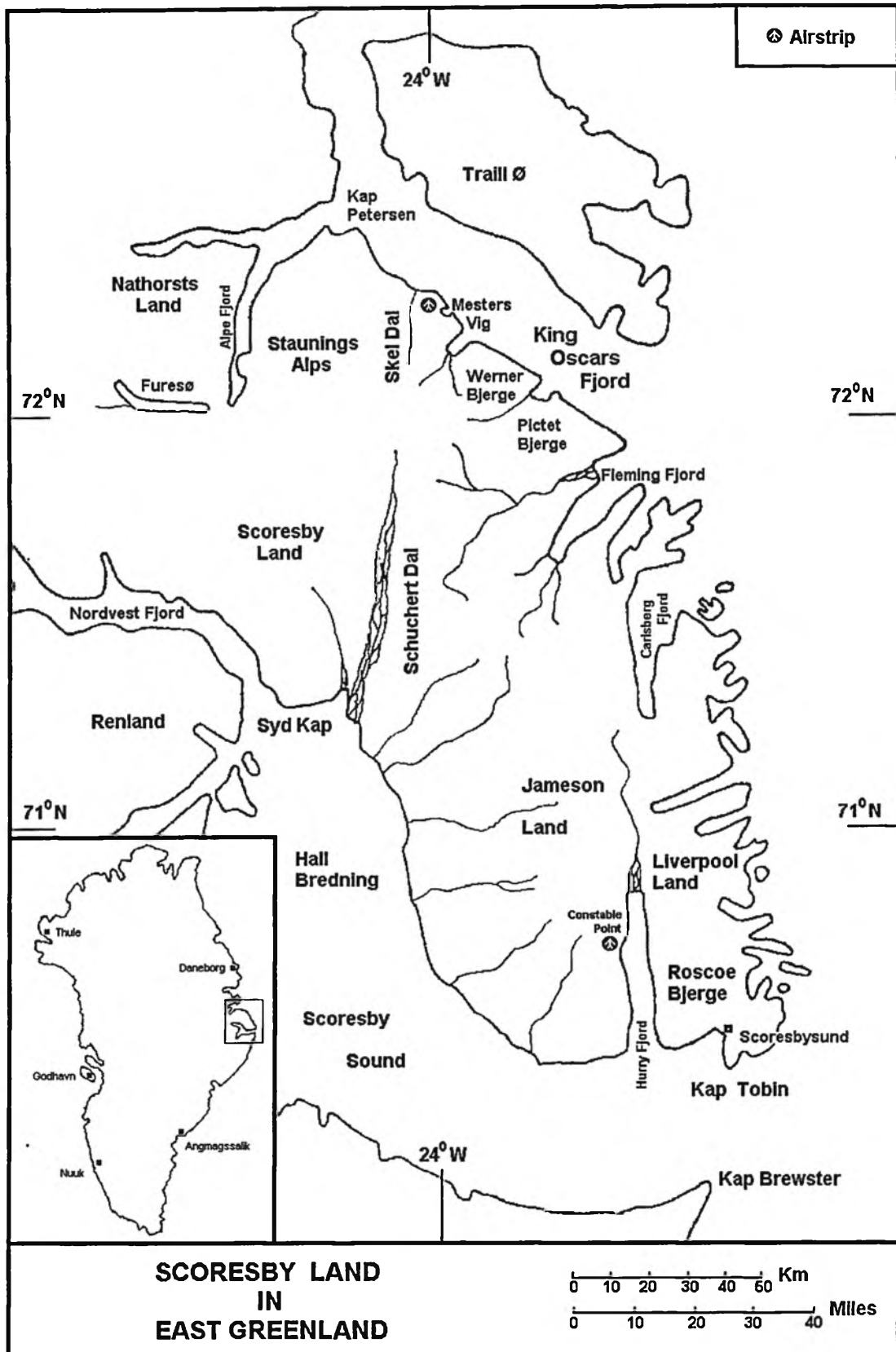
H W Tilman. Mischief in Greenland 1964.

Scoresby Land forms the northern part of a peninsula bordered to the south by Scoresby Sound and Nordvest Fjord - the largest fjord in the World. Cape Tobin and Cape Brewster sit at the northern and southern limits of the mouth of Scoresby Sound, with the only settlement in the area, Scoresbysund, lying close to Cape Tobin. A commercial gravel airstrip at Constable Point on Hurry Fjord serves this settlement. To the east of the peninsula is the Arctic ocean and further north King Oscars Fjord divides it from Traill Island.

The Northern tip of the land mass is Cape Petersen from where the Alpe Fjord cuts a deep trough southwest to form the final north west coast of the peninsula. The umbilical cord joining the peninsula to the mainland is the southern Staunings range which merges westward into the impassive Greenland icecap.

The south eastern part of the peninsula is divided from Scoresby Land by the Schuchert valley running south and the Skel valley going north almost along the 24°W line of longitude. Jamesons Land forms most of this south eastern area where the tundra covered hills are lower and more rounded. The very south eastern tip of the peninsula is the coastal range of mountains of Liverpool Land.

# The Staunings Alps



*After Bennet 1972, Staunings Alps Expedition Guide, Gaston's Alpine books & West Col Productions.*

The Staunings Alps of Scoresby Land in North East Greenland sit just within the southern edge of the largest national park in the World. The North and East Greenland National Park covers 972,000 square kilometres and was established in 1974.

The Staunings Alps lie 500km north of the Arctic Circle at 72°N and cover an area of some 6000 square kilometres. They are a complex range of granite peaks named after Thorvald Stauning (1873-1942). Stauning was Denmark's leading Social Democratic statesman, social reformer and an influential Government Minister from 1924 to 1940. He helped to shape the modern state of Denmark and died during the Second World War when Denmark was under German occupation.

The highest peak in the Staunings Alps is Dansketinde (Denmarks Peak) 2795m which forms the natural centre of the impressive northern peaks. From there a number of huge glaciers radiate outwards to reach the northern, eastern and southern coasts. In contrast the glaciers flowing steeply west have dangerous icefalls with a reputation for onerous travel. The mountains have a well earned reputation for sound granite, soaring faces and complex ridges. Further south the rock is softer, more weathered and the mountains are more rounded reflecting this difference.

To allow ready orientation for those unfamiliar with the area a central pass called Col Major (Majorpasset), which links the Bersaerkerbrae (Bersaerker glacier) to the east and the highest reaches of the Gully Glacier to the west, should be identified. In the only published mountaineering guidebook to the area by Bennett in 1972, Col Major was accurately described as *"The heart of the Staunings Alps."*

The Bersaerkerbrae flows almost to the coast at the Skel valley where just to the south the military airstrip and meteorological station of MestersVig lies.

The first European to set foot on the rocks of North East Greenland was the Scottish whaler William Scoresby in 1822. The following year the English Captain Clavering met a group of Eskimos on the southern side of an island which was later to bear his name. His ill-judged decision to demonstrate the power of a rifle scared the locals away and this is the first and only recorded meeting with the indigenous people of this side of the coast. There were no inhabitants when the next expedition returned in 1869.

Scottish climbing has had a long association with the Staunings Alps starting with the 1958 Scottish East Greenland Expedition. Many of these early pioneering trips of the late 50s, 60s and 70s were organised under the auspices of the Scottish Mountaineering Club, the Junior Mountaineering Club of Scotland and numerous Scottish and English Universities. In the early 90s two successful trips to the area rekindled interest among a small number of Scottish Mountaineering Club members. A summer expedition in 1996 succeeded in landing on Col Major for the first time, climbed five new peaks and climbed two hard new routes on Dansketinde and Norsketinde, the two mountains which dominate this central location.

Their success, the association with Scottish Mountaineering and the experience of the 1996 expedition formed the inspiration for this trip.

The region is largely uninhabited and isolated with a reputation for beauty and mountain grandeur. There are only 53,000 people in the whole of Greenland, the majority living in the South and West of the country with fishing, hunting and sheep farming the main occupations. Greenland has been a Danish colony since 1721 and in 1933 the International Court in The Hague granted Denmark sovereignty over all of Greenland following a dispute with Norway. It obtained home rule status in 1979 and along with Denmark and the Faroes form part of the Danish Realm.

The latitude means continuous daylight during the late spring and summer months with the combination of the low angle of the sun and searing white glaciers contributing to the beauty of the area. During the short summer season settled anticyclonic weather and very dry air give extraordinary views especially early in the season. It is with good reason that Scoresby Land has been named the 'Arctic Riviera.'

This report records many details about the organisation, activities and outcome of the expedition and will, we hope, be of interest to our sponsors without whose help this expedition would not have been possible. Good organisation and logistics proved to be an important factor in the success of the trip and are covered in detail to give future prospective visitors to the area an idea of what is involved.

## 6. Expedition Planning.

Colwyn Jones

*“White snow  
Blue sky”*

Many textbooks on management state that it is not stupid but human to make mistakes. The stupidity comes from not learning from the experience!

Having organised the 1996 SMC expedition I knew only too well the problems and interminable hassle I would face in my attempt to organise this 1998 expedition. As a Mr Murphy once stated, ‘if it can go wrong, it will go wrong’. However, when reviewing the pleasure of visiting the area, the success of the 1996 expedition and the events surrounding it. I had no hesitation in planning a return to such a remote and beautiful place as Greenland. It repays many times the time and effort invested in getting there. Besides, I had bribed Stephen Reid as joint leader to share the paperwork.

Despite the experience of the 1996 trip, having access to the notes, records and personal advice from members of previous expeditions was essential and it is in recognition of the benefit of these past reports that provided the motivation to eventually complete this present one.

A rational planning approach was again attempted with timetabling and the use of a Gantt implementation chart to try and provide structure to the pre-expedition phase. Learning from the 1996 experience this proved successful with better timing and perhaps less reliance on last minute phonecalls and faxes.

First, the expedition team had to be assembled. Again, there was no formal recruitment plan which had worked so well in 1996. Experienced climbers were preferred and the team formed around the nucleus of members from the earlier trip.

One overriding features with this type of trip was the use of two person tents so that people were effectively split into pairs. Each person had to be able to tolerate and support their tent-mate. They also had to raise at least £1500 each.

**Gantt implementation chart. Scottish Mountaineering Club Greenland Expedition 1998.**

1997-----1998-----6th May 1998-----

Enlist members.....[Autumn 1997]  
 SMC permission to use name...[--]  
 Permission from Danish Polar Centre..[Jan 98]  
 Book satellite beacon.....[--]  
 Book avalanche tranceivers.....[--]  
 Book firearm.....[--]  
 Training for expedition.....[-----]  
 Provisionally book charter flights.....[--]  
 Insurance details.....[--]  
 Mount Everest Foundation Grant.....[--]  
 Scottish Mountaineering Trust Grant.....[--]  
 Mountaineering Council of Scotland.....[--]  
 Foundation for Sports and the Arts.....[--]  
 Sponsorship letters.....[-----]  
 Training meet in Glencoe.....[--]  
 Firearms licences.....[--]  
 Book flights to Iceland etc.....[--]  
 Radio Licence.....[--]  
 Buying food.....[--]  
 Freight out food and gear.....[--]  
 First aid kit.....[-----]  
 Morphine licence.....[--].....[-----]  
 Fly from Glasgow.....[-----]  
 Expedition report writing.....[-----]etc  
 PANIC.....[-----].....[-----].....[-----].....[-----]

## **The Danish Polar Centre.**

The Staunings Alps are in the North East Greenland National Park and by law expeditions of any type planning to visit the area have to be approved. Permission is granted by the Danish Polar Centre on submission of expedition details, including past mountaineering experience;

The Danish Polar Centre,  
Strandgade 100 H,  
DK - 1401,  
København K,  
Denmark.

Tel & Fax. (+45) 32 88 01 01

An application form can be obtained by writing to the above address and expeditions must submit completed application forms by December 31st in the year prior to the planned visit. In addition, applications from any scientific expeditions have to be submitted at least 6 months before the trip is planned. Sports expedition applications have to be in at least 3 months before the trip.

On receipt of the application form, the Danish Polar Centre return a pack of application forms for a radio licence, a firearms licence, a certificate of insurance, further instructions and a reference number for use with all further correspondence with the authorities.

### **Radio licence.**

Expeditions to uninhabited areas have to take an emergency radio beacon (personal locator beacon : PLB). They can be hired or are often found on yachts. A Greenland radio licence is required to operate a PLB. The application form for the radio licence and a photocopy of a British radio licence of one of the members was sent to;

Greenland Telecom  
PO Box 1002  
DK - 3900 NUUK  
Greenland

Again, this should reach the authorities 3 months before the expedition is due to leave. There is a charge of 500 Danish Kroner for the licence (£59 at 1996 exchange rates but £45 at 1998 rates) and we had problems in directly transferring money to a bank in Greenland because banks in the UK did not have a contact address. Finally a Eurocheque was sent airmail direct to Greenland.

The PLB was one of the items inspected by the Danish Army at Mestersvig. One additional piece of radio equipment carried as an addition to this minimum requirement was a simple hand held VHF radio. Communication should be possible with a commercial airliner if it is in direct line of sight (requiring clear weather) and could be used for both emergency and routine communication. A suitable handset was hired from Flugfélag Íslands in Akureyri.

## **Firearms licence.**

Expeditions to the North East Greenland National Park are required to carry a firearm for protection against polar bear attack. Polar bear deterrents are also recommended but commercial airlines are often reluctant to carry these. We also experienced problems from the baggage handling staff at Glasgow airport who insisted that the ammunition was carried in individual metal containers. To our surprise empty MSR fuel bottles and the inside of telescopic ski poles were deemed acceptable for the carriage of live ammunition. We advise anyone carrying a weapon and ammunition to request the necessary regulations from their carrier and contact them in plenty of time beforehand.

It appears that the use of firearms (rifles and shotguns) is unregulated in Greenland, except in the National Parks. The licence application form and a copy of a British firearms licence were sent to;

The Chief Constable  
PO Box 1006  
DK - 3900 NUUK  
Greenland

The firearms licence also has a charge (about £100). There is some confusion in our minds over whether a pistol or revolver can be legally carried in Greenland. It is also questionable whether a pistol of any calibre would be effective in stopping a polar bear attack. Further it is now illegal to possess hand guns in the UK. One option may be to hire a suitable weapon in Iceland or Greenland if available.

We had the loan of a pre-war .303 BSA semi-automatic rifle with lead tipped ammunition. We were assured this would stop a mammal of any size. Despite our intention to practice firing the weapon prior to leaving Scotland, we were unable to organise a suitable practice session. Two of the expedition members were instructed in the safety and routine working of the weapon. It was kept loaded ready to fire with the safety catch on throughout the trip but was never required.

Travelling through Iceland en route to Greenland, you need a firearms transit licence. In 1996 we had omitted to apply for one and had considerable problems on arrival in Iceland, being accused of the attempted illegal importation of a firearm. Early in 1998 I contacted Icelandic customs at Keflavik. I was told we did not need a licence but on checking with customs a few weeks before we left, I was told a transit licence was needed. Icelandic customs were very helpful in supplying a transit licence at short notice. Rifles and polar bear deterrents (thunderflashes etc.) should always be declared at national borders!



## **Insurance.**

A further requirement is adequate insurance to cover all search and rescue costs which could be incurred. The authorities insist on insurance cover of 900,000 Danish Kroner (About £100,000). This was arranged for 5 members through the British Mountaineering Council where their insurance gives cover to a maximum of £20,000 per person and also gives standard travel insurance cover. Their insurance underwriter undertook to pay any claim from the Danish Authorities but one expedition member has to sign a contract stating they would pay back any extra costs. This was an excellent reminder to the expedition leader that if a rescue was required, personal bankruptcy was a real threat!

Three members organised insurance through Medical Money management in Glasgow at about half of the BMC price. This is only available to people who have a profession although the definition of such appeared to be quite lax.

## **Travel.**

Travel from the UK to Iceland could be done through any travel agent. This year I directly booked return flights from Glasgow to Keflavik with Icelandair, and return coach travel from the international airport at Keflavik to the domestic airport in Reykjavik. We also booked return flights from Reykjavik to Akureyri. Accommodation was booked directly at the Youth Hostel in Akureyri and at the Blue Lagoon Hotel near Reykjavik, which all proved to be very agreeable. We strongly recommend a night at the blue lagoon with the surreal swimming pool in the geothermal power station. Payment for the flights was via a deposit which secured the bookings followed by the balance a set time before departure as with all travel agents.

The charter flights to and from Greenland were handled by Flugfélag Íslands based at Akureyri airport whom we paid directly by international money transfer. This small charter airline is very experienced in flying to remote areas and were a valuable source of information and advice. There may be other charter airlines working out of Reykjavik airport.

Equipment and food for the expedition was left to the preference of each pair of climbers. Expedition equipment (rifle, radio beacon, radio and first aid kit) was distributed between the 4 pairs.

Three season mountain tents of 3 varieties were used. Sleeping bags were 4 season, 5 season or expedition quality. Clothing was similar to that for Scottish winter use, although lightweight waterproofs (2 ply gortex) proved adequate.

Avalanche transceivers were carried by all expedition members.

## First aid kit.

The remote area and the likelihood that in an emergency help would take 72 hours to arrive at best, meant that a comprehensive first aid kit was carried. The kit included the opiate analgesic morphine which is a class 1 controlled drug and a licence to export it under section 3(2)(b) of the misuse of drugs act 1971 must be obtained from the Home Office;

Licensing Section  
Action against drugs unit  
Home Office  
50 Queen Annes Gate  
London SW1H 9AT

The following information, with a covering letter from the prescribing doctor, must be sent to obtain a licence;

- 1 Country of Destination (and transit countries)
- 2 Dates of departure and return to the UK.
- 3 Drug details (name of drug, form, strength and total quantity)
- 4 Outline justification for the need to carry the drug.

The licence does not appear to have any legal standing outside the UK and import clearance / permission must be obtained from the country of destination (and transit countries).

The first aid kit included 120mg of morphine in 10mg/ml ampoules of Cyclimorph (10mg of morphine and 50mg of cyclizine, an anti-emetic to suppress nausea) for intramuscular injection. We calculated that at the minimum repeat interval of 6 hours, it was enough to keep one adult pain free for 3 days.

In addition we carried other analgesics; Voltarol (diclofenac) and paracetamol. We carried two antibiotics, augmentin (co-amoxiclav) tablets and flucloxacillin for parenteral (IV or IM) administration. A steroid dexamethasone (decadron) was carried for IM injection in case of a head injury in an unconscious patient. A medium size Foley urinary catheter and collection bag were also carried in case of prolonged unconsciousness in a patient.

Various proprietary antiseptic solutions and creams with suitable dressings of various sizes were also carried. Betadine dry powder spray was carried for disinfecting large wounds, compound fractures, etc.

Chloromycetin and local anaesthetic gel for snow blindness were included. Black silk and vicryl sutures and dental local anaesthetic injections were carried for cuts and lacerations which might require stitching. Sun block was also carried.

The publication *Medical handbook for mountaineering* by Peter Steele was carried in the first aid kit in case the expedition doctor was the patient.

## 7 CLIMBING REPORT - Stephen Reid

“On a Polar expedition begin with a clear idea of which Pole you are aiming at, and try to start facing the right way.

Choose your companions carefully - you may have to eat them.”

WC Sellar

**MEF Ref:98/11, DPC Ref 532-136**

### **Team Members**

Colwyn Jones (Joint Leader)  
Stephen Reid (Joint Leader)  
John Bickerdike  
Brian Shackleton  
Jonathan Preston  
Colin Read  
John Peden  
Chris Ravey

**Start:** Glasgow 2nd May 1998

**Return:** Glasgow 23rd May 1998

**Aims of Expedition:** First ascents of peaks in the Sefstroms Glacier area. First ascents of peaks in the Upper Gully Gletscher area and second ascent of Bolvaerket by a new route. First ascent of the South Ridge of Dansketinde, the highest peak in the Staunings Alps.

The expedition landed by ski-equipped Twin Otter on the Sefstroms Glacier (1210m) in the Western Staunings Alps on 6th May 1998. The landing was two days later than planned due to bad weather affecting visibility on the proposed landing site.

On the 7th May, Jones, Bickerdike, Reid and Preston attempted the northernmost of two unclimbed peaks ca 2700m (mentioned on p83 of Donald Bennet's guide, Staunings Alps, West Col, 1972, and probably the highest unclimbed peak in the Staunings) situated between Attilaborgen and Trinity via the left hand of two obvious couloirs on the East flank of the mountain. The couloir gave unrelenting grade II snow work for about 600m without a break or belay until the ridge joining this peak to Attilaborgen was gained. Here a short rock step led to steep snow below a steep rock wall, possibly 4 or 5 pitches high and still a long way from the summit. As an alternative to the rock wall, a steep basin to the south gleamed with hard blue water ice.

By now it was getting late in the evening, the wind seemed to be getting up and the party was very tired. Jones and Bickerdike made an attempt on the wall which was found to be very loose and, after they had pulled off several rather large blocks, they quickly followed Preston and Reid who were already descending. However it was felt that the route would go, though the glacier approach might well be impossible later in the year.

During the ascent and descent, exploration and observation were made of the glacier features giving access to this face. They named several of these features. The main glacier was called the **Essemcebrae** while the northerly branch was called the **McKenzie Gl**. A view was obtained into the intriguing **Inner Sanctum**, a

glacier basin between Trinity and the Helmspids, flanked by rock pillars and guarded by vast crevasses that extended completely across the entrance. A possible route was observed up the northern flank of the southernmost peak, starting from a point near the entrance to the Inner Sanctum. This would be a long a complex climb, but seemed relatively free from objective danger once the face had been gained.

Meanwhile, Shackleton, Read, Peden and Ravey attempted a fine unclimbed snow peak, one of two unclimbed mountains, the other a superb rock spire, lying in the area between Sussex, Magog and Cantabrigia on the Cantabrae. Access was via a couloir left of a hanging glacier on the NW Face. This led to a snow ridge where Shackleton and Read, having exhausted themselves by kicking steps in soft snow for several hundred metres, turned back. Ravey and Peden carried on and, in the early hours of the morning, reached the summit via a short but difficult rock slab (V). This peak has been named **Hecla** (2400m) and graded PD. The team also named the spur glaciers flowing into the Cantabrae from the region of this peak the **Great Cumbrae** and the **Little Cumbrae**.

The 8th May was devoted to resting and a reconnaissance of the Upper Sefstroms Glacier.

On the 9th of May, Reid, Preston, Bickerdike and Jones climbed the highest of four unclimbed peaks on the dividing ridge between the Upper Sefstroms and Grantabrae glaciers (the northerly of the two marked on Bennet's map). The ascent was by linking a series of couloirs and ice fields with occasional mixed climbing on the SW Face. Starting up a broad, left-slanting couloir, the first major rightward branch was taken, and a long rising traverse made into ragged gully leading straight up under the summit tower. Shortly before its top this gully was quitted on the left through a short section of steep mixed ground which gained a steep ice-field whereby the summit tower was outflanked on the left. This led to a short easy rock section and a spectacular summit block - the latter could be easily seen from Base Camp. This peak was called **Tillyrie** (2415m) and the route graded AD. From the summit, it looked as though a considerably easier approach could be made of both this peak and its neighbours via a branch of the Lang Glacier which abutted the mountain on the east. The party descended by the same route.

Meanwhile, Peden, Ravey, Shackleton and Read made the first ascent of the unclimbed rock spire south of Emmanuel (pictured in Bennet, illustration 5). This peak is particularly spectacular when viewed from the Upper Sefstroms where it is seen to have a large hole or "window" directly through it just below the summit. The spire was gained via a long couloir on the SW Face, between it and Emmanuel, and the seven pitches of rock (up to IV) led to the top. The peak was named **Tupilaq** (2450m) and the route graded TD. As it was a considerably more complex peak than the others ascended by the expedition, it is felt that a full description is warranted.

## **Tupilag - SW Couloir & NW Buttress (TD, numerical grades given are Scottish)**

From the Sefstroms Glacier follow the Cantabrae and after passing Sussex turn SE to enter and follow the spur glacier of Great Cumbrae (large crevasses near the confluence with Little Cumbrae).

Enter the couloir which divides Tupilaq from Emmanuel via the narrow left hand branch. (Avalanche debris at foot of main entrance) and follow it for 12 to 14 rope lengths, Scottish 1 & 2, to reach the toe of a rock spur at the foot of the final steep section, just before it divides, where the right hand branch leads to the col, between the most southerly of two large gendarmes and the main summit buttress.

1. 50m (4/5). Cross diagonally right to enter a steep open ice gully, emanating from a confined gully line above. Climb up until steepening rocks bar entry to the gully line above, move out right via flakes and blocks, then up steep awkward cracks to gain the top of a pinnacle, overlooking the gully, (4th abseil point).

2. 15m (4/5 mixed). Climb the left edge of the rock above via flake holds, until a precarious stride left can be made onto the ice in the gully, ascend it to a belay on the left wall.

3. 10m (3). Climb the steep left wall via cracked blocks to a sloping alcove, belay on the right.

4. 25m (4/5). Move left to a bollard and step up, traverse left for several metres and go up past the right side of a very large leaning block. Continue over several large blocks to an alcove beside a large pinnacle.

5. 45m (4). Ascend the steep crack above and continue slightly right over slabby rocks, as they steepen move left and up to a ledge.

6. 40m (3). Continue directly until moves left lead to a sloping ledge (2nd abseil point down to right), move up left around the corner (overlooking the snowy col), and cross an icy sloping platform to the foot of a fine right angled corner crack.

7. 30m (4). Ascend the steep corner, above trend rightwards up slabby rocks, then left to a sloping stance below a steep wall on the left.

8. 25m (2). Move up right over rough brown rock, then onto rubble strewn ledges to a snow covered ledge and move right onto a rock shoulder (1st abseil point).

9. 45m (2). Up over an awkward slab on the left and continue via snow ledges and rock steps to the crest, beneath the final summit tower.

10. 45m (2). Traverse flakes and ledges across the West face to a corner, move up over rock steps and snow ledges rightwards to gain the summit (The summit is formed by abutted blocks above the huge unique hole, which passes right through the mountain).

Descent; reverse pitches 10 & 9 to the shoulder. Make 4 abseils to regain the foot of the rock spur. Reverse the couloir.

Time taken: Base camp to couloir 3.5hrs, 13.5hrs to summit, 1hr on top, 8hrs to descend, 2 hrs back to base. 28hr round trip

Tupilaq - meaning of name: Greenlandic for Sperm Whale tooth.

This team did not return to base camp until 11am the following morning, having summited at 1am. During the descent, Brian Shackleton sustained a minor facial injury when a loose block was dislodged by an abseil rope. This was treated successfully by the team medic Colwyn Jones on Brian's return to base camp.

On the 10th of May, following a search for the Tupilaq team who were found safe and sound skiing back to base, Bickerdike and Reid made the first ascent of a small but prominent unclimbed southerly outlier of Kapelle. This peak has an extraordinarily rotund and Christmas pudding like appearance and overlooked Base Camp. The route was via an easy couloir and snow fields to its east and the peak was called **Rabsontinde** (1640m - F).

On the 11th of May Preston, Reid, Bickerdike and Jones climbed the second highest of the four unclimbed peaks on the dividing ridge between the Upper Sefstroms and Grantabrae glaciers (the southerly of the two marked on Bennet's map). This has a double rock spire summit reminiscent of a lobster claw when viewed from the Sefstroms. It was climbed via a broad couloir (which they named the **Coltart Couloir**) lying between the mountain and the headwall of the Sefstroms Glacier which led to a snow ridge. A short rock pitch (V) led to the summit. The peak was named **Coltart** (2395m) and graded PD+. Descent was by reversing the route of ascent.

On the 12th of May it snowed heavily for 24 hours.

The 13th May dawned clearer and, whilst Bickerdike, Jones, Preston and Reid, rested and planned a renewed attempt on the first peak they had tried, Peden and Ravey tackled an unclimbed snow peak south-east of Coltart. This was climbed via the Coltart Couloir and a snow ridge. The slightly higher rickety rock spire to the west was not attempted. Descent was via the South Ridge and the Sefstroms Glacier Headwall. This peak of 2350m has been named **Seanearbheinn**. It was graded PD+.

At the same time, Read and Shackleton attempted a group of three rock spires lying to the north-west of Tillyrie, via a couloir on the South-West Face. Intense cold and ice-glazed rock forced a retreat just short of the summit.

Meanwhile Preston, Bickerdike and Reid made a reconnaissance of the unclimbed South Face of Sussex, a spectacular 500m + sheer rock wall. This would make a superb target for a future expedition.

By the evening the weather was worsening and a further heavy fall of snow, lasting all the following day and totaling 36cm, made ski touring difficult and put paid to all

further climbing aspirations, including a plan to move Base Camp to the Upper Gully Gletscher and a long-planned attempt on the unclimbed South Ridge of Dansketinde.

On the 15th May we began an arduous and difficult journey back to Mesters Vig via the following route: Kirkbrae, Col de Pulkes, Lang Gletscher, Trumpington Col, Schuchert Gletscher, Skel Pass, Skeldal and then pack ice to Mesters Vig air strip which was reached at 1.30am on the morning of the 21st. A considerable number of seemingly unclimbed peaks were observed in the area of the Upper Lang Glacier. None of the passes crossed was especially difficult, though all involved carrying loads, and there was no more than the standard level of objective danger to be expected in such terrain.

During the journey, there was further snow fall which, added to that which had fallen earlier, made the towing of pulkes very strenuous and tiring. Most of the days totalled 10 hours continuous travel and one was over 14 hours. On lower passes, such as the Skel, the snow conditions were abysmal with the party wading up to chest height. One unroped member of the team fell into a crevasse but was fortunately saved by his rucksack which wedged on the upper lip. He was quickly rescued. The party was flown to Iceland on the same day.

The team would like to express their appreciation to the following bodies who supported the expedition with grants: The Mount Everest Foundation, The British Mountaineering Council and The Gino Watkins Trust.

## 8 Equipment Review Chris Ravey

### Introduction

The following review summarises the personal clothing systems and primary camping and climbing equipment used by members of the expedition.

Generally the equipment used by members was chosen and provided by themselves. Six of the eight members had previously climbed and travelled within the Staunings Alps resulting in an accumulated pool of experience regarding the need for and performance of different types of equipment. The details of pieces of equipment used by each member including comments on performance is given in table 1.

### Clothing Systems

Plastic shelled mountaineering boots were used for climbing by all but one of the members who opted for ski-mountaineering boots. All types of boots taken performed well for the mixture of snow, ice and rock climbing encountered, with no problems due to the cold. The two members who opted for Nordic ski equipment also took leather ski boots. Two members who used new Scarpa Vega boots had problems with the sizing of the inner boot relative to the outer shell. Both of these members found that the correct fitting inner boot for the size of their feet was poorly matched with the supplied plastic shell size. This resulted in the inner boot becoming too loose within the shells and padding having to be inserted between the inner and outer boot to stop excessive movement.

Various sock systems were used, generally utilising one thin and one thick pair. Neoprene vapour barriers were worn by three members with commendable reports.

The majority of the members used Berghaus Yeti or Extremities (enclosed boot type) gaiters. Some members used glue to improve the seal onto their boots, with ski skin glue being successfully used by one member to allow interchanging of gaiters between boots. Conventional type gaiters were used by one member which, although performed adequately with plastic boots, were probably the cause of wet and cold feet when used with his leather ski boots.

A variety of approaches to interactive clothing systems were used by different people, with Buffalo garments being used by many members to differing extents. Five members opted for the full Buffalo system comprising; Salopettes, Mountain Shirt and Belay Jacket. The consensus of opinion from each of these members was that the three-piece system provided excellent temperature control down to the lowest temperatures encountered. However, whilst travelling during the hottest part of the day the Buffalo Mountain Shirt was very warm and often replaced by a thermal vest or thin fleece. Two members combined conventional fleece salopettes (and Gore-tex overtrousers) with a Buffalo Mountain Shirt and conventional jacket or smock. Whilst one of these members found the venting system worked well with his conventional salopettes, the other member thought the Buffalo shirt wasn't fully utilised and therefore took on the role of a conventional fleece. It would appear therefore, that the successful use of a combined system of this type is dependent



upon the positions of the venting system of the conventional layering with which it is used. One member used a conventional layering system utilising longjohns, fleece salopettes, overtrousers, thermal vest and shirt, fleece jacket and Gore-Tex jacket. This tried and tested system utilising modern fabrics worked well, with the thermal vest providing good wicking properties. Various hats were used with the Buffalo hood proving popular. A lightweight sun hat was useful whilst travelling in the sun, although a silk scarf proved versatile for this use also.

All members took a selection of gloves for different uses although usually compatible to be used combined if the temperature got really low. Extremities gloves proved popular although all three members who took new pairs of Extremities mitts (fleece inner and shell) found them too bulky, a problem that would probably disappear with extended use of them. Extremities powerstretch gloves were found to be ideal for climbing, skiing and around camp for fiddly tasks, although the stitching at seams tended to be weak. Terra Nova kindly tailor-made a range of Extremities gloves for one member whom has a missing finger on his left hand. The rough nature of the rock in the Staunings resulted in the rapid deterioration of fingertips of any thin gloves used for rock climbing.

## Climbing Equipment

Climbing 'gear racks' varied between climbing pairs but due to the weight restrictions on the flight and the need to carry equipment on the ski out they were generally kept as light as possible. For the routes attempted a Scottish winter type rack was adequate, generally comprising a set of conventional nuts, a selection of camming devices and rock pitons, a few ice screws and a dead-man or snow stake. Of the routes climbed by my partner and myself good rock belays were generally available in the side walls of couloirs, with camming devices proving very quick for placement whilst moving together. Rock pitons were rarely used. Snow and ice belays were utilised only once by myself and partner on a route although they were utilised for pulley systems when hauling sledges over cols. Extenders and big slings were used in various quantities with pulleys and ascenders generally carried by members for glacier travel. Although taken by a number of members, rock boots were neither used nor required on the peaks climbed, all the rock being ascended in mountain boots. All climbing pairs preferred the use of twin half ropes with most people using Beal Iceline 8.1mm ropes which performed excellently in the cold conditions.

Grivel 2F, Grivel G12, Charlet Moser S12 and Salewa Classic crampons were used, the most popular choice being the Grivel 2F. All members were happy with their choice for the mixed terrain encountered.

Ice axe and hammer choices varied with some members using new tools for the first time. Three members opted for new DMM Alien tools, which gave rise to much discussion. It was found that the picks tended to bounce on the ice whilst attempting a placement. It was also a general concern that the ferrule design could be improved as the tools frequently skidded off of slope surfaces. The ferrule design also caused concern when used to 'tap' balled-up crampons, as it tended to catch in the crampon points. Previously used tools including; Grivel Supercourmayers, Grivel Rambo axes, Simond Chacal hammers and Mountain Technology Vertige's were all

praised by their owners. A pair of Cassin Skywalker tools (45cm) was loaned to one member by Nevisport of Glasgow. These tools were found to be well balanced with easy and confident placements in hard ice. They were comfortable and easily used for technical mixed climbing. For couloir work the 50cm length may have been better than the 45cm. The wrist loops, however, inspired little confidence as they could not be trusted to keep the tools attached to ones wrists and were awkward and came undone when holding the heads of the tools for ascending and descending snow slopes. A new pair of Mountain Technology Vertige Extreme tools was used by one member whom was pleased with their performance, although the rubber grip on the shaft punctured and tore easily.

## Camping Equipment

Tents were shared by climbing partners and included two Terra Nova Quasars, a Terra Nova Terra Firma and a North Face West Wind. The Quasar and West Wind were found to be a good size to weight ratio and easily pitched with limited anchorage. The flysheet extension on the West Wind was often used for cooking although the extensions on the Quasar were too small to do this in comfort. The Terra Firma is a much larger 4 person dome which was luxurious as a base camp dwelling, provided space for expedition meetings and socialising but was much heavier to carry. A combination of ski's, ski sticks, axes and snow stakes were used for pitching tents.

Sleeping bags were predominantly Rab down bags, ranging from Rab 900 Expedition, Rab 1000 to Rab Ultralight 1100. One of the Rab 900 Expedition bags was a prototype on loan, which comprised two bags the outer one with a waterproof shell. The bag was warm although heavier and bulkier with the increased amount of pertex. One member used a Mountain Equipment Redline that had been professionally re-filled. Some members used Gore-Tex bivi bags although those who did not had no problems with dampness on their bags. Thermarest mats were used throughout the group with karrimats or foam underlays underneath. There were no complaints of being cold!

MSR stoves proved popular and gave no major problems. One member used a one-pint primus stove which also worked well and gave good simmer control. A1 aviation fuel was used throughout with the K-jet being chosen for the MSR stoves.

## Acknowledgements

Many thanks to Needlesport of Keswick for providing excellent advice and equipment. The following companies provided equipment on loan to members:

Nevisport (Cassin Skywalker ice tools)

Terra Nova (Terra Firma tent and specially designed gloves)

Rab (Rab 900 Expedition sleeping bag)

First Ascent (MSR Dragonfly Stove)

SMC Greenland Expedition 1998, Equipment Review (Chris Ravey)

EQUIPMENT	J. Preston	S. Reid	C. Jones	J. Bickerdike
Boots	Asolo Superlights - a good mountaineering boot. Warm & comfortable. Previously worn in. Inners dried overnight in tent	Asolo 101 - Previously well worn in. Warm and comfortable.	Scarpa Vegas - new. Good for the type of climbing and warm enough. The inner boot became too loose in the outer shell, possibly compressed, and had to pad the outside of the inner-boot.	Dynafit Ski Mountaineering Boots. Comfortable and warm. Performed well with crampons. Ok for rock climbing, not as good as plastic mountaineering boots. Pleased with the decision.
Sock system	Two pairs (thin & thick). No vapour barrier system. Comfortable for day routes.	Two pairs (thin & medium thick) with vapour barrier system. Inner boot stayed dry.	One pair of thick socks at start. Two pairs later on due to boot loosening. Neoprene vapour barrier kept inner boots dry	Two pairs (thin & thick) separated by a neoprene vapour barrier. Use of barrier kept inner boots dry. Dried thin socks at night.
Gaiters	Berghaus Yeti (unlined). No snow got into boots.	Extremities (enclosed boot) type. Glued onto toe of boot.	Berghaus Yeti. Good	Berghaus Yeti. Glued onto boot at toe. Could adjust boots whilst attached. Zip broke during trip but velcro fastening was good enough to keep snow out. Better than conventional gaiters.
Trouser system	North Face Alpine Bib (fleece salopettes). No thermal long johns. Gore-Tex overtrousers.	Buffalo Salopettes.	Buffalo Salopettes.	Buffalo Salopettes. Wore all the time. Never cold or overheated.
Core under-layer	Buffalo Mountain Shirt. Good temperature control.	Buffalo Mountain Shirt. Excellent temperature control even at hottest time of day whilst moving	Polyester top - very good for wicking. Wore on own when temperature too hot to wear Buffalo shirt.	Helly Hansen thermal shirt. Only worn when expecting to be too warm with Buffalo shirt i.e. when touring in hot weather.
Core mid-layer			Buffalo Mountain Shirt.	Buffalo Mountain Shirt.
Core outer-layer	Marmot Gore-Tex Jacket	Buffalo Belay Jacket & Buffalo Mountain Jacket. Also 1 piece wind suit shell which wasn't used. No down jacket.	Buffalo Belay Jacket. Buffalo hood.	Buffalo Belay Jacket. No down jacket taken.

EQUIPMENT	J. Peden	C. Ravey	C. Read	B. Shackleton
Boots	Koflach Ultra. Well worn in. Re-soled prior to trip. Inner boots stayed dry because leather ski touring boots were worn for travelling and plastic boots only for climbing.	Koflach Clima. Well worn in. Good all round. Warm. Sewn in lacing hoops on the inner required re-stitching prior to the trip. Lacing holes would last longer.	Scarpa Vega. New. Good for climbing, skiing more difficult. Fit was a problem – shells only in full sizes, inners in half sizes. 8½ inners come with size 9 shells. So loose had to pad outside of inner.	Scarpa Vega. Good all round Mountaineering boot. Warm and comfortable. Fine for rock climbing. Inners dried in sleeping bag
Sock system	Single pair of thick socks.	Two pairs (thin & thick). Plastic bags used as vapour barriers initially. Worked well keeping inners dry but feet became soft with peeling skin.	Pair of thin socks, a neoprene vapour barrier and one pair of thick socks. Inner boots stayed dry but feet become wet and skin soft & wrinkly.	Two pairs (thin & thick). No vapour barrier system. Dried socks every night.
Gaiters	Extremities (enclosed boot). Used skin glue to fasten to toe of boots. Worked well because glue is re-useable allowing gaiters to be removed.	Lowe Alpine conventional (boot not enclosed). Leather ski boots became soaked during day and then froze solid in evening resulting in cold feet. Would use Yeti type gaiter next time. Fine with plastic climbing boots.	Extremities (enclosed boot). Very good.	Extremities (enclosed boot). Glued onto toe of boot. Better than conventional gaiters. Minimum snow ingress. Back rubber section crept down onto welt – required glueing.
Trouser system	Thermal longjohns and fleece salopettes for climbing. Salopettes only for touring. Gore-Tex over trousers for evening climbing & around camp.	Buffalo Salopettes. Excellent venting system. Occasionally too warm. Thermal longjohns only used for sleeping in	Buffalo salopettes. Excellent.	Thermal longjohns, fleece salopettes, full length zip Gore-Tex overtrousers. Flexible interchangeable system. Stayed dry.
Core under-layer	Capilene thermal top. Good wicking. Excellent for use alone whilst skiing during hot part of day.	Buffalo Mountain shirt. Excellent. Occasionally too hot whilst moving.  Karrimor polartec shirt only used for sleeping in.	Buffalo Mountain shirt. Too hot in combination with Buffalo salopettes during day. North Face fleece top (intended for sleeping) used whilst moving around during middle of the day.	Thermal vest.
Core mid-layer	Buffalo Mountain shirt and a conventional fleece.			Patagonia shirt, Fleece jacket and spare fleece.
Core over-wear	Well worn Lowe triple point smock. Down jacket.	Buffalo Belay Jacket. Only required once whilst climbing through night. Also used at camp. Rab Kinder Guide down jacket for camp.	Buffalo Belay Jacket	Gore-Tex jacket. No down jacket taken.

EQUIPMENT	J. Preston	S. Reid	C. Jones	J. Bickerdike
Gloves	Thin pr. Fleece gloves for around camp and ski touring. Lowe Mountain gloves for climbing. Dachstein mitts inside a pile lined Gore-Tex shell as a spare pair and for bivies	Marmot windstopper gloves for skiing & camp. Terra Nova Guide gloves for climbing – excellent as didn't need to remove for placing gear etc. Buffalo mitts for around camp.	Extremities inner gloves for around camp and touring. Dachsteins – climbing and touring.	Extremities Powerstretch wore through very quickly, otherwise ideal. Extremities mitts (shell & fleece liner) – new and found to be bulky & tiresome holding axe head. Dachstein mitts frequently used instead of Extremities. Buffalo mitts for ski-touring.
Crampons	Charlet Mosser S12. Good on hard ice. New for trip – sharp. Easy to fit. No balling up. Good for couloir work.	Grivel 2F – articulated mode. Balled up, otherwise good all round crampon.	Grivel 2F – well worn in. Excellent for type of climbing encountered. Sharpened prior to trip	Grivel 2F – Fixed mode. Balling up problems. Otherwise excellent. Easy to fit. Good on hard ice
Axes	Grivel Supercourmayer (53cm). Well used. Sharpened for trip. Good all rounders.	DMM Alien Axe & Hammer. Tended to bounce on ice. Poor ferrule design – slips off slopes and caught on crampon points when clearing balled snow.	Grivel Rambo Axe, Chacal Hammer. Both well used previously. Good mountaineering combination.	DMM Alien Axe. Tended to bounce on ice. Re-shaped pick tip profile. Droop of pick too steep. Ferrule often skidded off slopes and also caught on crampons when clearing balled snow. Chacal Hammer – good.
Tent	Terra Nova, Terra Firma. 4 man dome. Six poles. Big. Fine for luxurious base camp dwelling. Heavy to carry. Requires a big platform to be excavated. No under-lay foam used. Karrimats under thermarests. Terra Nova snow stakes.		Terra Nova, Quasar. Excellent size inside. Fly sheet extension not very large – cooked outside. Easy to pitch with few anchors. Used a bubble wrap underlay.	
Sleeping bag	Mountain Equipment Redline. 4-season. 11 years old. Washed and re-filled prior to trip. Cotton liner & Gore-Tex bivi bag. Slept in sallopettes and Buffalo shirt. Never cold.	Rab 900 Expedition Prototype (on loan). Comprised two bags inside each other – increased pertex = increased weight. Waterproof fabric outer. No full zip. Difficult to put in stuff sac. Warm.	Rab Ultralight 1100 with a cotton liner and a Rab pertex bivi bag and full length thermarest. Slept naked, always warm.	Rab 900. Excellent. Always warm (seemed warmer when wearing no clothes). Full length thermarest underneath.
Stove	MSR XGK11. Both G & K jets worked well with the A1 aviation fuel. No problems.	MSR Dragonfly (on loan). Special simmer valve. After 4 days stopped "roaring" & didn't boil as fast.	MSR XGK11 Shaker Jet (K jet). No problems although a bit smoky.	
Comments	Buffalo Mountain Shirt venting system worked well in combination with none-Buffalo sallopettes.	Sun hat essential for travelling.	Buffalo system excellent for extremes of temperature. Beal Iceline 8.1mm ropes used by most people.	Temperature control/venting system very good.

EQUIPMENT	J. Peden	C. Ravey	C. Read	B. Shackleton
Gloves	Two pairs of thin none-specialist under gloves for camp and touring. Dachsteins for climbing. Extremities waterproof shells never used.	Extremities Powerstrech used most of time for climbing, skiing & camp. Stitching came apart at seams and fingers wore through early on. Extremities mitts (fleece inner & waterproof shell) only used around camp as too bulky. Dachstein mitts taken as spare used instead of Extremities.	Extremities Thinnies & Windstopper Stickies Extremities powerstretch – came apart at seams & had to re-stitch. Extremities mitts rarely used as too bulky. All especially made for left hand which has missing finger and thumb.	Fleece gloves for around camp and touring. North Face double mitts – generally too hot. Often used fleece gloves inside waterproof mitt shells. Dachsteins as spare. Fingers wore out of fleece gloves
Crampons	Salewa Classics – articulated Great all round crampon. Also fitted leather ski boots for col. crossings.	Grivel 2F – new for trip. Great for couloirs, ice & mixed ground but noticed that middle points tended to flex. Easy to fit. Used in articulated mode.	Grivel 2F – well used. Ideal for the type of climbing encountered.	Grivel G12. New for trip. Strap on model. Ideal for mixed mountaineering
Axes	DMM Alien axe & hammer. Tended to bounce on ice. Poor ferrule design – slips off slopes and caught on crampon points when clearing balled snow. Rubber grips tore & slipped.	Cassin Skywalker axe & hammer (45cm), on loan for trip. Easy & comfortable placements in hard ice. Good for technical mixed climbing and couloir work. Poor wrist strap design.	Mountain Technology Vertige Extreme (slight curve) axe & hammer. New for trip. Pleased with performance. Rubber shaft grip became punctured and tattered.	Mountain Technology Vertige (50cm, old style). Previously well used Good mountaineering axes.
Tent	North Face West Wind. Ideal size to weight ratio. Good size flysheet extension for cooking. Easily pitched with few anchors. Foam underlay.		Terra Nova, Quasar. Aluminium tubes taken for pegging but snow too soft so used skis and poles. Condensation in inner tent caused dampness on coldest nights. Good size. Flysheet extension not big enough for safe and comfortable cooking. Cooked outside.	
Sleeping bag	Rab 1000. Generally too warm. Would have preferred a Rab 800.	Rab 1000. Perfect.	Rab 900 Expedition. Very good.	Rab 900 Expedition and Gore-Tex bivvy bag. ¾ length thermarest & karrimat. Space-blanket under tent. Never cold.
Stove	1 pint Primus. Works well on A1 aviation fuel. Better for simmering than MSR XGK11.	MSR XGK11. No problems. Kjet used.	MSR XGK11 Shaker- used with special insulating shield around main cooking pot which definitely increased the efficiency. Usually had a second pan on top melting snow.	
Comments	Buffalo Mountain Shirt wasn't fully utilised as part of a conventional layer system. Its role became more of a conventional fleece.	First time use of Buffalo system and thought it was excellent.	Retrospectively should have taken ski-mountaineering boots.	Conventional layered system worked well for temperature control. Thermal vest good wicking properties. Balaclava for head warmth. Silk scarf for keeping head cool.

One of the reasons for going to Greenland in May was to get the better albeit colder weather and to some extent this aspect of the plan was slightly disappointing.

We left Glasgow on Saturday 2nd of May in bright and sunny conditions and a high of 1024mb and as we flew West we met up with deep low of 995mb moving East and which finally centred over Iceland. It was this low that was destined to keep us pinned in Akureyri until the following Wednesday due to the resultant high winds in East Greenland which would have made landing in the mountains impossible.

When we did finally leave Iceland it was in windy conditions with snow flurries but these conditions were to continually improve as we flew West. Constable Point was bright and sunny and the final landing on the Sefstroms Glacier was done in windless conditions with blue skies and bright sunshine. Phew!

A summary of the general weather conditions, including barometric pressures, and minimum overnight temperatures for the trip is shown overleaf. As can be seen the main feature is the heavy dump of snow on the ninth day of the trip. It was this that curtailed the climbing activities and forced the expedition to concentrate on the struggle of getting back to the coast in deep soft snow conditions. The extent of this dump of snow is particularly significant if you consider the historic information obtained from the Glasgow Weather Centre, reproduced below. As can be seen from that chart the mean monthly precipitation for May should be 10mm and the 24 hour maximum is given as 13mm. In our instance the precipitation equivalents were 55mm and 45mm respectively, a factor of 5.5 and 3.5 over what one would have expected. We would appear to have been rather unfortunate. The only saving grace was the fact that there was no wind during the periods in which it snowed. It was interesting to note that even after 550mm of fresh snow one could still make out the footprint of the plane when it had landed. The original 100mm deep tracks in the snow from the original landing were still visible.

As far as minimum temperatures are concerned these were more or less in line with what would have been expected. The lowest temperature was -21.2 degrees Celsius, recorded at the camp on the Lang Gletscher and at an altitude of 1700M. Even at this temperature it was not unpleasant due to the fact that there was no wind. The only down side to this low temperature was the hoar frost that caked the inside of the tent on these occasions and which required careful movement if you did not want to be showered with ice crystals first thing in the morning. For the rest of the time the minimum temperature tended to be in the minus mid teens

A plot of the variation in barometric pressures is shown. Again this did not appear to fit in with the normal expected trends. The initial fall in barometric pressure did not signal bad weather as one might have expected and later when the barometer rose we had periods of mixed weather. Some of the rules of weather prediction appear to have been reversed.

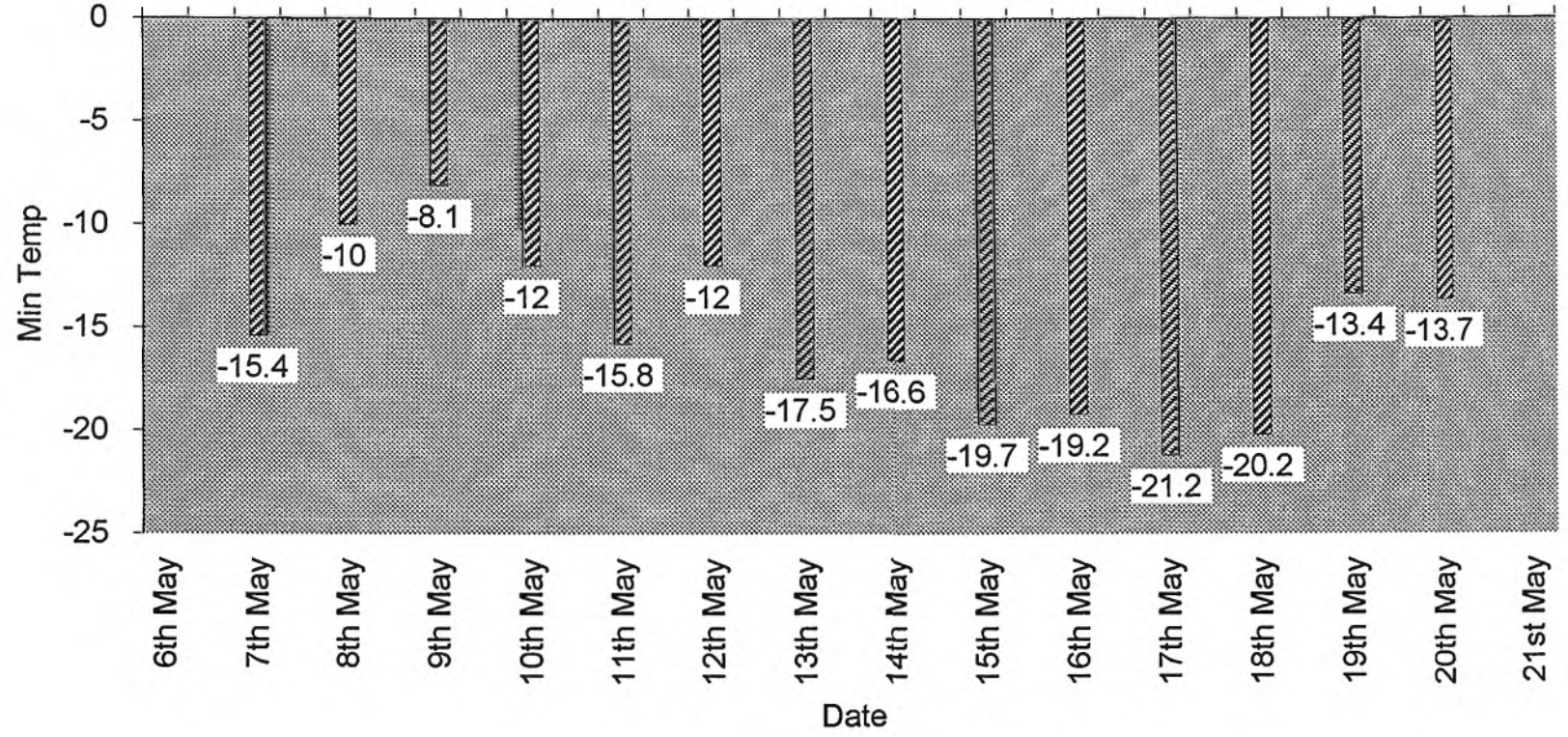
Date	Day	Baro mb	Min Temp Cent	Comments
6th May	Wed	am	1005	Akureyri ,breezy ,snow flurries
		pm	1023	Landed Sefstroms Glacier, blue skies, windless
7th May	Thu	am	1018	-15.4 Sunny,light breeze
		pm	1017	
8th May	Fri	am	1013	-10 Cloudless, slight breeze
		pm	1011	
9th May	Sat	am	1007	-8.1 Blue skies, some high cirrus clouds,low valley cloud developing later
		pm	1010	
10th May	Sun	am	1012	-12 Slight snow (50mm), summits in cloud
		pm	1016	
11th May	Mon	am	1017	-15.8 High thin cloud Cloud inversion in lower Sefstroms
		pm	1021	
12th May	Tue	am	1022	-12 Light snow (50mm), cloud inversion moving up glacier
		pm	1022	
13th May	Wed	pm	1017	-17.5 Clear blue skies with some high cirrus clouds
		pm	1018	
14th May	Thu	am	1015	-16.6 Heavy snow (450mm) for 18hours, windless
		pm	1016	
15th May	Fri	am	1009	-19.7 Blue skies windless. Broke camp in Sefstroms
		pm	1015	
16th May	Sat	am	1015	-19.2 Clear becoming cloudy with slight snow. Crossed Col De Pulkas
		pm	1017	
17th May	Sun	am	1016	-21.2 Sunny and windless. Crossed Trumpington col
		pm	1017	
18th May	Mon	am	1017	-20.2 Sunny, windless. Descent of Schuchert
		pm	1016	
19th May	Tue	am	1015	-13.4 Sunny ,windless. Crossed Skel Col
		pm	1015	
20th May	Wed	am	1014	-13.7 Started sunny and windless arrived at sea ice Whiteout due to sea mist, difficulty finding Mestersvig
		pm	1015	
21st May	Thu	am	1022	Overcast, cloud base at 250M, difficulty landing plane at Mestersvig



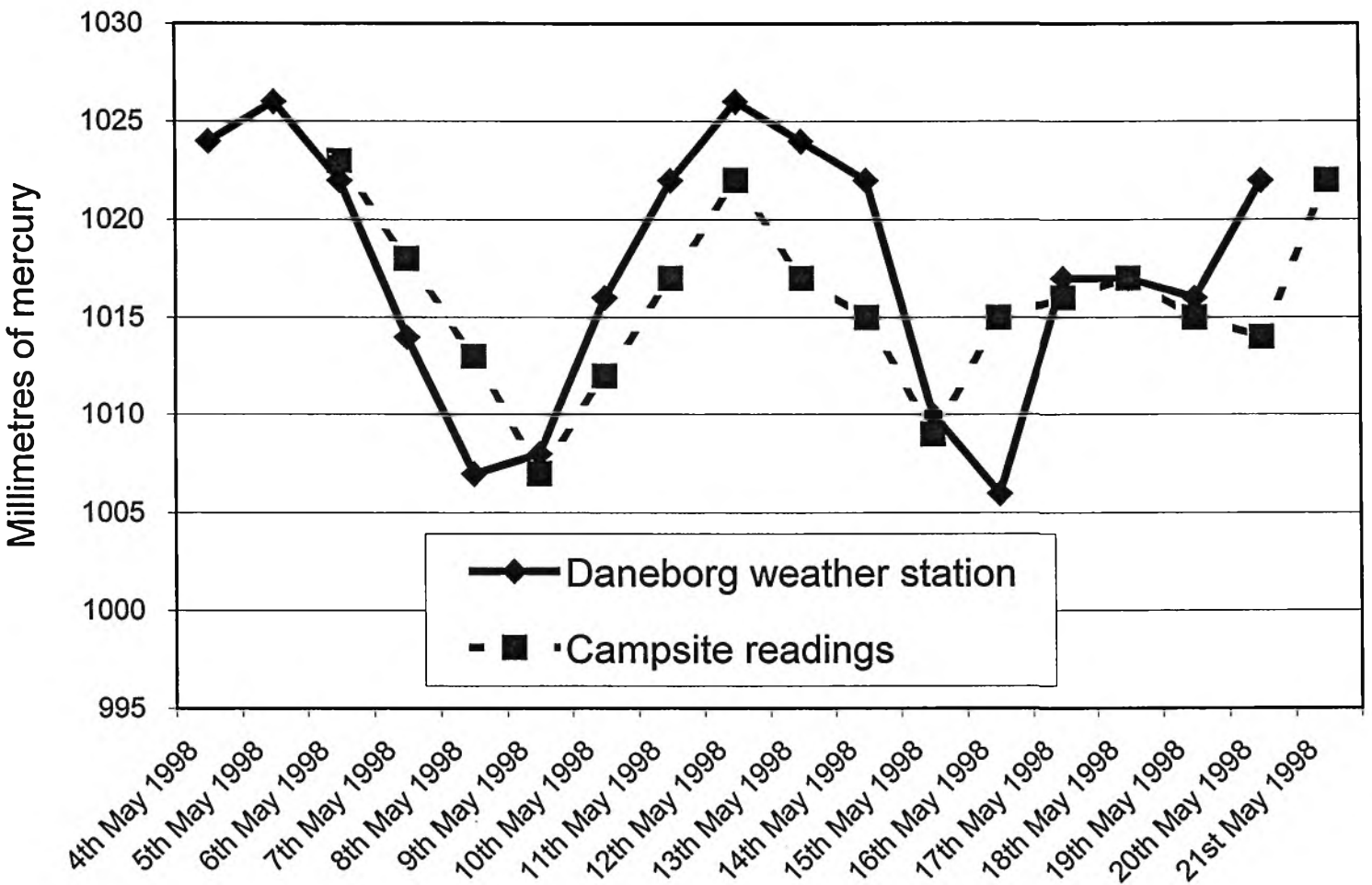
Scoresbysund / Cap Tobin 70 25' N 21 58' W 42m

Period 1949-60	Average daily		Average monthly		Absolute		Average of observations at		Average monthly fall	Maximum fall in 24 h	Average No of days with 0.1 mm or more
	Max	Min	Max	Min	Max	Min	630	1430			
			Degrees	Celsius			per cent		millimetres		
January	-12.3	-19.8	-2.0	-32.5	4.6	-40.0	74	73	29	19	10
February	-12.7	-20.0	-0.7	-30.9	7.4	-41.6	73	75	32	28	8
March	-12.9	-20.8	-3.1	-32.3	0.6	-37.8	78	76	26	17	9
April	-8.5	-16.9	-0.2	-27.4	4.7	-32.5	73	78	25	24	9
May	-1.0	-8.1	5.2	-19.1	8.2	-25.6	83	85	10	13	4
June	3.0	-2.0	9.1	-5.4	11.2	-8.0	86	85	21	34	4
July	5.2	0.1	10.6	-2.9	16.1	-4.4	87	85	26	27	5
August	5.7	0.1	10.8	-3.3	14.1	-5.0	85	80	33	31	6
September	2.0	-2.1	7.4	-6.7	10.5	-11.5	86	87	67	51	8
October	-3.4	-7.7	3.3	-14.4	7.1	-20.5	86	85	49	114	11
November	-7.7	-13.1	0.1	-22.0	3.6	-30.6	82	80	76	140	11
December	-11.1	-17.3	-1.9	-27.9	5.5	-34.1	79	84	59	70	12
Year	-4.5	-10.6	11.7	-36.4	16.1	-41.6	81	81	443	140	97

# Minimum Temperature



## Sea level equivalent barometric pressure changes, Daneborg Weather Station & campsite readings



When we finally arrived at the sea ice at the mouth of the Skel the initial clear and sunny evening soon deteriorated as the sea mist rolled in from the south east and visibility reduced to about 10metres making navigation for the last 10Km of the trip particularly problematical. At this stage the GPS came into its own and guided us precisely to the end of the runway but not before one of the party spectacularly skied over a 4metre drop into a frozen river bed in the white out conditions.

The weather at Mestersvig was overcast with the thick cloud base down to 250m and again the barometric pressure was high. The conditions were such that there were serious doubts as to whether the plane would be able to land, This it did spectacularly, however, after overflying the base several times and took off again half an hour later to end our visit to Greenland.

## **SNOW CONDITIONS**      Jonathan Preston

Six weeks of stable weather preceded our 6th of May arrival in the StauningsAlps; apart from a couple of days of bad weather, one of cloud and one of wind, which had delayed us in Iceland.

This stable period included temperatures of minus 45 degrees C during March. During the course of our 16 day stay in the Staunings we experienced fairly unsettled weather, including 2 days of very light snowfall (negligible amounts of fresh snow), 2 days of light snowfall (c.4cms of fresh snow on each occasion) and one frontal system that deposited 36cms of fresh snow throughout the range over a continuous period of 18 hours. Very little wind was observed during these periods of snowfall. During clearer weather katabatic winds would blow down the glacier.

3mm stellar and needle crystals were observed during the periods of light snowfall. Surface hoar formed when cloud drifted up the glacier from the fiords.

There was little overall avalanche danger throughout the trip, though some avalanche activity was observed on the Sefstroms side of the Col des Pulkas. Here small amounts of snow had sloughed off south and west facing slopes as well as one small slab having detached leaving a shallow crown wall. On 2 occasions there were serac rumbles on north east facing aspects.

On overcast days there was very little warmth penetrating through the cloud haze but on clear days snow conditions varied enormously according to aspect and the time of day. Some excellent cramponing conditions on firm neve were experienced (in south west facing gullies early in the morning) as well as softer thigh deep snow (on the north side of the Skel Pass).

The snow profile (overleaf) shows evidence of depth hoar build up due to facetting (also known as constructive metamorphism) and a wide variety of snow crystals. Hardness levels varied considerably.

<b>SNOW PROFILE</b>		Observers; <b>J Preston, S Reid, J Bickerdike</b>		
Date; <b>13/05/98</b>	Time; <b>12.51pm</b>	Organisation; <b>SMC Greenland Expedition</b>		
Location;	<b>Cantabrae Glacier,</b>	<b>Staunings Alps</b>	Altitude; <b>1670m</b>	
Aspect; <b>5<sup>0</sup> Mag</b>	Slope incline; <b>0<sup>0</sup></b>	Wind exposure ; <b>nil</b>		
Sky; <b>0</b>	Precip; <b>nil</b>	Wind;	<b>nil</b>	Air temp; <b>-1<sup>0</sup>C</b>

**SKI TRAVEL.**            John Peden

## Equipment

### Skis

Everyone used the type of skis he was most at home with. This resulted in six people using alpine ski-mountaineering equipment with either climbing boots (Scarpa Vegas) or ski-mountaineering boots. The remaining two used nordic touring equipment. The latter should have allowed much faster travel both on the glaciers without sledges and along the flat sea-ice with sledges. The equipment was significantly lighter and more comfortable in use than the alpine gear. This was offset to some extent by the need to carry a separate pair of climbing boots. However the total weight was still less than the alpine equipment and the opportunity to change boots was a positive advantage as far as foot comfort was concerned.

Downhill, the alpine gear had a clear advantage in terms of stability and control on steep ground, but as the majority of downhill work was at a very gentle gradient the easier action of the nordic skis/boots scored again. Overall the nordic skiers believed theirs to be the natural means of travel in the terrain encountered, but it must be said that everyone arrived back at Mestersvig at more or less the same time, so it probably doesn't matter much either way. It really depends on what gear you have and are familiar with.

### Sledges

Two members of the expedition took Snowsled pulks. These specialised proprietary sleds have moulded fibreglass hulls with integral fabric covers, and rigid aluminium traces with a waistbelt harness. The remaining six members used small plastic children's sledges adapted by adding lightweight bamboo or tubular aluminium traces, and lashing cords to contain the load.

The pulks were quite heavy with an empty weight of 7.6kg including traces and harness, compared with 2.1kg (including poles) for the plastic sledges. Admittedly the pulks had a much greater capacity than the plastic sledges, though that could be regarded as a disadvantage for this type of expedition as it encourages the taking of unnecessary equipment.

Both users of the pulks found the harness uncomfortable and difficult to use, especially when wearing a rucksack. Both also complained that the resultant

pulling action was very jerky, though the use of alpine skis may have contributed to this.

The “underwater” shape of the pulks resulted in a large surface area in contact with the soft snow, and they would often push a large block of the soft snow in front of them like a snowplough rather than ride over it. Add to this a tendency for snow to ball up on their undersides in certain conditions, and you have a recipe for some very hard work indeed.

The “pulkers” would gain little relief from their toil by going at the end of the line because the pulks’ greater width meant that they still had to plough a new furrow. On the other hand, if there was a pulk in front the other people found that their sledges would not track well in the groove and would tend to ride lopsided and turn over. The lesson learnt from this is that it is important for everyone to have the same design of sledge in soft snow.

The plastic sledges were, as ever, idiosyncratic. Their stability depends upon skilful packing with high-density items being loaded in such a way that the centre of gravity is kept as low as possible. The sledges acquired on this occasion were quite long and narrow (without seats or other twiddly bits) with close set runners and sloping sides resulting in a trapezoidal “underwater” profile. A flatter profile with wider-set runners would be more stable. Stability also seemed to depend on the load lashings being uniformly tight so that the sledge was not twisted. Most people distributed their loads 50-60% on the sledges, the remainder on their backs, although this varied depending on snow conditions and gradient.

Various designs of traces for the plastic sledges were used, all more or less equally effective. Most people found crossing the traces advantageous as this allowed the sledge to follow the ski-tracks better owing to the natural counter-rotation of the hips when turning. Again most people found it simplest and most comfortable to clip their traces by means of karabiners to their rucksack waistbelt, even when wearing a harness for roped glacier travel.

A summary of equipment used by each member and their comments on its performance is provided in the following table.

## **Travel**

Our journey from Base Camp on the Sefstromsbrae out to Mestersvig took a total of 6 days, due largely too heavy snow conditions. In good conditions and with reasonable loads it should be possible to do this route in four long days.

We crossed over three passes en route: (1) Col des Pulkas between Kirkbrae and Lang Gletscher; (2) Trumpington Col between the Lang and Schuchert Gletschers; (3) Skel Passet, from Schuchert to Skel Gletschers. Different techniques were employed on each of these as noted below.

### (a) Kirkbrae

This steep little tributary leads to Col des Pulkas at its head and provides a useful and straightforward route northwards from the Sefstroms system. We found the going extremely heavy because of the recent snowfall and this was compounded by the usually firm underlying snow changing for a short distance, every so often, into deep unconsolidated granular snow or depth hoar. We wondered whether these areas might result from a local change in temperature gradient due to hidden crevasses, but no one fell through and so the theory remained unproven. We stayed roped up all the same.

Huge crevasses at the inside of the right-hand bend (in ascent) into the upper basin were easily turned on the left. At this point, while the rest of us battled up the final steep slope to the top corrie, the pulk-haulers abandoned their tows and returned for them later from our high camp.

### (b) Col des Pulkas [Ascent 100m, 40°; descent 200 m, 35°]

Mark Breuil discovered this col in May 1985 on his west to east crossing of the Staunings and to the best of my knowledge ours was the fourth crossing. The other two were by the Scottish/French expedition which made the first south to north traverse of the Staunings in May 1992, and the Norwegian expedition which made a similar traverse in April 1995.

We crossed the col on a "de'il tak' the hindmaist" basis, from our camp immediately below it. Each individual made his own way to the crest in his own time with half his load, then reversed and repeated the effort with the remainder. This process showed up differences both in people's inclination to get going in the morning and also the amount of stuff they were carrying. (No apparent correlation).

From the crest of the col a 50m abseil was set up to provide security for the initial slightly steeper section. (An enormous cornice overhung the descent side just to our right) Most people ferried their load down in two stages; one or two opted to take everything in one go. As expected, manoeuvring the sledges/pulks proved the most awkward aspect. The best technique seemed to be to use the traces lashed to prevent lateral movement as far as possible, and to push the sledge ahead like a wheelbarrow, facing outwards. This all took quite a long time but was achieved without incident.

### (c) Lang Gletscher

What should have been the best ski-run of the trip from the foot of Col des Pulkas down the short tributary glacier to its junction with the Lang was spoiled by the soft snow. Only those near the back got any real benefit from the gradient; the others had to pole nearly all the way. The next day, from a camp a little way up the Lang, a straightforward unroped plod took us to the foot of Trumpington Col, weaving occasionally to avoid obvious crevasses.

(d) Trumpington Col (Ascent: 120m, 45°; descent: 20m, 30°)

For this ascent the first pair up were persuaded to establish a couple of belays, using a combination of ice screws and axes, to each of which was attached a pulley with two 50m ropes joined together round it. This enabled those descending for their second load to convert their potential energy into kinetic energy and transfer it to those ascending laden. So popular was this procedure with the latter that some of those who had already completed their second carry felt obliged to make a further descent to provide ballast for the stragglers, then re-ascend unladen.

The descent, in poor visibility, was a simple matter once its minimal extent and the absence of crevasses had been established on a rope. Everyone walked down until the gradient eased then skied unroped down the tributary glacier for 2km to the top of a large ice cliff where it turns sharp left before joining Schuchert Gletscher. This was avoided by taking a wide swing to the right, now roped up as two fours, skirting ice debris from the hanging glaciers to our right.

(e) Schuchert Gletscher

From our camp on Schuchert Gletscher just south of Bersaerkertinde we could see the sedimentary formations of the Werner Bjerger beyond the Skel Dal/Schuchert Dal Fault. This fault marks the eastern boundary of the Stauning Alps and the point where we should turn north to cross Skel Passet. It looked a long way and turned out to be even further. We toiled unroped down the imperceptible gradient of the glacier all day under a hot sun, wrapped in our individual thoughts. The only relief came from the gradually improving snow surface and the occasional skeins of barnacle geese honking overhead towards their summer breeding grounds further north.

By the time we reached the corner where the glacier swings south, the day was well advanced. In a few weeks this area would become a nightmare of unstable medial moraines and deep raging meltwater channels, but for now these features merely provided voluptuous form to the benign blanket of snow. The surface was by now firm and wind-packed. After a much needed meal stop we wearily tackled the climb, steep at first then gently up to the foot of Skel Passet and thankfully dug out our tent platforms.

(f) Skel Passet [Ascent: 60m, 40°; descent: 100m, 35°]

From the camp a snow ramp to the right of the col seemed to offer an easy route to the crest. However a reconnaissance on skis that evening convinced me that it would not be practical hauling sledges (as it had been in 1988) because the upper part of the ramp merged into a steeper snow face on hard crusty snow. The ascent the following morning was on foot up a shallow gully between a rib of shattered rock and scree on the left and a steep snow face to the right. Some people took two runs, others struggled up with everything in one go. (Less food to carry now).



The descent was made unroped in increasingly deep unconsolidated snow and provided the second potentially serious incident of the expedition, when Colwyn, who was following a line further to the right of the others (at my suggestion) disappeared up to his oxters in a crevasse. He was maintained in this uncomfortable and disquieting position by his rucksack with skis across the top, and by his sledge clipped on in front. Extracting him took some time owing to the difficulty in establishing a secure ski-picket belay in the deep sugary snow.

#### (g) Skel Gletscher

Skel Gletscher was fairly straightforward and crevasse free. Its descent was enjoyable for most people, though problems of skis balling up were experienced by some in the rising temperature. Some awkward traversing was required to cross from the Skel to its tributary the Edinbrae, which now has the longest tongue of ice and forms the true snout. Two equally straightforward routes off the glacier onto the frozen floodplain were found: one through the righthand side of the terminal moraine and one in the middle of the snout.

#### (h) Skel Dal

Once on the level the light became very flat due to a heavy overcast. This, together with the deep snow cover, made it impossible to avoid bumping into gravel bars of uncertain height or extent. The tactic adopted was to go straight over them rather than try to find a way round them. This resulted in some short but exciting descents when the other side was unexpectedly reached. Apart from this the skiing was easy until just below the terminal moraine of the Bersaerkerbrae which all but dams the Skel River. Once clear of the frozen river gorge we were surprised to find stretches of flowing water. We crossed these twice on somewhat dubious ice bridges and were then forced to make an awkward traverse of about 200m along a narrow sloping terrace on the right bank. The main problem was overturning sledges, which required mutual assistance. Thereafter good fast skiing on the snowed-over river ice, with one wee excitement at a small waterfall, took us to a camp on a low gravel bar about 5km from the mouth of the Skel River, in the blaze of the midnight sun.

The next day, from a little further downstream, we cut over the slight rise to our right, and down to the shore of Kong Oscars Fjord. There was barely sign of a tideline, so small is the range; just a few cracks to cross and we were on the sea-ice. This gave very fast going with a nice texture to the snow surface. After a meal stop beside an iceberg in the bay of Blomsterbugten (which provided some entertaining bouldering) we made landfall again in an inversion fog which had crept in from the sea. We navigated the featureless saddle between there and Mestersvig by GPS-assisted compass bearing. Travelling blind resulted in us hacking over some awkward hummocky ground, presumably the old river terraces of the Tunnel Elv, before bumping into the runway marker pole. It was an impressive display of the

effectiveness of GPS navigation in a situation where the only sensible alternative would have been camping until the fog cleared.

### **Postscript**

From the aerial photographs there appears to be a feasible route from upper Schuchert Gletscher to Kishmul Gletscher, which would be considerably shorter than the route over Skel Passet. The route would ascend a short steep tributary glacier from the Schuchert to a fairly high col east of Royal Peak leading to the most southwesterly lobe of Kishmul Gletscher. The ascent to the col from the Schuchert tributary is a short couloir left of several parallel ribs. This dip may not be the lowest point on the ridge here but gives access to what appears from the aerial photographs to be the easiest descent on the other side, a short snow slope. The descent of the Kishmul Glacier to the Edinbrae looks reasonably straightforward from the photos. We considered this possible new route but in view of the hard going there was little appetite for exploration, and the majority favoured the longer but well-established route over Skel Passet.

Another possible shortcut to Mestersvig may exist eastward through the Werner Bjerge north of the well-established Mellem Passet near Malmbjerg. This putative route would cross the obvious low saddle on the east side of the high level snowfield to the south of Skel Passet above Schuchert Gletscher. From this saddle one would descend a steep glacier and the valley below it to Delta Dal, south of Mestersvig. The 1:250,000 map of this area is unhelpful and I have not seen aerial photographs of the area. It has to be said that despite its proximity to Mestersvig there is no record of this route being used before. However until recently all visits to the area have been in summer when conditions in the steep sided valley and on the steep south-facing glacier above are bound to be difficult. Under snow cover travel may be easier, particularly in descent, and this route may repay investigation as an alternative to the Mellem and Skel Passet routes.

Name	Boots	Skis	Bindings	Poles	Skins	Sledge
B. Shackleton	Scarpa Vega. No problems.	Dynastar Verticale Extreme. Too stiff and heavy but very stable. Hot waxed so no balling, but also no grip on level.	Silvretta 404. No problems.	Black Diamond. Clip tension not adjusted right so tended to collapse. Harscheisen taken but not used.	Cassin. Got damp and would not re-stick after taking off. Used nordic grip waxes on level: quite effective.	Plastic + Al. Poles . No particular problems.
C. Read	Scarpa Vega. Lots of slip between inner and shell. Big blisters from Day 1 under big toes and on heels	Dynastar Verticale Assault. Fully serviced before trip. No problems.	Silvretta 305 (very old). No problems but fairly heavy.	Black Diamond. Good – easy to adjust.	Pomoco. Good grip, no balling.	Snowsled 1.1m. Harness very uncomfortable esp. with rucksack. slings from waist
C. Ravey	Garmont Tour. (Single leather). No yeti gaiters, so Boots got wet and froze overnight. Comfortable but cold when stopped	Asnes Sondre. No problems except slight balling when wrong grip wax used.	Rottefella 3-pin nordic norm with heel cable. No problems.	Swix Powder. (One-piece) Handgrips very comfortable. Baskets too stiff. Poles too bendy: one broke in a fall.	Pomoco 45mm. No problems.  Waxes excellent: Swix purple, blue & green used to suit temperature.	Plastic + Al. Poles Generally good but tended to pack too high: unstable. Traces easy to use and forgiving.
J. Peden	Garmont Combination. (Single leather). Very comfortable. One small blister on heel due to careless lacing.	Fischer E99 nordic touring ski. Planed and hot waxed for trip. No problems. Very light and tracked well.	Rottefella 3-pin 75mm nordic norm. Light, easy to use. Snow tended to pack between boot and binding.	Swix mountain. (One-piece). Very light and strong. Big baskets good for soft snow. Cassin 2-piece carried as spare.	Pomoco 45mm. Very good grip. Only used when sledging uphill. Waxes used at all other times: very effective.	Plastic + Al. Poles Tended to turn over if twisted due to uneven lashing tension, otherwise fine.
J. Bickerdike	Dynafit ski-mountaineering. Excellent for skiing, OK for middle grade rock. Two small blisters	Tua Cimera. Hot waxed for trip but wax shattered (due to cold?)	Fritschi Diamir. Light, easy to change mode with pole.	Leki adjustable. Satisfactory.	Make not reported Not sticky enough as glue affected by broken base wax.	Two plastic, with bamboo poles. Used bolted side-by-side for cols (very stable) and tandem for straight line.

C. Jones	Scarpa Vega climbing boot. Not v. satisfactory: inners moved in shells making shins and balls of feet raw.	Blizzard compacts Planed and hot waxed for trip. Occasional slight balling.	Silvretta 404. Skis + bindings quite heavy, otherwise no problems.	Look downhill, over 15 years old. No problems.	Vintage coll-tex. Satisfactory	Plastic, with bamboo poles. One trace broke repaired using short Al. tube splint with duct tape.
S. Reid	Asolo 101 (No longer made). Blisters on heels and big toes.	Kneissel Tour Star Tended to ball up. (No hard wax)	Fritschi Alpine. Has toe release but cannot change mode without removing ski.	Black Diamond. Cam action. Very good: easy to adjust and strong, but heavy.	Coll-Tex. Satisfactory.	Snowsled 1.1m pulk. Very heavy, harness uncomfortable: jerky pull. Runners tended to ice up.
J. Preston	Asolo Superlite (No longer made). Slight chafing, no other problems.	Dynastar Yeti. Soles balled up badly descending Skel GI.	Tyrolia TRB. One baseplate broke (15 yr. old) Fortunately Brian's spare ski had TRB – rear section swapped.	Leki Extreme. (2- section adjustable) Very robust and converts to 3.5m avalanche probe.	Coll-Tex (old) Balled up with wet snow on Cantabrae one day otherwise OK. Harscheisen not used.	Plastic + Al. poles Good. Best when loaded lightly uphill, more heavily downhill.

## 11 SMC Greenland Expedition 1998

### Final Accounts

Name	Description	Income(£)	Name	Description	Expenditure(£)
BMC	grant	850		Faxes	6.74
Gino Watkins	grant	750		Postage	23.63
MEF	grant	750		Insurance	784.40
1st instalment	460 @ 8	3680		Burning paste	42.30
2nd instalment	200 @ 8	1600		Radio licence	44.74
3rd instalment	275 @ 8	2200		First aid	54.81
4th instalment	400 @ 8	3200		Freight	1153.24
				XS baggage	188.00
				GLW-AKU	2521.60
				AKU-CNP	2820.00
				CNP-SEF	1190.00
				MVG-AKU	3375.00
				YHA 2+3 May	149.29
				YHA 4 May	77.78
				YHA 5 May	62.96
				YHA 21 May	62.96
				Coach	52.65
				Food	7.41
				Food	12.39
				Taxi YHA-AKU	7.04
				Taxi YHA-AKU	9.17
				Taxi YHA-AKU	7.13
				Taxi YHA-AKU	7.13
				Taxi YHA-AKU	7.78
				Taxi YHA-AKU	5.93
				Taxi YHA-AKU	6.76
				Taxi Rey-Kef	37.04
				Gun hire & ammo	57.00
				Subsistance	250.74
<b>TOTAL INCOME</b>		<b>13030</b>		<b>Expenditure</b>	<b>13025.60</b>
				<b>BALANCE</b>	<b>£4.40</b>

## 12 Grid references for 1998 SMC Greenland Expedition

Site	GPS			Longitude W			Altimeter Altitude
	Latitude N						
Basecamp, 6th May, plane GPS	72	0	11	25	10	50	1210
Basecamp, 6th May, GPS	72	0	11	25	10	50	
Basecamp, 7th May, GPS	72	0	15	25	10	46	
Basecamp, 8th May, AM, GPS	72	0	12	25	10	54	
Basecamp, 8th May, PM, GPS	72	0	11	25	10	48	
Basecamp, 9th May, GPS	72	0	11	25	10	50	
Basecamp, 13th May, GPS	72	0	10	25	10	48	
Basecamp, 14th May, GPS	72	0	11	25	10	49	
Tillyrie (Nippletinde)	71	58	7	25	1	52	2410
Coltart (Lobster claw)	71	57	42	25	0	40	2395
Col De Pulkas	72	0	24	24	59	29	2130
Camp 2	72	0	23	24	59	29	
Camp 3, 16th May	72	1	18	24	55	1	1665
Camp 3, 17th May	72	1	18	24	55	3	
Trumpington Col							2200
Camp 4, 17th May	72	2	43	24	47	47	1635
Camp 4, 18th May	72	2	46	24	47	42	
Camp 5, 18th May, Skel Pass	72	0	57	24	20	37	1125
Camp 5, 19th May	72	0	56	24	20	38	
Camp 6, 20th May	72	13	5	24	17	32	65
Mestersvig, 21st May	72	14	3	23	56	0	

As we breasted the slight rise in the narrow spit of land that separates Kong Oscar's Fjord from Skeldal, I was poorly prepared for the view that confronted me.

Behind lay memories of hard days. Six unclimbed peaks on the Sefstroms followed by as many days of tiring travel; long glacier ascents, steep passes and descents sadly too shallow to schuss with a sled - over a foot and a half of fresh snow in twenty-four hours had seen to that.

To be truthful, we were exhausted and we had had our share of dramas too; injury due to rock-fall, 36 hours on a route for one party, crevasse rescue, and this last day, though easier, had been long as well. Having not got to bed until four in the morning, we hadn't started until well into the afternoon, skinning over the snow covered ice of the Skel.

I had been leading most of the day, breaking trail through the snow, delighting in the new territory revealed and in the tracks that crissed and crossed the frozen river. Lemming, Arctic Fox and Musk Oxen, although we never saw any animals only Barnacle Geese and Ravens. Certainly not the Polar Bear on whose account we had been forced to share our journey with a heavy pre-war .303 and half a dozen rounds.

I had a song that came into my head when I was skinning along like this. It was no use trying to get rid of it, its rhythm so suited my actions that it was there all the time whether I wanted it or not.

"D'ye ken John Peel in his coat so gay  
D'ye ken John Peel at the break of day  
He's over the hills and he's far far away  
With his horn and his hounds in the morning."

Round and round like a madrigal it went, banishing all conscious thought and concerns and turning me into a pulke-hauling mechanoid.

Da da da da da da da da da da.....

That spit of land boasted small outcroppings of mosses, lichens and rough grasses, pushing through the snow. Tundra, a magic word, bringing back long forgotten memories of the ink-bespattered, initial-carved desks of my old school geography classroom. And I was about to remember another one.... But what were they staring at, over there, on the horizon?

As usual, I had tired, been over-taken, and now comprised the rearguard of our team of eight. The others had all reached the high point of the rise and had stopped, dropped their sacks and let the shafts of their sleds fall. There was a lot of pointing going on and cameras were much in evidence. What were they doing? What could they see that I could not?

And then I dragged my weary body the last few yards and saw too.

Pack Ice. Those were the words. Tundra and Pack Ice. Pack Ice as far as the eye could see, right across to Träill Island at least, and that was five miles away. And set in the Pack Ice, a vast armada of ghostly galleons - icebergs. Great, green, blue, white, icebergs, glistening and glittering in the land of the midnight sun. Festooned with rainbows of stalactites and deep, cool, ice-blue grottos, they lay scattered higgledy-piggledy like so many pebbles. A giant's playthings left out to melt.

The sun was shining on the sea,  
Shining with all his might:  
He did his very best to make  
The billows smooth and bright -  
And this was odd, because it was  
The middle of the night.

We skinned across the frozen, snow-covered sea, for hours it seemed (and indeed, hours it was), until we reached the nearest 'berg, which happened perchance to lie more or less directly on our way to Mesters Vig.

If seven maids with seven mops  
Swept it for half a year,  
Do you suppose" the Walrus said,  
"That they could get it clear?"  
"I doubt it," said the Carpenter  
And shed a bitter tear.

Here we rested, and cooked our final meal in Greenland. Soup, pasta, nuts, chocolate pudding, tea and whisky. Not bad for the dregs of the larder.

Then clamping on crampons and seizing axes, I climbed the iceberg: a first, and probably a last ascent, unless it should, by some unlikely circumstance, float your way some day.

From its summit, I could see all around me my iceberg's brothers and sisters glimmering in ghostly unison, the peaks on Träill Island brushing against a cerulean sky, twirling wreaths of whispering mist twisting over Mesters Vig, and the vast, polished red orb of the sun, kissing the northern horizon and sending great golden rays skimming the soft white surface of the frozen sea.

I looked at my watch.

It was midnight.

The witching hour was upon us.



## THE WHALE'S TOOTH    Colin Read.

The intense thrill of reaching the summit of Changabang in the Garwhal Himalayas, after taking part in the first ascent of its S E Face, is something I can still recall. That was in 1976. I had promised myself more such adventurous trips at the time, but somehow families and starting up a business got in the way. In the words of John Lennon, "Life is what happens while you're busy making other plans".

Nearly 22 years later, I found myself with seven companions, sitting on our sledges in a tight circle, huddled against the intense cold of Arctic Greenland, around the friendly purring MSR stove. We brewed tea and coffee endlessly, passing around the remains of the rapidly depleting whisky and rum ration. It was 2.30am, I felt slightly dazed from the sudden cessation of our recent efforts, having just stumbled for the last 3 hours through a white out in the sea mist from the pack ice of King Oscars Fjord. Back onto land, a caterpillar of men and sledges, locked onto our Sat-Nav bearing, with John Bickerdike forging the trail, we had just struggled across yet another ridge of moraine.

The orderly line broke into a confused scramble, when as we re-grouped I spotted a sign post some distance ahead through the gloom. Setting off towards it, unable to discern land from sky, my pace increased alarmingly as the unseen ground sloped steeply down. Moments later with the others baying at my heels, I took flight and crash landed 10 feet lower in a tangled heap of ski's sticks and mangled sledge.

Everyone else had screeched to a halt on the brink, Bickerdike had flung himself to the ground, his sledge slewed and dangled over the precipice. No, the sign didn't say mind the drop, it was the final marker at the end of the runway, on the remote coastal air strip of Mesters Vig, where we now awaited our return flight to Iceland.

Nearly three weeks earlier, following a three day delay due to bad weather, we had all been deposited in one of the remotest parts of the Staunings Alps, on the upper reaches of the Sefstroms Glacier. The flight in by ski equipped Twin Otter, was incredible. We marvelled at the skill of our two pilots, as they literally dived in between the jagged rock peaks, to plop the plane down at virtually stalling speed, into the deep fresh snow. As the plane became a diminishing distant spec in the crystal blue sky, the enormity of our isolation dawned. 150 miles from Constable point where we had re-fuelled and about 50 miles of difficult glacial mountain terrain separating us from the only other people in the Staunings at that time, the three occupants who operate the airstrip at Mesters Vig. "Well" I told myself " You wanted an adventure and this is total commitment from day one"!

Wallowing in deep snow, we dug in our four tents and carved out cooking pits, quickly destroying the pristine surface of the glacier. The setting though was fabulous. We were in the centre of the wide glacier near the junctions of a number of other branches, which radiated outwards to allow wide distant views

of the many imposing peaks which surrounded and dwarfed our tiny encampment, with yet more summits peering tantalizingly from behind.

Whilst kicking our heels in Iceland we had revised and refined our plans. We would work in pairs within two groups of four, each group had identified a number of objectives. So whilst the weather remained stable, we hastily made preparations to embark on our first projects.

The first team away as usual, comprised of Colwyn Jones our intrepid leader, (who is a Doctor of dental surgery and had all of us testing new brands of toothpaste in the Arctic environment ! Never has an expedition seen so many gleaming smiles, pity he didn't issue any soap or deodorant !).

He was teamed with John Bickerdike our munitions expert, in charge of our ancient gun, defence against the elusive Polar Bears. With them were Stephen Reid our other leader, (we obviously needed lots of guidance) and Jonathan Preston our only professional mountaineer, who is a vegetarian. Stephen had volunteered to share his dietary affliction with him, but was mortified when we goaded him with the smell of cooking bacon, whilst he sieved the Soya protein between his gleaming teeth.

To the west was a spur glacier, curling round under the bulk of one of the highest unclimbed peaks in the Staunings. It's East Face a complicated maze of rock, snowfields, icefalls and couloirs. After a glacial approach, their route ascended one of the long couloirs, to gain at a col, the long and tenuous North Ridge. They began to ascend a steep section, beyond which it appeared complex with numerous time consuming pinnacles. By this time, they were high on the mountain, but still a long distance from the summit. It was late and even though there was the benefit of 24 hour daylight, the prospect of spending the night period without sleeping bags, in the intense cold of Arctic May, was daunting. They prudently made the decision to retreat.

They were soon back into action, turning their attention to two fine previously unclimbed peaks both to the east of the uppermost reaches of the Sefstroms glacier and in the process also enjoyed some exploratory glacier tours on skis. They all climbed both mountains via snow couloirs, leading to upper snowfields , each with a final rock tower forming their summit. They were given provisional names of Nippetinde and The Lobster's Claw due to their appearance but were formally renamed Tillyrie and Coltart. In addition Stephen and John climbed a minor top near our base camp which was named Rabsontinde.

Meanwhile I was sharing my space with Brian Shackleton, who is a descendant of his famous namesake. Though we had only climbed together a few times in Britain, we got on well. I found his steady calm approach reassuring. Our most experienced Greenlander was John Peden. This was his sixth visit. He had taken a leading role in the first south - north ski traverse of the Staunings in May 1992. His knowledge of the topography proved invaluable. All the others had also climbed in the region before, except for myself and John's companion, Chris Ravey, who at 28 was easily the junior of the team. This was his first trip

on Nordic skis, but he coped well in his usual cheerful manner.

Our first objective was to be a peak, hidden from Base Camp, sitting like an island between two un-named glaciers which curled around either side, (we named them Great Cumbrae and Little Cumbrae). Its north and eastern sides are protected by complex terrain and icefalls, so we ski'd further round towards the West. Here a small icefall had a couloir tucked in beside it, which curved and weaved between it and the rocks, seeming to offer a relatively safe line. We had set out later than we should and not appreciated how hot we would become, as the sun blazed down amplifying its intensity in the confines of the couloir. We battled up soft snow sometimes knee deep and before long began to dehydrate.

I was wearing my brilliant Buffalo Suit but hadn't brought a lighter shirt to change into and was melting, eventually the heat took its toll. Towards the top of the couloir whilst breaking trail, I began to feel exhausted and dizzy. Not wanting to burn out on the first outing, I declared that I would have to retreat, Brian accepted my pronouncement stoically and we plodded down our disintegrating steps, my spirits lowered and pride hurt. John and Chris both looked knackered, but they plodded on to gain the upper snow slopes and surmount a final rock step, reaching the summit at about 10.30pm. They named the peak Hecla.

When I had first browsed through Donald Bennet's expedition guide to the Staunings, one photo leapt from its page and gripped me, making the hairs on the back of my neck bristle at the challenge it presented. Showing, what he described as "an unclimbed spire, beyond Emmanuel", when I discovered that it was to be one of our objectives, I just had to be involved.

From base camp it peered almost insignificantly from behind Emmanuel, which towered proudly behind Sussex and Sydney all of which formed a wonderfully attractive range of peaks to our South. (All climbed in 1963, by a Cambridge University team and probably untouched since?). However, when viewed from the east or west sides our peak was clearly the highest of the group, with a unique hole just beneath the summit, which passed right through the mountain, large enough to drive a double decker bus through.

This Tower presents an icy aspect with a fine steep snow arete and snow covered rocks to the east. The west side has a very long couloir between it and Emmanuel, leading to a steep rock buttress then the rocky summit crest. A few days after our first excursion we ski'd up the Great Cumbrae glacier, negotiating the crevasses to gain the foot of that couloir. We followed it for a little over 600m. It was always steep enough to be interesting though never difficult, just about Scottish grade2. Still roped as two pairs, we reached a rock spur towards the top of the couloir. The summit rock buttress towered above, with still over 300m of climbing remaining, we surveyed the prospects. A gully led steeply into the upper rock buttress and seemed to offer a means of access, past an initially very steep section.

Chris raced up into it, climbing rock hard ice towards a bulging section, but I fancied the rocks out to its right and eager not to miss the action, followed a few paces behind, until I could escape via a series of strenuous pulls up cracks and flakes, all of which proved more icy, steep and difficult than it had appeared from below. Perching on top of a pinnacle overlooking the gully I tied on. Chris abandoned his line and traversed across to join me, at which point we joined forces.

Re-entering the gully above the bulge looked awkward. Several moves up the rock arete on flake side holds, lead to a long stretch and swing of the axe to establish myself back in the gully. We rated those two pitches at 4/5 Scottish. Brian followed up and led out onto the side of the buttress up steep but juggy rock, sparks flying from his crampons, prompting the rest of us to remove ours.

Continuing by traversing out onto the front face, I pulled up a steep step then continued left to circumnavigate a huge perched block, glued to the rock by friction alone, only to find the way ahead steep and uncompromising. Carefully I retraced my steps and worked upwards over piled blocks to a secure snowy ledge in an alcove.

Suddenly I felt completely drained of energy. The way ahead still looked steep, it was 8.30pm with a long way to go, we hadn't stopped or eaten since the foot of the climb and we were going to have to spend the night out. I called out to voice my concerns to the others, "Bring us up and we'll have a wee look" came Brian's reply.

Once re-grouped fed and watered, things seemed more amenable. John Peden full of determination, launched out at the next obstacle, a vertical crack of about severe. He batted on up for a couple of pitches, to an awkward icy shelf, overlooking the gloomy blue ice at the head of the main couloir. This was a disheartening indicator of how far we still had to go.

The sun had dipped to the horizon and slid behind a distant lofty peak, causing the temperature to plummet. We teetered on an exposed corner, as an icy breeze sprang up and far below mist poured in from the sea ice, creeping menacingly up all the glaciers, until it lapped up the side of our mountain. This created a spectacular view of summits protruding above the blanket of cloud. We put on extra layers as the cold began to bite. My left hand, damaged some years ago, has digits missing and poor circulation, so I was particularly grateful for the gloves and mitts which Tera Nova (Extremities) had tailor made for me.

Chris belayed John as he lead a fine open book corner, which would be a classic pitch of Severe on any British crag. Meanwhile Brian protected me as I scouted around for possible abseil anchor points and surveyed the possibilities for our descent.

Two pitches later we joined Chris perched on the shoulder of the summit ridge, John was already heading up the first of two long rope lengths of easy ground with awkward, sometimes icy steps to gain the summit. Strangely the air

seemed to warm up, as the sun began to creep back into view again and we wondered if we were benefiting from a temperature inversion. Down at base camp it was cold and snowing steadily, giving the others cause for concern.

The summit was formed by two huge portions of rock, leaning against each other above the gaping hole. Views from it were spectacular and there was much jostling around to get everyone's photo taken safely. We named our peak TUPILAQ, which is the Greenlandic name for the traditional troll-like figures hand carved from Sperm Whale's teeth and other Ivory.

It was after 1.30am. I glanced around at the others, their eyes looked glazed and their faces tired. I must have looked the same. It was too cold and exposed to stop, so we reversed the order of ascent and I set off back along the ridge to regain the shoulder. We began to abseil down the face. Chris followed me to help set up each anchor point and the others gathered up the ropes. All went well initially, myself and John had reached the main couloir and Chris had remained on the pinnacle above the final abseil to field the others across the gully. Brian was sliding down towards him when the rope above him swept a pile of rocks from a ledge. In an instant we were being bombarded. They peppered the snow and bounced off the rocks around us. One hit John on the arm (causing only bruising), but Brian was directly in the firing line and took a direct hit in the face. Dazed and bloody he struggled down to Chris, who hauled him in and quickly despatched him down the next set of ropes, to the relative security of the couloir, fearful that he might pass out.

Brian's face was a battered mess, but close inspection revealed that his injuries did not appear as serious as first feared, though we could not be certain. Our senses seemed stimulated by the fear and excitement of that near tragedy, making us very alert and cautious as we down climbed the couloir. Gradually descending through the thin cold cloud, as snow settled gently on the cliffs around us. Eventually we reached our skis on the glacier and a welcome rest.

Roped together again we prepared to set off. I crouched to adjust my straps, but as I raised my head the last coil of rope was disappearing. Chris at the front had moved off. The fresh snow was fast underfoot, the others had hurried to follow but I was too late. We crashed in tangled heaps, Chris with a broken ski pole, but still sporting a cheery smile. After almost 28 hours of continuous effort, we re-started, heading cautiously through the crevasses and across snow bridges, struggling to make our weary limbs control both speed and direction.

After a few miles, four figures hauling pulks, appeared on the horizon. The others had embarked on a rescue mission. Our reunion made a strange spectacle, as they plied us with hot drinks and tots of whisky, eight diminutive figures amidst a vast white wilderness, beards and hair encrusted with ice, snow and blood, yet faces lit with beaming smiles!

In the days that followed Chris and John Peden, climbed a snow peak, next to the head of the Sefstroms Glacier, naming it Seanerbheinn. Whilst Brian and I attempted a conical shaped peak nearer to Base camp. But turned back about

90m below the summit, when in bitterly cold conditions, we were faced with near vertical ice chocked rocks and deteriorating weather.

The other four were planning to set out the next day for another attempt at their first objective, by a different line. However as Brian and I returned to camp it began to snow and did so continuously for most of the next two days, burying the camp and the mountains in a deep blanket of powder. By the time it cleared, we had only six days left and it was soon obvious that in those conditions, we would need every minute of that time, to reach Mesters Vig!

Stephen Reid set out first, leading his team up the Grantabrae glacier towards the Col de Pulkas. Wading through the snow, each stride hard won, as the snow compressed further, before the skins on the skis gripped. His harness straining as the pulke ploughed up the snow and stubbornly resisted forward movement. Following in his wake was only marginally better. Within minutes of setting out it was obvious that the enjoyable ski tour we had anticipated was going to be a desperate struggle. Two of us hauled pulkes which were large and heavy, though very stable, the others had smaller, lighter, 'kids' sledges, but they tipped over with annoying regularity. Progress was dreadfully slow, even some downhill sections required us to haul !

The second day involved carrying loads over the col, a time consuming episode, so by evening it was a weary group which set up camp, well short of our original objective, in the midst of the wide expanse of the Lang Glacier. As with all the camps on that journey it was in a fabulous setting, reward enough for the days efforts.

Trumpington col was the next obstacle, steep and three rope lengths high. John Peden suggested a novel method of ropes and pulleys, whereby descending climbers used their body weight, to counterbalance those ascending with loads. It worked well and was a welcome fun distraction from the efforts required. The descent however, took us beneath an area of sinister hanging icefalls with menacing seracs, were despite urging's and protestations some people had to stop for photo's ! A fast downhill section, ended with the inevitable multi pile up wipe out. Finally more sedate skiing lead us to a camp near the head of the Schuchert Glacier.

I think everyone found the going tough at some point, but for me the descent of that glacier was the worst. It started out OK, sunny and straightforward. But the easy angled terrain, meant that almost every step of the day involved hauling. The soles of my feet burned with the friction, my back and hips ached and my short legs wouldn't operate quickly enough, to maintain the pace of the others. Groaning and cursing to myself as I fell behind, I would bemoan my plight, straining into the harness and staring down at my ski tips to urge them forward. Then the sun would flash across my sun glass lenses, as it glanced from some sparkling snow clad peak. My attention diverted, to marvel at the wonderful vista of mountain scenery. 'You lucky bastard ' I thought. Oh the agony and ecstasy of ski mountaineering!

That evening ended with an uphill climb to the foot of the Skel pass. Brian led the way, like the good king Wenseslas: his slow steady pace reassuringly comfortable.

The sky was overcast and the light very flat, as we casually toiled over the easy pass. On the downhill side the snow had drifted deeply across the innocuous looking slope, masking hidden dangers. Stephen and Jonathan, were brought to a halt by a wide crevasse. John Bickerdike, Brian and I were wallowin'g in chest deep snow between two open portions of crevasse, whilst Chris and John Peden were still on the uphill side, when a cry from Colwyn alerted us to his plight. I scanned the slope to see some distance away, only his head visible, peering from the jaws of a hidden crevasse. Fortunately he had been pushing his sledge ahead and it rode over the snow bridge, through which he had crashed. He clung to its poles, with his rucksack wedged against the lip behind him, his crampons scraping against the opposite wall and nothing but darkness looming beneath. It took some time for people to extricate themselves and mount a rescue. Eventually the relieved party reassembled at the foot of the slope.

At last we began to make good progress down the Skel glacier and along the frozen Skel River, avoiding a few tracts of open water and skating along the hard flat surface, we just kept on going. Stopping finally in the early hours at the side of the river, to pitch our final camp,. The sun shone from its lowest point on our northern horizon and lit everything around us in a wonderful orange glow.

We crossed over the tongue of land which extended seaward at the mouth of the river. As we reached its crest, the view that unfolded was breathtaking. The sea ice of Kong Oscar's Fjord stretched into the distant Arctic ocean and there trapped within it, like the great ice castles of mythology were the icebergs. Dozens of them, standing like sentinels guarding the approaches to the Arctic wilderness. The wild icy hills of Traill Island formed the backdrop, stretching along the fjord back towards the mainland, where unseen the great ice sheet sprawls for a thousand miles or more.

We had six kilometres of sea ice to cross and when we arrived at the foot of one of the icebergs, stopped to cook our evening meal. Before most of us had unhitched the sledges, Stephen had his crampons on and promptly scaled to its summit. John Bickerdike and myself were not to be outdone and to the amusement of the others soon front pointed up lines of our own, to claim unique and unrepeatable first ascents!

As I stood on top looking around at the remarkable scenery, the sea mist had begun flooding towards us across the pack ice from the north and in a short time it would engulf us. The journey was almost over and the adventure coming to an end. I made myself a promise `Not to wait 22 years before the next'!

## **Acknowledgements**

The team would like to express their appreciation to the following bodies who supported the expedition with grants:

The Mount Everest Foundation,

The British Mountaineering Council

The Gino Watkins Trust.

Many thanks to Needlesports of Keswick for providing excellent advice and equipment.

The following companies provided equipment for members:

Nevisport

Terra Nova

Rab

First Ascent

And some of the many individuals without whose help it would never have happened;

Mr Ian Angell of the Scottish Mountaineering Club

Mr John Barlow of Salford & Trafford Health Authority

Mrs Joyce Cuthill & Mr Steve Cuthill

Ms Ann MacDonald

Mr Gordon MacKenzie of the Scottish Mountaineering Club

Dr Clare Summers of Trafford Healthcare NHS Trust

Dr Stuart Talbot of Salford & Trafford Health Authority

And for those we have inadvertently missed out, we thank you.