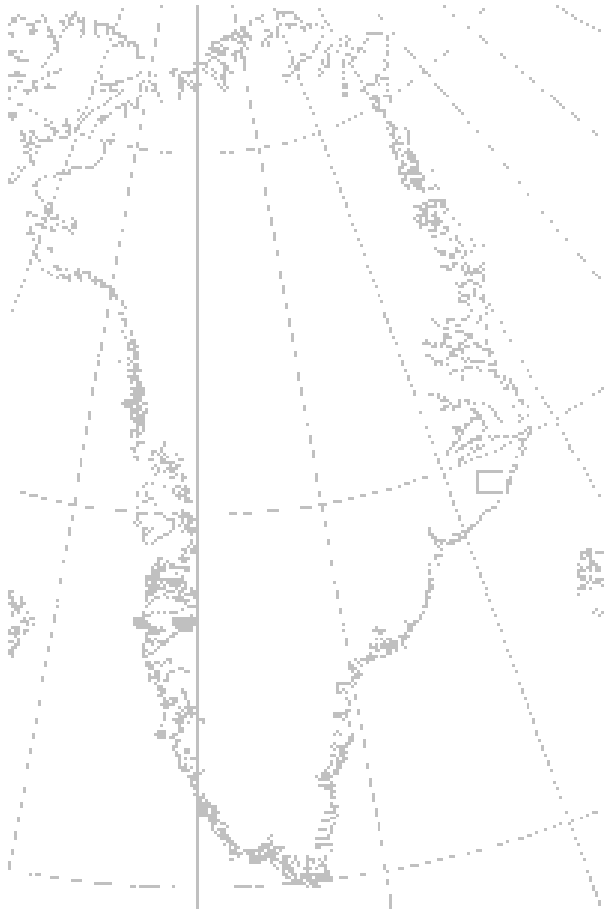


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June 1998

Rignys

Bjerg

Arctic

Eastern

Greenland

Editor - Russ Hore

Forward

It was an entirely innocent remark, "Have you decided where you're going for your holiday John?". The reply came back clear as a bell, "Greenland!". Over the winter months, Russ, Al and John must have been pouring over the maps to come up with such an unusual destination.

When you meet people on a regular basis, and I see these three fairly regularly, there is a tendency to see their mountaineering activities as limited to certain groups of mountains. My encounters with Al, Russ and John have always been in the North Wales area and some of the Scottish Hills. I know they have been to the Alps and even about the trip to McKinley, but some destinations have an ability to astonish and excite and Greenland is definitely one of them. Try as I might, I could not visualise Greenland, I could not name any of its mountains and had little idea of the prevailing conditions or altitudes involved. The one thing I knew was that the 3 of them were immensely excited by the prospect of exploring and climbing in such a remote location. They were fired by one of the most important attributes a mountaineer can have, enthusiasm!

For all of us the joy of mountaineering must lie in exploring areas we do not know. What lies over the next col, where does this path lead, will this pitch go? Even within our own mountains it is this quest for the unknown that holds the most excitement. Sometimes, however, the desire comes to push the boundaries more than usual and Al, Russ and John did just that. We all have it within ourselves to step outside the ordinary and experience such places as The Rignys Bjerg. Within these pages you may find the inspiration to plan your own expeditions, this is not the report of some hardened expedition goers, but the words of enthusiastic mountaineers in an extraordinary place.

Dave Worrall Hon. Chairman OVMRO 1998-1999

Expedition Members (Use the photo's taken at camp 2)



Russ Hore (36)
(Editor)

Started climbing in 1977 around the Wirral. Went to college in Sunderland, which gave easy access to The Lakes, Scotland, Northumberland and the Peak District. Has climbed in most parts of the UK both summer and winter but prefers Cornwall in summer and The Lakes in winter. First visited the Alps in 1980 and since then has made many visits also to the Dolomites and various other European ranges. In 1996 visited Mount McKinley in North America with, amongst others, Al and John. Member of the Ogwen Valley Mountain Rescue Organisation since 1991



John Hulse (43)

Born in 1955 and started climbing at the age of 14 in North Wales. Climbed, scrambled and hill walked extensively in the UK with a trip to Chamonix in the French Alps. I have been privileged to be one of the Team Leaders of the Ogwen MRT in Snowdonia for past 12 years. Took part in 1996 Ogwen MRT Expedition to Denali (Mt. McKinley) and reached 17,200'. Whilst not thinking about the next trip, I work as Technical Director of a Telecom Engineering company in North Wales.



Al Read (36)

Started climbing in 1978 with a trip to the Zillertal Alps in Austria and has made many return visits to the Alps since then. Major expeditions overseas include the 1993 RAF Mountain Rescue Service 50th Anniversary Expedition to Diran, Karakorum and 1996 Mt McKinley with John and Russ. A keen skier he tries to earn a living being an Oceanographer and Weather Forecaster for the Royal Navy.

Introduction

Back in May 1996 a group of us mounted an expedition to Denali (Mount McKinley) in Alaska. We suffered high winds and cold temperatures and unfortunately did not summit. A few of us talked about going back once the memories had faded. It later came to light that a small group of us had a burning desire to go to areas that had not previously been explored. One of the 'last great wildernesses' is Greenland and in September 1997 three of us decided we would investigate the possibility of mounting a private expedition to a remote area of Greenland. We had heard favourable reports about a company called Tangent Expeditions run by Paul Walker who mounted a number of expeditions every year. We contacted Paul and he told us he could provide certain facilities for independent groups wanting to visit Greenland. And so the plan was born. We visited Paul in January 1998 and after seeing slides and photographs of previous expeditions we were hooked.

The major cost of mounting an expedition to Greenland is flights from the United Kingdom to Iceland and on into a suitable area on Greenland. Paul Walker has many years of experience in obtaining the local flights which removes much of the logistical problems of actually getting into an area to explore. Paul identified an area that looked 'interesting' called the Rignys Byrg in Eastern Greenland.

This reports details our experiences and hopefully will prove useful to others wishing to visit remote areas of Greenland.

Area of Exploration

69°06`N -69°16`N and 26°14`W - 26°44`W

Aims and Objectives

Our primary aims were to;

- Explore as much of a new mountainous area as possible,

We feel we achieved a great deal with 14 new peaks climbed, 200km's of skiing and a 300m Grade III ice route.

We collected rock samples and took many photographs of the area.

- Ascend as many new peaks as possible,

14 peaks of around 2000m ascended.

- Record observations on weather, flora, etc.

These are detailed in this report.

- Enjoy the adventure.

There is no doubt about that.

- Document our expedition

If you are reading this I think we have achieved something.

Expedition Diary

Mon 8th

Fly from London Heathrow to Keflavik.

Wed 10th

Fly from Reykjavik to Constable Pynt. 2h55m flight. Spectacular views from flight deck.. We unpacked the plane ourselves. After a meal we sorted out most of the gear.

Thur 11th

Constable Pynt to Rignys Bjerg. This was approximately a one-hour flight heading out over Scoresby Sund. The previous day the pilot had made a reconnaissance pass so flew straight in to a perfect landing on the glacier.

Rapidly unloaded the plane and watched as it disappeared into the distance. That is it for three weeks. We sorted the gear and loaded the sledges. We set off up glacier to our first camp.

After a meal we set off up to the col to the North of our camp (Col 1). Its midnight and John has his first ski lesson. We skied approximately 4 km and returned to camp at 05:00 (12th) and after an unexpected delight of frozen pineapple chunks we retire to our pits.

Fri 12th

Russ: Woke up very hot e.g. 34°C in the tent.

Al and John head off to the North West of our camp to claim our first three summits (S01, S02 & S03). During the ascents Al and John had magnificent views of the Rignys Bjerg area and the distant icecap. We are starting to understand what people had meant when they said distances are very deceptive here.

Sat 13th / Sun 14th

Left camp ~22:30 and skid back up to Col 1 and climbed the easy ridge up to our fourth summit (S04 2055m). Early the next morning Al and John ascend S05

Sun 14th / Mon 15th

John and Al descend the glacier for 1 hour before turning to the north and climbed up to reach a col (Col 2) at 01:00. The trip up the glacier was steady but they encountered some unstable snow bridges low down on the glacier on the western side. Rock samples were collected at the col and they then departed, roped up and on skis, to the East for 1 hour. Turning to the South they made their way over another col (Col 3) and began to descend. An 80m ice cliff was encountered and they had to continue down the centre of the glacier to meet a rock outcrop where they then cut back right under the ice cliff. This ramp was initially identified from the aircraft when flying into the area but John needs some reassuring that it was there. A quick descent down to the glacier followed, as did an increasingly hot walk/ski back to camp 1 in snow that was getting soft and wet. This was an estimated 24km day with lots of magnificent views of the area.

Mon 15th / Tue 16th

Al and John returned after successfully finding a route through which we would return on the 30th.

Tue 16th / Wed 17th

Rest day. Al and Russ identified a possible climb up a snow gully to the South of camp 1.

John is going to do a carry up to the col to the North of camp one to find a suitable place for camp two.

Wed 17th / Thur 18th

John sets off to camp two with a large load. Close to camp two John climb another peak (S06)

In the afternoon, Al and Russ ski to base of a snow gully South West. Alternate leads produce a fantastic route with a sting in the tail. The last pitch is 45m of steep blue ice. This led to a very sharp, horizontal ridge. The slope on the other side is steeper than the route they had just climbed but luckily not as long. Four abseils off screws and ice bollards lead to a large bergschrund where they are met by a much relieved John who had been watching there antics through binoculars. During the climb two snow falcons nesting on a nearby peak had watched Russ and Al. Hence the name of the route (Snow Falcon Gr.III 1000'). An epic day.

In the evening, John and Al move up to camp two with one sledge.

Thur 18th / Fri 19th

Russ moves up to camp two with the other sledge. A four hour haul arriving at 00:05 on the 19th.

John and Al are just leaving to climb two peaks near to camp (S07,S08). S07 was an easy snow plod about 45 mins from the camp. S08 was a more technical ascent with some mind-engaging exposure down a long ice slope to the glacier. S08 finished with 30m of "a cheval" moves up a narrow snow ridge to a classic rock summit.

Fri 19th / Sat 20th

Ski over to peak near camp (S09). Sporting pitch through a cornice leads to an easy snow ridge. Spectacular views down onto eventual site of camp three. John returns to camp two.

John met a member of the other group as they were moving their camp towards Col 2.

Al and Russ attempt peak adjacent to S09 but the temperature is dropping rapidly and the wind is picking up so the abandon there attempt.

Sat 20th / Sun 21st

Skied down to small peak below camp two (S10). Many interesting rock samples.

Sun 21st / Mon 22nd

Moved down to camp three in the middle of a large glacier. The weather looks to be changing so we build large double walls around the camp. Still very cold.

Later on we are in a 'white-out' as the weather closes in.

Mon 22nd / Tue 23rd

Enforced rest day. Whiteout and it is snowing. Occasionally get out to dig tents and kitchen out.

Tue 23rd / Wed 24th

It snowed all night. 0.6m of fresh snow everywhere. We have finished all the books and John resorts to reading the manual for Russ GPS.

Visibility is improving.

Wed 24th / Thur 25th

The weather has improved. Still a strong wind and we reinforce the snow walls. Dig out the sledges and pack the kit.

Al and John decide to stretch out and get some exercise in the improving conditions. A 7km ski towards the route identified as most viable to gain the icecap provides much entertainment with both of us being blown backwards at times by the winds screaming off the icecap. The chosen access route looks viable. Blue skies signal an imminent move of camp.

We will move to camp four this afternoon.

Thur 25th / Fri 26th

A long day skiing down glacier to camp four. Forced to move south on glacier due to long crevasses. Strong winds force us to make for the shelter of a ridge coming down to the glacier.

The move to Camp 4 was exhausting and the pulk handles cause grievous bodily harm to John's pelvis and his Montane jacket.

Five snow falcons circling over peak above camp.

Fri 26th / Sat 27th

Moved up to camp five. The move to Camp 5 was very picturesque with impressive mountains all around. Quite easy glacier work once the area around Camp 4 had been cleared.

Good camp near Northern edge of glacier with many peaks around it. We can see where John and Al had previously reconnoitred and feel happy we can complete the circuit.

Sat 27th / Sun 28th

John sets off to attempt a peak on the other side of the glacier. (S11). John was actually beaten back by the peak to the south of S11 and so retreated intact to a lesser objective of the rocky ridge with an obvious peak. Poor rock conditions make solo work quite thought provoking

Just in front of camp is a triangular peak standing out in the sun. Russ and Al ski over to base of ridge and climb twelve superb pitches to a small summit (S12 2099m) with fantastic views of the surrounding peaks. We can see icebergs floating in the sea. Two members from the other group were suprised to cut across our tracks. They were embarking on a monster circuit around the area. Russ and Al on top of S12 at a distance of 3km away heard the conversation with John!!

Sun 28th / Mon 29th

Russ skis over to a small peak (S13). An easy snow ridge leads to a summit ridge with long drops of the far side. On the summit Russ finds lichen and a small plant.

John and Al ski up the glacier to climb S14. They find two frozen ponds in a large wind sculpted snow hole just below the summit. Al ascends to summit on crumbling rock.

Mon 29th / Tue 30th

Russ and Al haul a small sledge up to col leading back to the landing zone.

John skis back down glacier and circumnavigates S12 reconnoitring a possible alternative route back to the landing zone. This trip resulted in the crossing a large glacier with magnificent views of the huge North face of the mountain that dominates the area. Major crevasse near NW ramp of S12 cause John to retreat back onto the glacier for another 1-2km to find another route back up to the South of S12 and then back to the camp.

Tue 30th / Wed 1st

Haul the large sledge up to the col. Lower both sledges over the bergschrund and Russ and Al ski down the glacier with them. Al returns up glacier to follow John on his circumnavigation back to the landing zone. The circumnavigation was a real adventure with 2 new glaciers and 1 high pass explored. The distance covered was 34km, with at least 20km on ground we had not explored before. Numerous opportunities all around were noted.

Russ hauls large sledge back to landing zone. Skiing on a hard crust over soft snow Russ unexpectedly breaks through vanishing up to his waste and being pushed under by the sledge. After a few minutes of struggling Russ frees himself.

When John and Al returns we build a camp and sort gear. We are expecting the plane to arrive 10:30 on the 1st.

Wed 1st

It is raining and the cloud is down to just above the summits. All of us don't want to sit out another storm so hope the plane can get in.

The light is very flat making landing difficult so we place bin liners and kit bags down the glacier to mark a landing strip.

At 11:30 the plane makes a smooth landing and we are off back to civilisation.

We spend two days at Constable Pynt before returning to Iceland. A good time to wind down and relive memories. Some interesting flora found and identified 8 species around the airstrip. List to follow.

Logistics

One of the main challenges of Greenland mountaineering is getting both expedition members and equipment safely to and from the target area. We heard several good reports about Tangent Expeditions run by Paul Walker and asked him for details. Following a number of meetings, we convinced ourselves that Paul had the contacts, skills and experience to assist us. Paul provided us with all the flights, permits, fuel, aerial photographs and shipped much of our kit out to Greenland by freight.

Virtually all our mountaineering equipment, food, tents etc. needed to be sent from the UK about 5 weeks prior to our departure. We took great care in packing the equipment to ensure that it would arrive safely. To ease transport and identification, John obtained 8 triple walled cardboard boxes, which were heat sealed and then double-secured with plastic cargo straps. The content of the boxes were carefully arranged to minimise the overall impact if one box 'vanished' in transit. Russ used two medium 'blue barrels' which were taken into the mountains with us and proved invaluable as seats, tables etc. Although Paul provided freight labels, we marked each item with the expedition name, UK contact phone number and an e-mail address. Fortunately, all the items arrived in Greenland without loss or incident. The total weight of the freight was 156kg.

The choice of equipment was simplified by our Alaskan experiences and much of the same set of items was used again. As the cold in Greenland during the summer is much less than the cold high in Alaska, the extreme cold weather kit stayed in the UK. (See attached list of kit taken by John)

Food is a favourite topic and a visit to a cash-and-carry warehouse resulted in a small mountain of food being purchased. After the initial packing, it became apparent that the weight of food was excessive and that we would have to reduce it by about 10kg. This was achieved by being ruthless. However, we found that we used only about 75% of the food we took as the daily activity levels and temperatures were far less extreme than we anticipated. (See attached list of food taken)

Trip Timing

The expedition would possibly have been better a few weeks earlier as there was a significant loss of snow cover during the 3 weeks that we were in the Rignys Bjerg (June 11 to July 1).

At least 3 weeks is needed in the area as there is so much to do and the distances are quite significant.

Pre-requisites

- John had virtually no skiing experience prior to the trip and this proved to be a real disadvantage on some days that had any significant downhill work.
- To get the most benefit from the trip, the ability to be comfortable on grade 2/3 snow and ice is important if anything other than snow plodding is planned.
- Basic glacier skills such as crevasse rescue techniques and threat awareness are essential, as some of the crevasses are enormous.

- To get the most out of the trip, a good level of mountain fitness is essential. The load hauling can be quite tiring over some of the long distances between camps.
- The number of people in the group needs some care. In our expedition, there were 3 people, which was not ideal as it is not practical to put a rope of 3 people on technical routes. This resulted in the group not being able to pursue the same technical challenges. In reality, Al and Russ tended towards the more technical work and John tending towards area exploration. Tent accommodation is less than ideal for a group of 3 as we used 1 Terra Nova Hyperspace and a Terra Nova Super Quasar. This meant that Russ was by himself in one tent rather than sharing a tent, which is far more sociable and provides opportunities to chat and discuss issues.

Health

There was no doctor in our expedition group and so we felt it appropriate to obtain further skill training prior to the trip. This additional skill training was obtained by all three of us taking, and passing, the Advanced Emergency Care Course for Mountain Rescue at RAF Valley. The course was run by a superb set of instructors including:-

- Marion Waters (Director of the A+E Department, Countess Of Chester Hospital)
- Brian Waters (Anaesthetist at Glan Clwyd Hospital),
- John Butterworth

The superb course was extended with skills such as suturing that could be vital when dealing with serious wounds in remote places. Fortunately I did not have to try to remember and apply the horrendously complex surgeons knot !

We were fortunate that during the expedition none of us suffered any serious illness or injury. Russ was unlucky to suffer from recurring blisters, which caused him some problems during the trip. (Russ: I was wearing a pair of boots which had never given me blister even over 7+ years of use so I can only put this down to the action of skiing.) Al was twanged on the knuckle by one of the elastic bungee cords on the Rab windproof jacket. This seemingly inoffensive item badly bruised one of his knuckles. John tried to juggle with a pan of boiling water and lost, resulting in minor scalds. Both Al and John also had the odd blister but nothing that really stopped progress.

John had real problems with the harness of the larger sled, which seemed to rub on the side of the pelvis. This may sound trivial but the bruising was sufficiently great to have made a longer trip very painful. The moral of this story is that if a major expedition using pulks is planned, ensure that you have come to an understanding with the harness before the trip and make certain it suits you. The Snowsled harness that we used was acceptable on both Russ and Al, but became painful for John after several hours. The sled harness system managed to abrade through the outer skin of Johns Montane pertex jacket.

Rescue Logistics

Tangent provided us with two Personal Locator Beacons. (PLB's) which could be activated (But not deactivated!!) and would transmit on rescue frequencies to either passing jets or satellites. Having said that we saw very few passing high altitude transatlantic jet aircraft. The first was on day six.

The PLB's should work but were obviously untried. Quite clearly, as soon as the PLB is activated, your expedition is over.

Whilst we were waiting to be picked up on the final day we heard VHF radio traffic (118.2 MHz) from aircraft in-bound to Constable Point from Iceland on Constable Point Tower frequency. These VHF frequencies are line of sight and so high locations with the sea visible will be needed to get reliable communication. In emergencies, it is not recommended to leave the area to head for the coast, as the lower glaciers are very complex and highly crevassed towards the sea. Any overland trip to Scoresbysund would be a major undertaking. If in doubt, get onto one of the major glaciers, stay put and wait.
Constable Pynt

Constable Pynt

As an expedition staging base Constable Pynt is ideal, made more so by Benny Mouzynsky, the airport manager. Reading in past expedition reports this was not always the case but in recent years the exploration companies have moved out and it is currently being run by Benny. You get a warm welcome from him when you arrive as he helps to unpack the aircraft.

The facilities at Constable Pynt are excellent with bed and breakfast to full board accommodation available. In the accommodation blocks there are washing machines and hot showers. The toilets have a certain novelty value and bring a new meaning to plastic wrapped! Overnight costs were 260Kkr bed and breakfast and a midday meal cost 104Kkr and amazingly you can pay by credit card. It is possible to camp at Constable Pynt on the areas adjacent to the airfield but unless you were forced to stay there for a long period it doesn't really warrant unpacking all the kit. We made use of the hangers for the final kit pack prior to flying on to the ice and for sorting kit on our return.

We managed to buy stamps in Constable Pynt for postcards but they then have to be sent to Scoresby Sund to be franked and then returned. Scoresby Sund is some 20 minutes flying time by helicopter away from Constable Pynt at a cost of about £20 per person one way. There is a telephone in the accommodation block that you can use to call the UK but it is an expensive satellite link, whichever way you decide to call. (Even using Cable and Wireless it was over a £1/min.)

The Danish Meteorological Institute based in Kangerlussuaq faxes through daily weather forecasts to the airfield tower. These take the form of an aviation significant weather chart with the frontal features shown.

The airfield itself is quietly busy with a number of flights a day arriving and departing (subject to the weather). It is used as a staging post by various expeditions, not only mountaineering but geological survey teams, wild life photographers and paleontologists to name but a few. It is often used as a refuelling stop for light aircraft transiting to Europe from the USA. Once the snows have melted the area is like a desert with vast expanses of broken brown-grey gravel and dust is easily lifted if any wind blows. Mosquitoes were not a particular problem in early June but by July they were starting to attack with a vengeance and it was very useful to have an effective insect repellent when working in the hanger areas on kit.

Use Address:

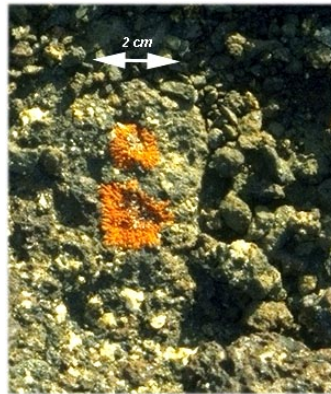
Flyvepladchef (Currently Benny Mouzynsky)
3985 Constable Pynt
Greenland

Tel: 002 99 993850
Fax: 002 99 993951

Flora & Fauna

The Rignys Berg region is a particularly harsh environment of sun, rock, snow and ice. There is little apparent wildlife with no obvious food chain to sustain any animals. The plant life is very restricted with red, purple or orange lichen being the most common on exposed rock outcrops and summits.

However, a few leafed plants were observed, some grass being found next to dripping water on the Snow Falcon climb. They were a drab green in colour, 10-15cm in height based on a broken, gravelly soil exposed to strong sunlight during the morning period only. Some two to three meters away from these grasses a small dusty grey-green leafed plant was seen with numerous tiny white flowers. There was water weeping down the rock wall behind the plant and the site was also exposed to the sun from early morning to early afternoon. Further investigation was not possible due to the dangerous nature of the rock around the site. The plants had marginal shelter from winds, except those from the east or northeast. A further small leafed plant approximately 3cm high was also seen on a gravelly ridge later in the trip (S13). A small patch of lichen was observed near S10. The patch was approximately 2cm in diameter and of bright orange colour.



A circular patch of purple lichen approximately 14cm diameter was also observed near the summit of S13.

Bird life was also very sparse but gyrfalcons were observed on 3 occasions. A pair were seen on the 16/6 close to a subsidiary summit of Snow Falcon peak and a further pair after the bad weather on the 24/6 (Camp 3) heading to the north-east. Later on the 25/6 a total of five gyrfalcons were seen from camp 4 battling westwards against a strong head wind. A small black coloured bird was seen on the 23/6 at Camp 3 flying a meter or so above the ice. There was a strong southwesterly wind at the time, lifting spindrift but visibility was generally good outside of the snow flurries. Scraps of food were left in the open and noted to be missing during the day but no birds were seen to take it.

No big animals were seen during the expedition but a set of small dog like foot prints were found in the fresh snow outside the tents at camp 3 overnight of 23. These footprints were quickly covered by the snow but they could have been from an arctic fox..

Geology of Area

Most of the area consists of layered basalt. This gave rise to solid bands separated by very poor rock. On the way from camp five back to the landing zone a pocket of Stilbite was discovered.

Weather Conditions

Blue sky and sun !

Date	Location	Altitude/m	Time	Pressure/mPa	Temp/°C
10 June	Constable Pynt	8	23:20	1013	-
11 June	Landing Zone	1551	15:00	840	-
11 June	Camp 1	1635	18:00	833	1
12 June	“	1635	12:15	833	22
12 June	“	1635	16:17	833	13
14 June	“	1635	20:15	835	12
15 June	“	1635	11:06	842	19
16 June	“	1635	00:39	842	-3
16 June	“	1635	14:11	847	25
16 June	“	1635	21:07	842	14
19 June	Camp 2	1960	08:25	812	-
19 June	“	1960	19:12	812	-
20 June	“	1960	09:11	809	-3.5
21 June	Camp 3	1690	08:07	836	10
21 June	“	1690	18:59	839	2
22 June	“	1690	11:12	838	3
23 June	“	1690	07:13	837	5
24 June	“	1690	02:54	839	2
24 June	“	1690	16:34	842	27
25 June	Camp 4	1520	07:45	860	0
26 June	Camp 5	1670	13:31	844	-
27 June	“	1670	08:49	842	-
28 June	“	1670	04:13	842	-

Future Opportunities

The Rignys Bjerg area has a great deal of potential for future mountaineering expeditions. Many peaks were not climbed by either of the 1998 expedition teams. The most obvious opportunities for challenging alpine peaks are the highest peaks in the area at approx. 3200m. There are some major peaks to the south west and west of the area that looked very serious undertakings. Numerous peaks in the ridgeline to the north east of camp five will provide some excellent mountaineering.

The approaches and eastern side of the immediate Ice Cap are unexplored and will provide some superb exploratory opportunities.

Winners & Losers

John personal Losers:-

1. Heavy gauntlet Extremittes Mitts caused too many problems due to lack of "feel" and dexterity when climbing. Fingered ski gloves would have been fine.
2. Lack of ski skills. This caused many of my trips to be extended in both time and energy. Greenland is no place to learn to ski.

Winners

1. GPS units
2. Snow stakes,
3. Duvet jackets around camp

Point of Contact

Tangent - Paul Walker

References

Appendix A - Equipment

Group

Tents

Manufacturer Terra Nova Equipment, Derbyshire, England

Model 1) Super Quazar

Weight 4.4 kg

2) Hyperspace

4.4 kg

- 1) Super Quazar

This proved to be a superb tent. Although it looks small from the outside it has plenty of room to sleep two people in comfort with kit.

This model does not have a snow valance fitted as standard. Although this was not found to be a problem in practice we recommend one be fitted if possible. If high winds are

possible snow blocks can be placed on the valance for added security but care must be taken, as this tends to catch snow and pile it up between the blocks and the tent.

We used the snow stakes for the main guys. Initially these would melt out of the snow due to the heat. We found placing a snow block on top of the stake prevented this.

(Another useful tip is to dig a footwell in the porch of the tent. It may sound like a simple thing but it living in a tent much more pleasant. It acts as a 'cold-trap' during cold weather and makes it much easier to enter and leave the tent. It also makes putting on boots easier as you can sit in the tent with your feet in the well.)

GPS

<i>Supplier</i>	<i>Garmin</i>
<i>Model</i>	<i>1) GPS-45</i>
<i>Weight</i>	<i>275g Including batteries</i>
	<i>2) GPS III</i>
	<i>255g Including batteries</i>
	<i>Software version 2.05. Land data 1.01 European unit</i>
	<i>3) 12XL</i>
	<i>269g Including batteries</i>

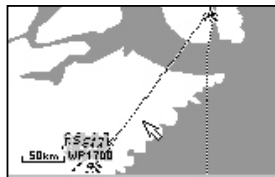
- 1) GPS-45
- 2) GPS-III

Russ has owned a GPS-45 for two years and 'obtained' the III just before the trip.

Technical details

The GPS-III uses a 12-channel receiver. It has an external antenna the same as the GPS-45 with a slightly larger backlit LCD screen. It takes four AA batteries. Garmin estimate 8 hours use from a set of batteries but we did not change the batteries during the trip. (Obviously the unit was only switched on when required). As with all LCD displays the update speed slowed under cold conditions but the unit was not adversely affected. The unit has a proprietary shaped serial port through which data can uploaded or downloaded to a suitably equipped computer. A program has been developed ([Waypoint+](http://www.tapr.org/~kh2z/Waypoint/) <http://www.tapr.org/~kh2z/Waypoint/>) that allows screen dumps to be taken as shown below.

This small handheld GPS contains maps of the earth, to varying degrees of detail depending on location, from approximately 75° North to 60° South.



This screen dump shows Constable Pynt in the top right and our area of exploration in the lower left. The two lines show the track of the plane out of the mountains and back to Iceland..

3) 12XL

This is a rather basic unit, however it is a 12-channel system that has a very fast acquisition time and is quite economical on batteries. Some of the facilities are quite limited such as the six-character waypoint name, the inability to pan through planned routes etc. Otherwise this is a good basic unit.

Stoves

Supplier MSR
Model XGK
Weight
Model XGK-ShakerJet
Weight

No significant problems of any sort were experienced with the MSR's. A little cleaning and occasional TLC was all that was required. A stoveboard is an essential item. Russ found two pieces of fibreboard at Constable Pynt on the way out which made excellent stove board preventing the stoves melting into the snow. John had an XGK stove, Al had the XGK-Shaker

Fuel

Initial discussions led us to believe that stove fuels could be problematic with us probably having to use aviation fuel rather than the beloved Colemans fuel. Samples of the JET-A1 fuel were obtained and a series of smokey, smelly experiments were conducted. We found the JET-A1 fuel to be a difficult and dirty fuel to use, even with the superb MSR XKG stoves. A significant blob of priming paste is needed and then much patience to persuade the fuel to ignite and the stove to roar. This is in total contrast to the much more user-friendly Colemans fuel.

Obtaining fuel in Greenland proved problematical. The main problem is getting fuel to Greenland. During June the sea ice prevents ships reaching Constable Pynt and airlines are very wary about flying flammable liquids without copious paperwork. Paul Walker indicated that he would be able to provide a supply of Heptane fuel in Greenland. It is a form of aviation fluid called Heptane that is said to perform in a similar way to Colemans fuel. However, as we had no experience with the heptane fuel, and had not actually seen the heptane, we took several tubes of priming paste to persuade reluctant aviation fuels to ignite. In reality, the heptane fuel was an easy fuel to use that required no priming paste and was efficient. It tended to burn hotter than Colemans but was very clean.

Paul purchased an oil drum of this fuel from the airport and we decanted this into Sigg bottles and 5l fuel cans to carry into the mountains. We took 18 litres of fuel into the mountains and brought back 5 litres. This low rate of fuel usage was achieved without any rationing. We experienced no problems with blockages etc.

Miscellaneous

Snow saws

Supplier LIFE-LINK International Inc. Jacksons Hole, WY USA.
Model LIFE-LINK
Weight 190gm

After our experiences on McKinley where we made extensive use of snow saws, we feel these are invaluable. The saws were used even though the snow conditions were not especially consolidated.

At all our campsites we built walls to surround the tents and 'kitchen'. At camp three the walls were up to one metre high. To provide further protection a second wall was constructed approximately 2m from the first on the upwind side. This tended to slow the wind and any snow was dumped between the walls. After the storm there was no sign of the walls from outside of the camp i.e. we had over a metre of snowfall, but inside the camp the tents were relatively clear of snow.

The kitchen area was constructed by cutting blocks, which were used to build the walls, to form a hole approximately 1.5m deep and large enough to allow three people to stand in comfort. With 1m walls around it, the cook (I hesitate to use the word Chef) was almost entirely protected from the wind.

Snow Shovels

<i>Supplier</i>	<i>Voile Backcountry Equipment</i>
<i>Model</i>	<i>Extreme Model</i>
<i>Weight</i>	

As with the snow saws we feel these are essential.

Rifle

A rifle was taken in case of polar bears. Fortunately, there was no sign of any bears, nor any evidence of a food chain that might sustain such a large creature. The rifle ended up in the bottom of the main sled for the duration of the trip.

Skis

John had Fischer Aplin Extreme Tour skis with Silvretta 404 bindings. No problems were experienced (that were not of my making).

Snow Stakes

Another indispensable item with a multitude of uses. The stakes we took were approximately 0.8m long formed from 25mm aluminium angle. They had a number of holes drilled along their length which were used for tying tents to, clipping 'crabs' into, threading tape through etc.

The normal snow pegs sold in the UK are of little use during a storm and the middle of an arctic glacier is not the place to find this out. As mentioned above these would tend to melt out of the snow if left uncovered so a snow block was placed on top to take the heat of the sun.

These proved very useful for belays on snow slopes though should be placed with care and possibly used in combination with other devices e.g. deadmen/deadboys.

Sledges

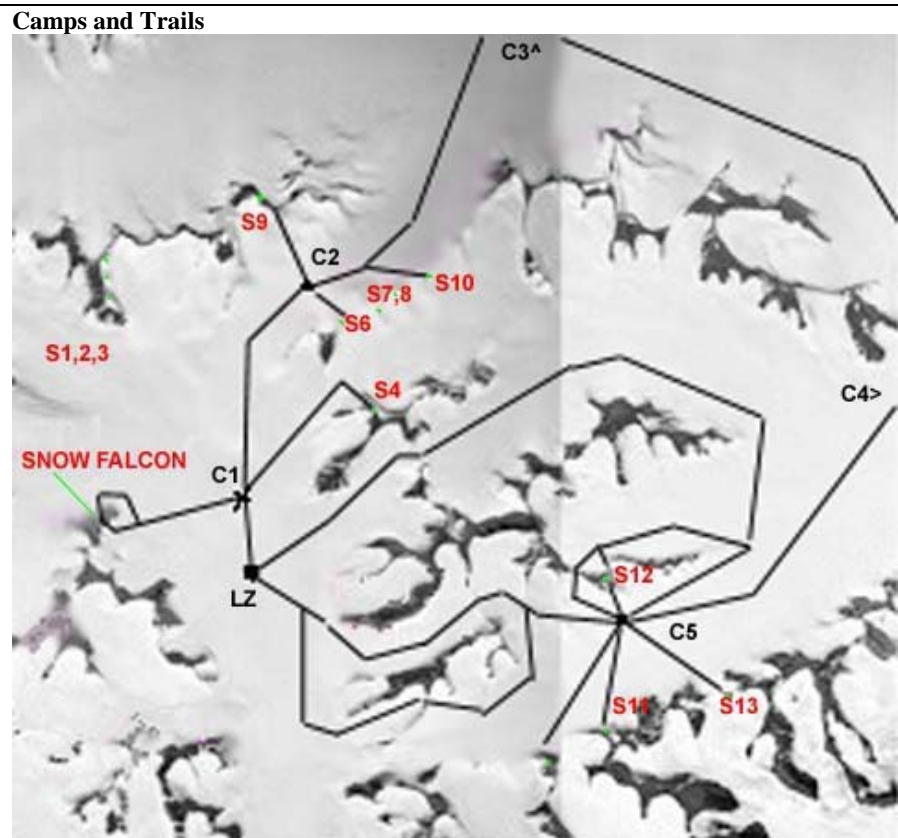
Paul Walker – Tangent Expeditions, supplied these.

Binoculars

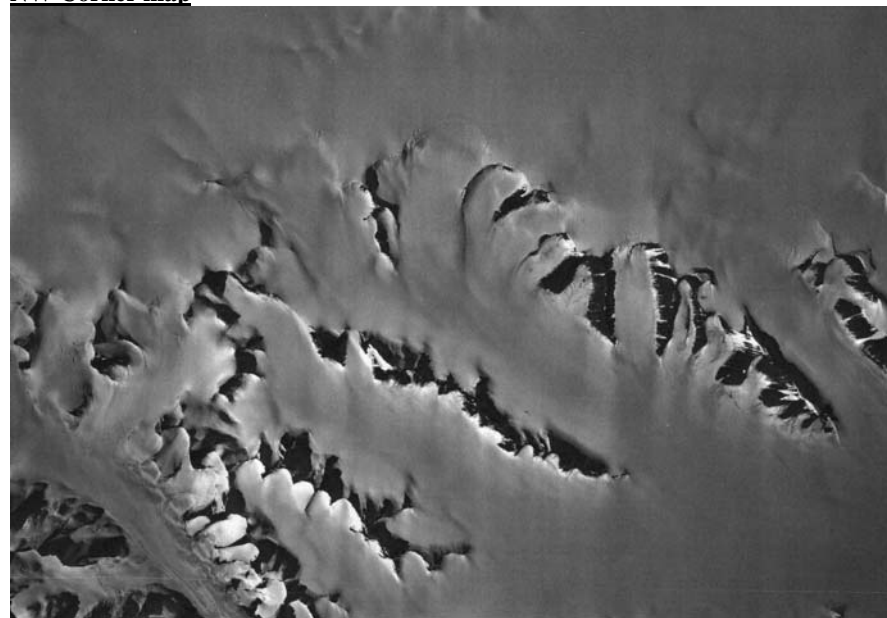
John had a set of miniature 10x25 binos and these proved invaluable for route finding and evaluation. A sturdy pair would be strongly advised as the binos took a lot of punishment in the pouch on the sac harness.

Appendix B - Scanned maps with areas covered, peaks climbed, suggested names etc.

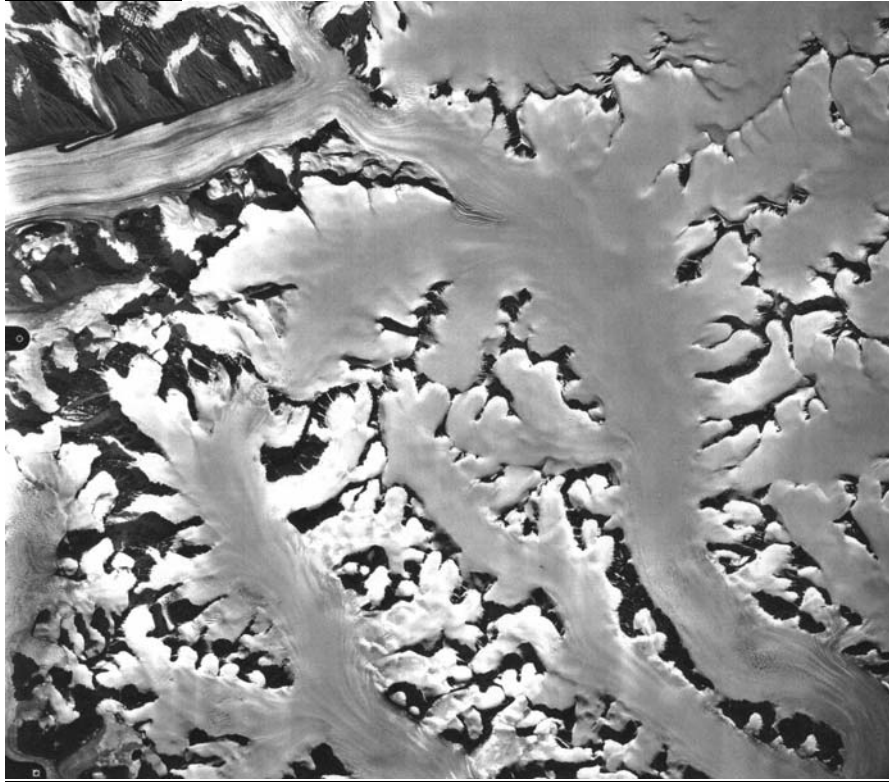
Camps



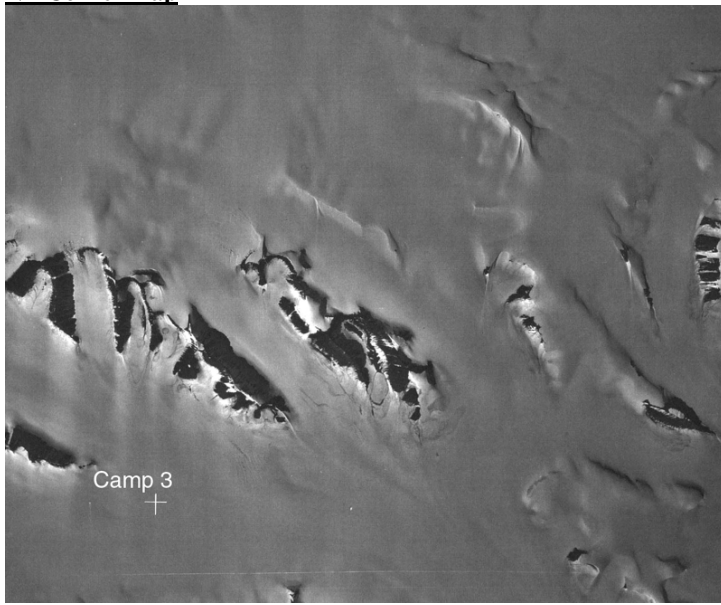
NW Corner map



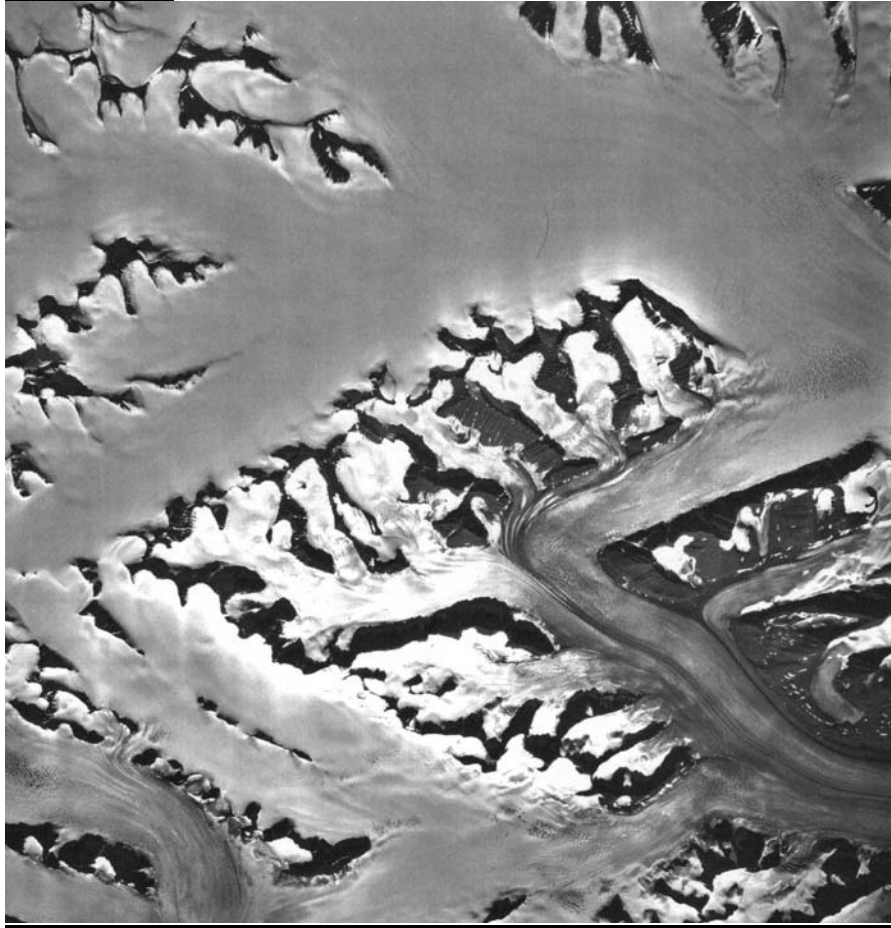
SW Corner map



NE Corner map



SE Corner map



Appendix C – Camp and Summit locations

	D	M	S	D	M	S	Alt/m	
L-Z	69	7	28	26	31	59	1551	
Camp 1	69	8	2	26	34	15	1635	
S01	69	9	8	26	42	5		
S02	69	9	21	26	42	47		
S03	69	9	27	26	43	9		
COL-1	69	10	31	26	32	41		
S04	69	10	18	26	32	21	2055	
COL-2	69	9	6	26	24	26		
Camp 2	69	11	13	26	36	19	1960	
S05	69	11	17	26	34	13		
S06	69	10	45	26	35	4		
S07	69	11	12	26	35	14		
S08	69	11	9	26	34	49	2115	
S09	69	11	47	26	38	59		
S10	69	11	41	26	34	4		
Camp 3	69	15	29	26	38	59	1690	
Camp 4	69	15	34	26	17	32	1520	
Camp 5	69	10	32	26	19	38	1670	
COL-4	69	9	50	26	28	12		
S11	69	9	13	26	16	47		
S12	69	10	36	26	21	7	2010	
S13	69	10	50	26	14	45		
S14	69	8	9	26	18	33		
Camp 6	69	7	25	26	32	10	1550	

Appendix D - Acknowledgements

Paul Walker and Tangent Expeditions for the excellent and invaluable information and assistance.

RAJ at Gwasg Ffrancon who printed a great number of postcards for our trip.

Colonel John Muston (Retired) who provided us with a large scale map of the area.

Distribution

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