

EAST GREENLAND 2007 FULL REPORT



Approved by the BMC, with kind support from The Gino Watkins Memorial Fund, the Arctic Club, the Alpine Ski Club, the Andrew Croft Memorial Fund, the Mount Everest Foundation and First Ascent.

CONTENTS



BACKGROUND & INTRODUCTION	02
EXPEDITION SYNOPSIS	03
MEMBERS OF THE GREENLAND 2007 EXPEDITION	05
GETTING THERE: AN ARCTIC ODYSSEY	07
GREENLAND ICE CAP & POACHERS PEAK	12
THE PILOTS	14
THE 24 HOUR DAY	15
SOLSTICE PEAK	16
DAVID'S LOG	19
SGURR THEARLAICH	20
DAVID'S LOG	22
SNOW CONDITIONS	23
SNOW CREATIONS: SNOW KARZIS & OTHER KONSTRUKTIONEN	24
MEDICAL REPORT	26
EXPEDITION FOOD	26
ENVIRONMENTAL POLICY	29
FUTURE EXPEDITIONS	29
FINANCIAL STATEMENTS	30
ACKNOWLEDGEMENTS	31
APPENDIX	32
ROUTE MAP	
EMERGENCY PROCESS	
PERSONAL KIT	
TWIN OTTER LOAD	
FOOD LIST	
MEDICAL LIST	

EAST GREENLAND 2007 BACKGROUND & INTRODUCTION



DAVID: Our trip to Greenland was the culmination of over a years planning. After initially discussing the idea with Paul Walker of Tangent Expeditions, who provided logistical support, we settled on an area known as the 'Sortebrae'. This is not the Sortebrae glacier, but is an area of mountains to the West of that glacier, our chosen landing site being a little over 1 days ski from the Borgetinde massif, and somewhat further from Ejnar Mikkelsens Fjeld (EMF) - refer to the enclosed aerial photographs for more detail.

Our landing site was chosen for the access it gave to a variety of completely unexplored glaciers and peaks. Aside from previous ascents of EMF and Borgetinde (two each, prior to this season) a Tangent Expeditions group had visited the North Eastern section of the Sortebrae mountains, where they border the icecap (2006), and Bob Dawson's group had visited a range to the North of our chosen position (2003). There was plenty to choose from, and we envisaged concentrating on making first ascents of unclimbed peaks, with possible forays to climb Borgetinde.

Immediately prior to our arrival, two groups were in the vicinity. One group's objectives were ascents of Borgetinde and Ejnar Mikkelsens Fjeld. Successful in the former, the latter peak was unclimbable due to avalanche conditions. A second group (referred to in the following text variously as 'Rosie's group' or as 'Chick's Unleashed') were also based within 1-2 days travel of our chosen landing site; both groups were significantly delayed in the mountains due to the events that delayed our arrival - bad weather, mechanical failure and snow conditions caused the Twin Otter to sink into the glacier on landing.

Ours was not designed to be a mobile expedition. While we were well aware that we may not be able to land in our chosen site, there was much to choose from, and the game plan was to establish a permanent base camp at our landing site (which would also be our pick-up point). If the site was unsatisfactory, we would move to a better climbing base. We also planned longer trips, though lightly laden - e.g. an attempt on Borgetinde or to the icecap. What we failed to take into account - at least with any sense of real danger - was the possibility of the two halves of our group being dropped a significant distance apart, or the sheer distance our expedition would finally cover.

For one reason and another (detailed in the expedition synopsis) each team member probably covered over 200km (an approximate figure). Group I (the first half of the team to land) covered 60km alone before the team was reunited, with Group II covering something in the region of 40km in the same period. The whole team also had to travel another (unexpected) 40km to be collected. While

PEAKS CLIMBED/ATTEMPTED	EXPEDITION MEMBERS	DATE	CLIMB GRADE
Pile of Stones (2706m, 69°10.7'N, 27°46.9'W).	Tracey, Alasdair, Dave	16 June	PD?
Poachers Peak (2773m, 69°09.6'N, 27°43.9'W).	Tracey, Alasdair, Dave	16 June	PD?
Unnamed peak accessed from icecap	Jonathan, Rob, Clare, Malcolm		Scottish II?
Solstice Peak (2222m, 69°07.8'N, 28°04.3'W).	Tracey, Andy, Dave	20 June	PD?
Unnamed Peak (Retreated from c.100m below summit at 2285m, 69°06.7'N, 28°04.7'W).	Tracey, Andy, Dave	21 June	PD (Poss IV to summit)
Unnamed Peak at entrance to Borgetinde glacier (Approx. Not summited)	Alasdair, Andy	26 June	Unknown
Unnamed Peak in Borgetinde massif (2842m, 68°51.8'N, 28°14.6'W).	Tracey, David	27 June	PD+
Snow peak on icecap (Position not recorded - in vicinity of 69°14.2'N, 28°52'W).	Malcolm, Jonathan	29 June	Unknown
Snow peak on icecap (Position not recorded - in vicinity of peak detailed above).	Rob	29 June	Unknown

some of the travel was lightly laden and on exploratory forays which included climbing, much of the travel was with fully loaded pulks - in some cases (after rescuing the equipment another group was forced to abandon) we were pulling two expeditions worth of equipment. We were also forced to move basecamp on more than one occasion due to deteriorating snow conditions.

The above serves to demonstrate that the conditions, and the work entailed by those conditions, were not as we had hoped, or even anticipated. The unseasonably warm conditions we (and those preceding us) experienced for much of our trip were mainly responsible - see Andy's later piece on snow conditions for useful detail.

However, given the conditions we faced, our expedition nevertheless achieved some worthy objectives and explored a considerable (previously unvisited) area. Given the constraints in which we were forced to operate, the expedition was an undoubted success, with not only success in meeting climbing objectives, but in giving all members an experience we are unlikely to ever forget.

EXPEDITION SYNOPSIS



2 JUNE:

UK - Keflavik. Group I take taxi transfer to Reykjavik and internal flight to Akureyri. Board Twin Otter, intending to fly to Isafjordur, collect kit and push on to Greenland. However, Twin Otter nose wheel steering breaks on takeoff from Akureyri. Remain in Akureyri overnight. Group II take internal flight from Reykjavik to Isafjordur in slower time.

3 JUNE:

Nose wheel fixed, but occluded front prevents travel to Greenland. Both groups remain where they are.

4-5 JUNE:

Still bad weather, no flying. Weather remains bad on 5th, preventing travel to Greenland. A group bound for Dronning Louise Land (DRL) are at Isafjordur with our Group II. They were due to travel North once our teams were in Greenland. As the weather is better for flying North, Group I decide to swap with them, and rejoin Group II in Isafjordur. Group I fly to Reykjavik.

6 JUNE:

Group I continue their journey to Isafjordur. Icing prevents the Twin Otter from flying anywhere, so all groups remain in Iceland. There are three teams in the mountains awaiting pick-up, some now 4 days late.

7 JUNE:

Group for DRL depart. Get as far as Constable Point, but can go no further due to fog. After dropping this group in DRL, the Twin Otter will fly direct to East Greenland, collecting Rosie's group and returning to Isafjordur for us.

8 JUNE:

Twin Otter bursts tyre landing to refuel on way to DRL. New tyre needs to be flown out.

9 JUNE:

Things looking up. Twin Otter is fixed, flies to DRL and then returns direct to us. Group I will fly this afternoon, Rosie's group will be extracted, and Group II will follow later today. We land c. 19/2000. Unfortunately Twin Otter crashes into patch of soft snow at our landing site and is partially buried in glacier. Spend the night digging it out. Coastguard helicopter arrives with reinforcements.

10- 11 JUNE:

Coastguard helicopter arrives with reinforcements. Twin Otter departs successfully at 0600 on 11 June. Returns with Group II, who are landed almost 40km from Group I basecamp.



11-13 JUNE:

Group I and II reunion, establishment of base camp.

14-17 JUNE:

After a rest team splits into two parties. All parties make successful journey onto the icecap, and three new peaks are climbed. Return to find river cutting off base camp.

18-20 JUNE:

Move base camp to safer position. Tracey, Andy and Dave set out for more climbing; rest of group travel to retrieve equipment left by Rosie's group.

21 JUNE:

We learn that the Twin Otter will return to collect Rosie's kit. We need to move higher – hopefully to a site that will also be our pick up point, bringing our nomadic existence to an end.

22 JUNE:

Twin Otter lands and again sinks into the snow. We dig it out.

23 JUNE:

Twin Otter leaves 0500. Jonathan, Malcolm and Clare set out to bivouac beneath Borgetinde. We learn that Air Iceland will only consider a pick-up over 40km from our current location. This doesn't seem achievable. Our current priority is climbing.

24 JUNE:

Tracey and David climb previously unclimbed peak in Borgetinde massif. Jonathan, Malcolm and Clare reach high point on Borgetinde. Andy and Alasdair retreat from sentinel peak at mouth of Borgetinde glacier in bad snow conditions.

25 JUNE:

Situation remains the same. We must travel nearly 40k over the next 2 days to be collected. We cover 17 km, gaining 300m.

26 JUNE:

We cover the remaining ground in good time, reaching the pickup point. Position is 69°14.175N, 28°52.013W. Height 2285m. Flight to Iceland uneventful.

27-30 JUNE:

Relaxing in Iceland.

1 JULY:

Return to UK.

MEMBERS OF THE GREENLAND 2007 EXPEDITION



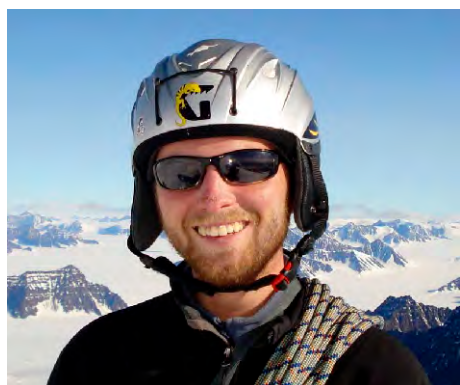
ANDY GARMAN (35, IT system administrator), has an extensive alpine record of 15 seasons (30 4000m peaks on routes to D+). He has 13 years experience of Scottish winter climbing (lead grade V) and rock climbs to VS. He has completed two recent mountaineering trips to Chile. Andy has also climbed all of the Munros and is an advanced skier.



ALASDAIR GARNETT (33, research chemist), has been mountaineering for 15 years. He has largely concentrated on traditional UK mountaineering/rock climbing (Severe) and Scottish winter (V). He has climbed all the Munros, most in winter, and is an advanced skier.



ROB GREEN (28, civil servant) is an all round mountaineer, climbing to PD+ in the Alps, rock climbing in the UK (HS) and Scottish winter climbing (II). Rob has been trekking in Egypt (unsupported trek across the Sinai peninsular) and Madagascar. He is an advanced skier, with additional cross country skiing experience in Finland. Rob has completed SPA training, and is qualified in first aid.



DAVID JAKULIS (28, civil servant) the expedition leader, has 6 alpine seasons (two in winter) including routes to TD-, and is an aspirant member of the Alpine Club. Ski mountaineering experience in Scotland and the Bernese Oberland. He is a keen rock (VS) and Scottish Winter (IV) climber. David holds SPA and is trained in expedition medicine (Wilderness Medical Training: Advanced Medicine for Remote Foreign Travel). He is a member of West Lancashire Scouts Mountaineering Group and a volunteer Mountain Leader for the Scouts.



CLARE O'SULLIVAN (21, medical student) has been climbing for 5 years and has 2 alpine seasons climbing up to D. Clare has visited Greenland previously (2004) on a Scout expedition to Milne Land. She made a number of first ascents, including Balvenie (2004m), Point Ambler (1640m) and Merthyr Peak (1811m). Clare leads at HS and Scottish III. She is a keen fell runner, and sits on Edinburgh University Mountaineering Club Committee. Clare has a particular interest in wilderness medicine, and is the expedition Medical Officer.



JONATHAN PHILIPS (42, laser physicist) is an experienced alpinist with 20 years of diverse climbing experience. Jonathan has participated in expeditions to climb Mardi Himal (5587m), Alpamayo (5947m) and Mount Kenya (5200m). He has also climbed in Yosemite, and is an advanced skier and keen ski mountaineer (Chamonix, Bernese Oberland, Grand Paradiso). He has five European Alpine seasons climbing to D. Jonathan climbs to VS and Scottish V, and has completed the Munros, most in winter.



TRACEY QUINE (32, medical physicist), has climbed in North Wales and the Alps since she was 11. Memorable ascents include Matterhorn 1995, Eiger 1998, Ama Dablam 2004. Tracey has extensive alpine experience, with twelve seasons (25 4000m peaks to D) and seven weeks of alpine ski touring (Arolla, Tour Soliei, Otztal, Silvretta, Engadin and Bernese Oberland). In the UK, she climbs to HS and Scottish III. Tracey is a member of the Alpine Club, the Alpine Ski Club and the Eagle Ski Club.



MALCOLM SLOAN (26, civil servant), has two seasons Scottish winter experience (leading to grade II) and has trekked in Iceland (Seyoisfjorder, Egilssladir), the Alps and Himalaya, where high points included Gokyo Ri, Nobby's Peak, Cho Lar Pass and Kala Pattar.

GETTING THERE: AN ARCTIC ODYSSEY BY DAVID JAKULIS



Sun reflecting off sea ice.

DAVID: It's worth recounting the rather unusual circumstances we faced at the start of our expedition. The delays encountered due to bad weather and accident are covered in brief in the Expedition Synopsis; this account begins with our first flight to Greenland from Isafjordur, and ends where the two halves of our team were reunited. The extracts from Jonathan's diary give the Group II perspective.

Field days 1 & 2 - 8th/9th June. The flight to Greenland was one which will live long in our memories. Words cannot do justice to the beauty of the scene, and the flight felt too short, too rushed to allow us to feast our eyes on the spectacle and drink in its beauty, its remoteness, its splendour. This was the Arctic, and there was no doubt that it was everything we had expected. Months of poring over aerial photos paid off as we were able to pick out key features, though acknowledgement was brief - every new vista revealed something even more beautiful, more breathtaking, that demanded we feast our eyes until the next spectacle loomed on the horizon.

The reverie was broken when we landed. Down, but still travelling at a rate of knots, the plane stopped violently as it encountered soft snow and buried itself in the glacier. We were thrown hard against our seatbelts, and unsecured items flew about us. The words of David, our pilot, confirmed the gravity of the situation: "We have a serious problem, and we will need your help". Opening the door, we jumped out - and immediately sank almost to our waists in snow. One of our first actions was to probe the area, and we found that there were no crevasses to speak of - the plane had simply encountered a band of soft snow running across the glacier, and was now well buried in the snow, nose down and tail cocked. *Note: we later*



The plane shortly after landing.

discovered that Rosie's group had experienced rain for a short time. It is likely that this weakened the snow pack considerably, possibly causing the accident. Our only option was to dig out the aircraft. The undercarriage, skis and wheels of the plane were completely buried, as was the nosecone. The negative angle introduced by the way the plane had ploughed into the snow meant that the tail was cocked well above head height. We began to excavate a large trench around the plane, digging through

the night. Excavating the aircraft and clearing the undercarriage of snow was straightforward, if tiring. As the night drew on, the snowpack hardened considerably, making digging very difficult. The plan was to excavate the aircraft, then to taxi it forwards out of its hole onto the level area of the glacier. Assuming the snow remained hard, the pilots would take off that night. Otherwise, they would be forced to wait until the following evening - it was clear from bitter experience that the snow conditions would not permit an after-

GROUP II BY JONATHAN PHILIPS

JONATHAN: JUNE 8 This is it - Group I are off. We help them pack their stuff and hope that we will be off in about 4 or 5 hours time. Six hours pass after waving the others off. What is happening? We get a phone call to find out that the twin otter has sunk into a snow hole. This requires it be dug out. So do we head off to the Hotel or stay in the Airport lounge? Not knowing precisely when we will be going, we decide to stay at the airport, as we have food and hot water. An airport representative is very kind to us and lets us use the facilities, computers, coffee and even a shower. We go to sleep on the settees and floor. In the middle of the night a helicopter comes in. "What's going on?" Apparently it's the Icelandic coast guard, and there is some sort of domestic going on in the town down the valley. A husband has taken his wife and children hostage, and the helicopter is here in support. The crew also want to know about the Twin Otter, as they may have to go and help - although in the end they don't, as they have reached their maximum flying hours and must return to base. Another helicopter is coming out to refuel and take a rescue crew and fresh pilots out to the Twin Otter.

We talk to the Twin Otter pilots when they arrive, and they make it clear that we will have to be dropped at a different site from Group I. Maybe also have a completely different expedition. This is not good as the equipment is not split up so that we can be self-sufficient for any length of time. They insist that they will drop Group II miles from Group I. They have to disappear as the helicopter is now ready to take off. We consider calling off the expedition for Group II if the pilots cannot take us at least within a day or two's skiing of Group I. We discuss other alternatives, but decide to go ahead if they can get us as close as possible to the others.

noon take-off.



We quickly discovered that our problems were not limited to digging out the aircraft. As the temperature dropped, the skis began to freeze solidly to the surface of the glacier. David and Johann, our pilots, assured us that there was no way the machine could move when frozen – this meant that while some of us dug, the rest of us had to lie in the snow and chip away at the ice clinging to the bottom of the skis. The plane's emergency equipment did contain a wire with a handle on either end, the idea being that this could be used as a saw to cut away the ice. Unfortunately, the wire was too thick to make much impact on the hard ice, and we were forced to resort to wielding ice axes against the underside of the skis. The trench surrounding the skis was really too narrow to do this efficiently, and we found ourselves with faces pressed into the snow while blindly hacking at the ice. This process was continued for most of the night, in order that we would be ready for a take-off attempt when necessary.



Once the aircraft was clear of snow, and a ramp had been created to help the front ski rise forwards out of the pit, we commenced with the first of many attempts to move. With us standing well clear, David, the Captain, gradually engaged the throttle. Nothing happened. We returned to attack the ice underneath the skis in a frenzy of hacking and digging, and tried again. Still nothing. There was only one explanation - the negative angle induced by the plane's nose-first position probably meant that, even with the skis

unfrozen, and a ramp at the front, the aircraft simply could not be taxied out of the hole. Prior to one of the final attempts, we even ripped the floorboards out of the aircraft and hacked them apart with ice-axes; the resulting planks were placed under the skis to prevent them sinking further into the snow. This worked, but brought us no closer to actually moving the aircraft. The next step saw us getting as much weight aft as possible. Despite the weight of the aircraft, when balanced on its centre of gravity it can be tipped with one hand. If we could get enough weight aft, we would be able to raise the front ski into the horizontal plane, then pile snow underneath it in order that it was level with the rest of the glacier. We began with Clare and Tracey crammed into the aft luggage compartment with as much of our heavy kit as would fit.



In conjunction with this, the rest of us hung off the tail skid (we needed to stand on boxes to reach it) while Johann sat on the tail, having crawled along the top of the fuselage, and Andy stood by to shovel snow under the front ski. We were just too light. The springs on the front ski lifted, but the ski itself would not lift away from the snow. This led to a whole sequence of different techniques, most thought of on the spot, to raise the nose. These saw me joining Johann on the tail, Andy and I joining Tracey and Clare in the aft compartment, and various weights hanging from/pulley systems applied to the tail of the plane. Still, nothing worked. We discovered that sitting in the pitch dark in the luggage compartment with the engines roaring gave the *feeling* that the plane was moving, but we were disappointed every time. Andy and I tried hanging from the tail-skid while David ran the engines on full throttle - he instructed us to let go if the plane began to move too fast or took to

the air (!) but, despite our efforts to hang on in the slipstream, the aircraft was clearly going nowhere.

Eventually David, who had been updating his management, took the decision to call in the cavalry. We then rested while we awaited the arrival of a helicopter with reinforcements. We felt for Rosie's group, who would have seen us fly over their position with the expectation of an imminent extraction. A full night had passed since then, and we were now into the next day, another beautifully clear, blue sky day. So far, the only exploring we had done was a short trip Clare and Tracey took to the far side of the glacier.

Later in the day, a coastguard helicopter arrived. Understandably reluctant to land, it hovered just above snow-level while people and equipment poured out. Two mechanics, an extra pilot (Ragnar) and much kit had joined us on the glacier. The snow was once again incredibly soft, and we sank thigh deep with every step. The helicopter left, heading off to collect Rosie's group.



Three extra people made all the difference. With three of us sitting on the tail, two in the aft compartment and two hanging from the tail skid, the nose lifted no problem at all. Andy shovelled like a demon; the plane was soon on the level! The struggle, though, was not yet over. Much work remained to reinforce the layers of

snow beneath the nose-ski and in the lines which would be taken by the rear skis. The pit surrounding the nose needed to be filled so that the ski would not slide off the narrow platform of snow it sat on. And of course, by the time this work was complete, the skis were once again frozen solidly to the snow. We again dug, hacked and scraped until they seemed loose – the judicious use of a sledge hammer was employed by the pilots, in addition to inflating a rubber bag under the undercarriage to help break the ice. Finally, we were ready!



Inflating the bag under the plane

Our position, previously one of lonely beauty, and never before visited by man, now resembled something between a mechanics workshop and an archaeological dig. The glacier was pockmarked with pits and trenches, and mechanics, cordless drills and other tools abounded. The mechanics now proceeded to construct a giant snow anchor, built on site from timber brought with them. This was buried in front of the aircraft, and the strain was taken on stops, to assist with moving the aircraft forward.



The worlds biggest deadman

The plan worked, and we saw the plane move for the first time since landing. We had now been working for two nights and a day, with only a few hours rest. With little to do but wait, we gorged ourselves on the yoghurts, orange juice and sandwiches brought by our reinforcements. The Twin Otter would take off c.0500, returning to Isafjordur

empty, before coming back with the second half of our group.

I had been updating Group II on the satphone (sparingly, as our main phone and charger was with Rosie) and prior to the arrival of the helicopter, I learnt that Flugfélag were not prepared to land again at, or even near, our current position. The only place Group II could be dropped was in the Watkins Mountains (unacceptable) or at EMF, where the plane had to land in any event in order to collect another group. This, though not ideal (it was not covered by our aerial photographs and was c.40 km from our current position) would at least mean we could be reunited within about two days. We therefore made the arrangements for Group II to be dropped at EMF.

We arranged for Group II to be provided with a VHF, and I requested that the Twin Otter act as a relay platform so we could communicate for a short time after Group II were dropped off. Group II would collect additional aerial photographs from the team already at EMF, enabling them to navigate to our position. I showed our pilots a meeting point on the aerial

photographs for rendezvous with Group II.

FIELD DAY 3-10 JUNE: The Twin Otter took off while we were asleep, at about 0545. We woke as the engines warmed - the crew were kind enough to leave us orange juice and yoghurts! We didn't expect the Twin Otter to leave Isafjordur with Group II until c.1400, as it needed an overhaul, but by 1215 it was back! For a happy moment we thought they planned to land not too far away, but over the VHF David (who was now flying as co-pilot to Ragnar, and seemed to spend his whole life in the air) explained that they were showing Group II our position before dropping them at EMF. I asked the pilots to remind Group II to collect pulks and other equipment from the group at EMF, but apparently they had already left - the Twin Otter took them out immediately after leaving us earlier in the day. Hopefully Group II acquired the essentials when crossing paths at Isafjordur.

By 1315 we were packing prior to travelling to the position we had originally intended for basecamp. We planned to dump most of our kit there before continuing with empty pulks to meet

GROUP II BY JONATHAN PHILIPS

JONATHAN: JUNE 9: Helicopter arrives in the early hours of the morning. It is carrying the members of "Chicks Unleashed" who cheer when they touch down. They seem in good spirits, as they have been on the ice for 6 more days than anticipated. They are good natured and they tell us where they have been, giving us their Satphone, EPIRB, flares, rifle and VHF. Alasdair makes them a hot drink before they run off to the hotel. After more sleep Twin Otter arrives. It looks okay and we pack up. At last we're going, having negotiated a landing site nearer the others. They will take us on a flight path over the others but put us down about 40 km away from them. We finally take off without any hitches. Flying over the sea we see large ice floats, which are further away from the Greenland shore than I had thought. Flying over the others we identify someone waving at us - it looks like Andy.

Touching down on the snow is completely uneventful. The plane is unloaded with all our equipment in three pulks. The pilot shows us how to use the rifle as we fire into the mountain, it has quite a kick. The pilots wave goodbye as Alasdair gives them a bottle of whisky.

Having a moment to take in the surroundings, we pack our gear in the pulks to set off on a 20 km march to hopefully meet the others. Unfortunately the skis of Malcolm and Alasdair have problems with the skins. We spend some time sorting out the problem, and finally with some tape get it all resolved. We navigate via a GPS passing some fantastic scenery, eyeing up some routes as we go past lots of mountains, albeit slowly. Distances are very misleading, maybe it's the speed we are travelling at as the mountains seem not to get nearer.

Ten hours later and completely shattered we arrive at the suggested meeting place. Got enough energy to put the tents up and also cook a meal and then go straight to sleep.

Group II and relieve them of some of their load.

DAVID'S LOG



DAVID: 10 JUNE: New position is 69°01.4N, 28°00.1W. We covered 6.28 km from our landing site pulling/carrying 640 kilos. New height is 1426m. Cloud building steadily throughout the day. It looks as if a front is moving in fast, though I've just spoken to Paul J, who has heard what happened to the plane but hasn't heard from the others since they left Iceland. Had hoped that they may have got hold of a satphone and contacted him. Paul says the forecast is for 2 more days of high pressure, followed by an area of low pressure on Wednesday, though with no fronts near us. Doesn't fit what we're seeing here, so we'll wait and see - perhaps Wednesday's low is arriving early. Hoping for good weather so we can continue and meet the others - they landed about 35km from our current position. Now pitching camp, getting a good nights sleep and then the advantage of an early start for good snow conditions.

11 JUNE: 1400. We have now moved 1.56km from last nights camp, load pulling in 2 trips. This site will make a good basecamp, as it sits in a position giving access to a number of glaciers - including the one we landed on, the one we intended to land on, and the one housing Rosie's basecamp. We have pitched a tent in which to leave unneeded kit, and to mark the site. Now having a bite of lunch before setting off to try and meet the others. Weather remains good - the weather we were concerned about did not appear. Current position is 69°01.09N, 028°02.045W.

We stopped moving at 2120, having covered 11.2 km from the position above. Height 1490m, current position 68°58.8, 028°17.036W. Plan now is to pitch camp here, in what Andy described as

one of the most beautiful places he's ever been. We passed the RV point we gave to the pilots for Group II - they have been dropped so far away there is no way they could be there yet. We're in the centre of a large glacier system with mountains rising out of the horizon and around us. EMF is now looming large well above the horizon, and we are almost directly below the summit of Borgetinde. Tomorrow we will leave the tents here and push on to meet the others, who cannot be far away.



12 JUNE: We covered 10.2km towards the Group II drop point, leaving at 1110. Turned on the satphone to call Air Iceland, still unable to see Group II, who by now should have turned the corner of EMF and be on the glacier down which we are looking. Received a text message from Paul J giving Group II position as 68°58.601N, 28°14.290W, with a request to turn on the VHF at designated times. Message was left on Saturday, though has only just come through. The position given is not where we expected, but is actually back the way we came, and near the RV point. We must have missed each other on the glacier, though the others must have been covering ground incredibly quickly. Phoned Air Iceland to check location of Group II landing site and to confirm their current position. Frissi spoke to them earlier in the day - it seems they have a satphone - and he confirms their position as that described by Paul J. We'll now retrace our steps. Hopefully the

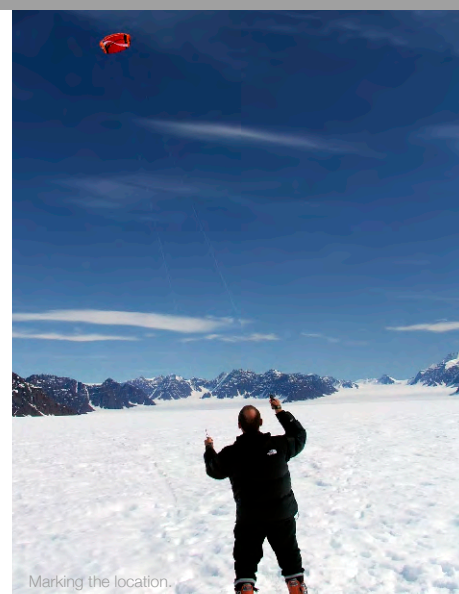
GROUP II BY JONATHAN PHILIPS

JONATHAN: 10 JUNE: It is a gorgeous day. The sun is out. Both Malcolm and Rob are digging away producing a 3 star kitchen. I help along with Alasdair. We are waiting for the others. A few frantic phone calls to try to get in touch with them on their sat phone, but only get to leave them messages. Glad of the rest, as had a busy day yesterday.

Still no sign of Group I...wish we had bought a pair of telescopes. Discuss searching for them. Alasdair and I are chosen to go search for them, where we think their base camp is. We head out to look for them, only going a couple of km. We then decide to go across the glacier to see if we can spot some sort of trail. However, we are the only people to come this way recently. This is very frustrating as there are lots of brilliant mountains to climb. We find no trail and head back across the glacier to find lots of small crevasses to navigate. We get back and Rob says he has a kite to fly. So we unfurl the kite and get flying - great fun.

We keep the VHF on to try to communicate with the other team. Late in the evening we get a reply to one of our messages - it is very faint. We communicate but cannot identify where they are. So Rob suggests we get the kite and maybe they can locate it. So we get the kite up and they see it. This is lucky as there is not much wind. We get their location and head out to see them.

We finally get together; they have been trying to get to us to help us to move the equipment from our landing site. They got very close to our landing site and then headed back, because they got a message that we had moved. After much discussion we agree to go to their base the next day, which is about 15 km from our camp.



others will have seen our tracks or camps. Will call the others at 1500 on the VHF.

We return to last night's campsite (10.2km) and speak to Group II on the number supplied by Frissi, quickly switching to VHF. We have no charger for our phone, and are unsure as to whether Group II have one for theirs. Group II will now travel to our position (not far from theirs) after eating, then return to their camp. They will strike camp in the morning and we will all head back to base camp.



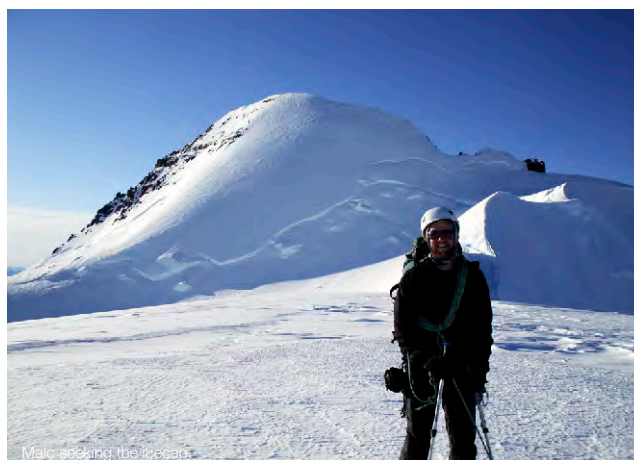
It transpired that the Twin Otter had actually dropped Group II much nearer to our landing site than initially planned. Unaware of this, (the anticipated VHF relay did not occur) and loath to overuse the satphone, as we may have had to make our battery last for the remainder of the trip, we chose to push on rather than head straight for the RV point. We failed to spot Group II as we passed, as they were camped in a depression. With hindsight, the decision to push on was a mistake, though made in good faith, and with little information available at the time. However, what had gone before no longer mattered - we were finally reunited! We celebrated with champagne originally destined for Rosie's group.

14-16 JUNE DIARY EXTRACTS BY JONATHAN PHILIPS

JONATHAN: JUNE14: Rest day so eat lots of food, finish the kitchen and decide what to do. We all would like to go to the icecap. So we split up into two groups and Claire, Rob, Malcolm and I decide to go up a valley to see if we can forge a route up onto the ice cap and see how many mountains there are to do. So decide to leave early at about 2 o'clock in the morning. So we pack and get our gear ready.

15 JUNE: Grab some sleep before we set off. Get up have a quick breakfast. We set off, I get first turn at the pulk carrying. We are taking one pulk and food for three days, with fuel enough to melt snow for four days.

It all looks new and I see a mountain that looks like a polar bear - probably the closest we'll get to a polar bear. There are lots of new valleys to go exploring but we go off up ours. As we approach a rock corner we are split up, and are several meters apart to avoid all falling in a crevasse. As we shout to each other to decide where to go, we hear an echo of our voices off the rock face - just the end of each sentence. So we play with the echo for a few minutes, then head off. The nickname we give to the corner is echo rock.



Several hours later we find a perfect spot to bivi. Just in front of us is what looks like a wall of snow. We identify a few good peaks with routes up them, hoping that we get back to them to knock off. Feeding ourselves with dehydrated food, after a few games of Scrabble we collapse in our bivi bags for sleep.

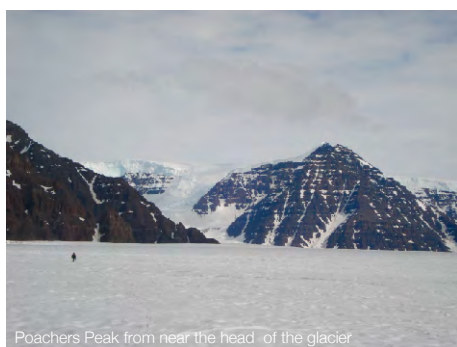
16 JUNE: Waking up to a slightly overcast day, we decide to have breakfast and then head out up the glacier off to the left, avoiding the wall of snow. This is a bit tricky as there is a steep wall with a few crevasses to avoid. Weather still looks dodgy so after a few hours we get to the edge of the mountain and look down to the other valley. We decide to bivi down for the next hour and see what the weather's going to do. Scrabble is played until the weather looks promising. Identifying a route on the right hand wall of the glacier, we put on our crampons and place our skis on our rucksacks. Tying ourselves to the rope, Malcolm starts to climb up the grade II snow slope. Reaching the top without much hassle, although all very tired, we dump our sacks and head off up the peak, on the ice cap. It is sunny and clear, so we bed down and eat lots of food.

On trying to sleep, I awake every half hour and notice it is snowing - not badly but consistently. After about 3 hours it's still snowing, so I shout to the others and they get out of their slumber. We discuss options and decide to head back to our advance base camp and see what the weather does. In between packing the snow gets harder and the sun tries to break through. We move forwards with the aid of the GPS, to find our way towards the top of the snow slope we came up. This is the start of a hard 24 hours (as described by Malcolm's write up). At the end of the day my feet are in a bad way from being soaking wet for the last three hours.

GREENLAND ICE CAP AND POACHERS PEAK 15 -17 JUNE

ALASDAIR: We (team 2), finally arrived at base camp on Wednesday evening, having moved all our stuff by pulk for fifteen kilometres from our previous position. We had a rest and planning day on the 14th. All members of the group wanted to start some real exploration after the problems we'd had in getting to the site. It was of note that the snow conditions both on the crossing and at the site were substantially different than on our previous big push from the drop site few days earlier - more snow erosion/melt had occurred, and the surface was highly ridged, which made progress more difficult. At the site, the snow base was somewhat less than previously, at only about 80-100 cm above the ice. Soft pockets led to treacherous conditions in camp for the unwary later in the afternoon! Superb north face vistas of the Borgetinde and Ejnar Mikksens Fjeld (EMF) massifs were to be had from the base camp.

Half the group left at four am on the morning of the 15th, to go Northeast up the unexplored glacier (indicated below), then to go left up the subsidiary unexplored glacier Northwest then North to the icecap. The remainder, comprising Andy Garman, Tracey Quine, Dave Jakulis and myself (Alasdair Garnett), left at seven am, and were aiming directly at the imposing peak at the head of the main glacier, with an aim of a quick ascent and possibly further peaks.



Poachers Peak from near the head of the glacier

Setting off early gave us the advantage of a solid surface to ski on, though the hard snow ridges of 20-30 cm height made for difficult progress, with the lighter orange pulk being more difficult and less comfortable to pull than the heavier pink/white ones we'd pulled on Wednesday. Again, progress seemed to be at a crawl, though we were moving as fast as we could, with the buttresses of



Andy approaching Poachers Peak

the mountains taking an age to pass. After a water stop at a meltwater pool to refresh, we carried on up the glacier, eventually making a stop at 2pm after thirteen kilometres and at an altitude of 1700 m, when the snow was getting particularly heavy, and making further progress unviable. Much better to stop, rest, get lots of food eaten for the rest of the day and prepare for the next days travel. For the remainder of the day we simply ate, drank and sunbathed on the glacier. Lovely. After turning in at around eight pm I slept well, bivouacing out on the ice for the first time.

At two the next morning we awoke to a



Bivouac site looking Northeast on evening of 15th with Poachers Peak behind.

cold, slightly overcast scene. A few flakes of snow drifted down onto us, shivering as we ate, drank some more and started off up the glacier to the left of the target peak. It seemed that there might be a way to force our route up the icefall far to the left and then traverse round the cirque. An early blow to the group was the pulling out of Andy after only twenty minutes due to a shoulder strain. Dave, Tracey and myself carried on, with the clouds clearing and the sun getting higher behind the peaks to the North East. Progress was good, with the snow surface smoother compared to yesterday, probably due to the greater altitude. We roped up when we started crossing the first crevasses, beautiful blue glowing out from the depths. A choice of routes was presenting itself to us. Either to the far left, which seemed smoother at first, but there was the possibility of larger crevasses higher up, or up the middle, which looked better going, but went under and between seracs. Although we had heard seracs falling all night, booming out around the cirque from all the different icefalls off the icecap, the decision was taken to take the second route, since the real chance of a fall just while we were there was reckoned to be slight, while the crevasse risk was seen to be higher for the far left. To the right was impassable. Up the centre it was.

We continued onwards, skiing across an ice field of frozen meltwater puddles, crevasses and the occasional smooth snow patch. Trending to the right, under the first serac zone, with shattered rock



Looking North to icefall on morning of 16th, ramp is to right of small patch of rock in centre, 'Pile of Stones' on skyline to right.

peeping out under glowering blocks, our concerns lent haste to our movements. Once past the first danger area, we then trended back left up a crevasse-fractured ramp to avoid more dangerous ice blocks. Steeply upwards, but no big problems yet.



Passing through the seracs.

When we reached the top of the ramp, into the sun, we found a few larger crevasses to avoid, forcing us to go along them to places where the snow bridges looked as though they would hold. Once over these huge crevasses, which are the first ones formed as the ice falls off the icecap, we saw an outcrop of rock a few hundred meters away. We raced over the undulating snow to reach it, only a pimple of rubble above the ice-cliffs, but solid ground nevertheless. Skis off, we walked only a dozen meters to the summit. Tracey proposing the name 'Pile of Stones', at altitude 2600 m.



Looking South on morning of 16th while roping up.

Lunch finished, we turned our eyes to the main target of the day. While ascending the icefall we'd realised that the target peak had its summit further back than we had initially realised, and that this would make the ascent much easier.

Setting off across the edge of the ice cap we skied rapidly on the level in a strange blue and white world. No peaks above us now, only the horizon slowly rising off to the west. After an hour and a half of travel we came to the base of the summit peak. While taking off our skis we noticed that clouds were coming in, scudding across the plateau only just above us. Ten minutes of easy scrambling saw us at the summit, a shattered heap of stones at 2785 m with vast drops down to the glaciers on three sides, barely glimpsed through the gathering whiteout. Because the other team had talked about attempting this peak on their trip and we had succeeded by a more direct route, the name 'Poachers Peak' was suggested. Realising the weather was turning and that we had eight hours of travel ahead before we could rest back at our camp, we dropped back down to our skis, quickly setting off back, following our tracks to our first peak. Once there, we only had a few seconds rest before the descent started.

By now, thick clouds had surrounded us, navigation became difficult, even with GPS, ski trails became increasingly hard to follow in the near whiteout conditions. Worse, I realised that my mountaineering boots, while adequate for uphill or level skiing, were not supportive of my ankles enough for downhill skiing. I kept falling over, slowing us down. By now, the temperatures even on the edge of the icecap at around 2500m had risen to the point where the snow was softening, causing my skins to clog up and making progress impossible. I took a decision that

it would be safer for me to remove my skis, being roped up to the others while they skied ahead, rather than risk barely controlled skiing through a crevasse field. We started descending the ramp, delicately picking our way through the crevasses. I fell into several, on one memorable occasion ending up straddling the pit on my crampon points, with a drop of tens of meters below me disappearing into a blue darkness. At the bottom of the ramp I put my skis on again and off we went.

Dropping down through the cloud layers we realised that there were fog banks all around us at different levels, making it hard to stay in touch. We got separated at one point and I had started to blow my distress whistle into the mist to find the other two when they turned up behind me, having backtracked to find my ski trail. They hadn't heard my whistle blowing at all, even though I'd blown just seconds before they found me. Only with GPS could we determine for sure where our camp was on the huge expanse of the glacier, where Andy, with admirable insight and judgement, had already started boiling water for our meal and tea as we returned, exhausted, through the fog at eight pm, sixteen hours and twenty-six kilometres after setting off.



View across to actual summit from 'Pile of Stones'.

The late start next morning was forgivable, with no real movement until ten, when we set off back down the valley. The snow became heavier and heavier with the melt and progress was slow. Andy pulled on ahead. As we arrived at the lower third of the valley towards base camp banks of fog were developing again. We heard shouting and calling and speculated perhaps the other party had arrived back before us and had been climbing on some other peaks, although the voices seemed to be coming from the wrong direction, from the left and we couldn't see anyone. We continued down the valley, at one point seeing a figure gesturing

towards us from far on the left. We didn't know who it was, and as we traversed towards them a fog bank rolled in preventing us from making contact. Was it Jonathan? Since Andy was far ahead of us by now we didn't want to abandon our trail, and returned to our original route. The fog cleared slightly, but a strange sound was heard ahead-it sounded like a river, but of course we hadn't gone over any rivers two days earlier, we wondered what was going on. The trails we were following, the ones we'd made two days earlier went into a meltwater river that had rapidly developed on the glacier. We couldn't cross!



Safely across the river on the evening of the 17th continuing down the valley, looking South-west. Base camp is 4 km directly ahead, just to right of rock pimples at left. Borg Tinde on Skyline to Left, Einar Mikkesens Fjeld on skyline in centre.

Picking up a trail leading left, and working out the direction of travel we turned to follow the river back upstream. Soon, we met up with Andy, and then the other party, who had also been cut off from base camp. It had been Andy we had seen before the fog. Travelling upstream for a kilometre or two we found a weak snow bridge that enabled us to resume

our course down the glacier. The parties separated due to tiredness and the group I was in became caught in a crevasse field only one kilometre from the camp. We'd simply not realised why Andy, the glacier expert, had dog-legged round the point where the glaciers met to get to base camp, rather than taking the direct route as we did. Creaking snow bridges,

bottomless black pits when poles were poked in through the thin and soft snow pack on both sides of the skis, and Clares problems with her snow blades made for an exciting end to the trip for us. Worrying about how to get back across the river which now cut us off from the pickup area was left to the next day.

THE PILOTS



David.



Johann.

We owe a considerable debt of gratitude to our pilots. The Air Iceland Twin Otter pilots are some of the most skilled pilots in the world, regularly making ski landings on ground which has never been visited before, and therefore with little idea of what conditions they may encounter.

We are grateful to all of the pilots who flew us at various points during the expedition. However, particular thanks must go to Jóhann Ingi Sigtryggsson (better known as Jo) and David Smari. David and Johann were our pilots when the Twin Otter sank into the glacier; we spent a number of days on the glacier with them, and David returned as co-pilot with Group II. Johann also saw us again, when the Twin Otter sank into the glacier for the second time.

Two more professional, likeable and experienced pilots we could not have hoped for.

THE 24 HOUR DAY BY MALCOLM SLOAN

MALC: This was the moment that made it all worthwhile. All the setbacks were forgotten. We were standing where no one had stood before and the views were amazing.

We were stood on a peak on the edge of the Greenland ice cap, 2 days skiing and climbing away from our base-camp. The scenery was breathtaking and after all the trials and tribulations we'd had you could see the stress vanish from people. The plan was to bivvi out and then explore the ice cap further the next day. As you can see by the photos the weather was perfect and even though I was shattered I found it hard to sleep because of how



Rob and I on an unnamed peak on the edge of the Greenland ice cap.

excited I was. 24-hour sunlight didn't help either. Four hours later it was a different story. We were in a white out with steady snowfall. We desperately wanted to stay up there and hoped it would pass but the only safe option was to descend and thus our rather long day started. I say, day but it was actually 6pm in the evening that we started out. We'd reversed our body clocks in order to climb at 'night' when it was colder and the conditions are better. With no map we navigated using GPS points and going at a snails pace.

The weather seemed to be playing a game with us as the cloud kept lifting just long enough to make us think about climbing some new peaks and staying another night as supplies weren't a problem. It would then close right in again making progress slow and forcing us to continue down and ultimately make the decision to push on back to base camp.

It was hard going as when the cloud closed in the crevasses were really hard to spot. We roped up for safety but for whoever was leading it was tiring on the eyes, to differentiate between the horizon and our route, and tiring generally from constantly sinking into small crevasses due to how soft the snow was. Clare was really affected by the fact that it just wasn't cold enough for her to ski over the glaciers. She had small 'blades' and even though she was one of the lightest of the group they just didn't spread the weight as well as normal skis and she kept on finding hidden crevasses. Jonathan just seemed to dive in them for fun.

It made for slow going, trying to keep safe as one by one we sunk and had to make sure we weren't about to disappear into an abyss. Rob kept us going with his GPS counting down the km, as we got closer to home. The weather was still ropey but we all had visions of a brew, hot food and sleep to keep us going.

We got within sight of home after about 20 hours of slog, only to be thwarted by a glacial 'stream' that had appeared since we were away. I say 'stream' as it didn't look too big from far away. However, up close - whilst it wasn't particularly wide - it was very deep and fast flowing. We found out how deep it was when Jonathan skied up close and tried to test the depth with his ski pole, only for it to disappear and cause him to have a little swim. At that point the looks on everyone's faces said it all, as the only way across this river seemed to be doubling back and trying to cross it further up where it was easier to pass.

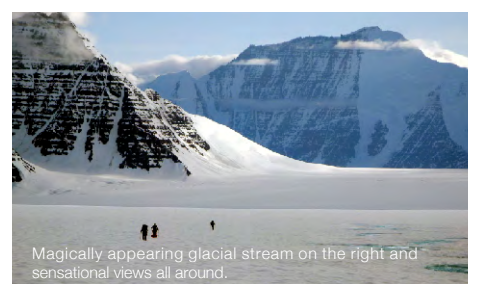
Whilst we were resting, eating and deciding what to do we saw the other group on the horizon and through a combination of whistles and Rob's pants on a stick managed to get their attention. It felt better as a group being collectively stuck and it was good to know that they were safe after all that we'd experienced.

Andy wanted to sail across on a pulk and very nearly succeeded, until something upstream gave way and the water velocity increased dramatically. Sadly, it was a slog round until we found somewhere we could cross, followed by a steady ski home. By this stage we were hitting the 24-hour mark in terms of travelling time but strangely no one complained and no one fell out. I think this might have been something to do with the breathtaking views that really re-enforced how special a place it was that we were in.

I can't help but look at the picture (bottom right) and smile. Though tiring and frustrating at times it had been a top ten-day in my life, and whilst I can't speak for the others I'd be surprised if it wasn't in theirs too. It hadn't been our first eventful day of the trip and it certainly wasn't our last either.



Sleeping on the ice cap before the white out.



Magically appearing glacial stream on the right and sensational views all around.

19-20 JUNE EXTRACTS FROM DAVID'S LOG

DAVID: 18 JUNE: Up early and with Andy set out to find a nearer snow bridge over the apparently growing river of meltwater. We found one only 880m from camp! Andy and I immediately start hauling loads to the other side of the river – it's clear that we will have to abandon this position, as the river is growing and we are in danger of being cut off from the rest of the glacier. By mid afternoon everything and everyone is over - touch and go at the end. Waited for cold conditions before moving to a position

nearer to where we estimate our pick up point might be. I have to dig Clare out of a crevasse on the way – a good thing Tracey, Alasdair and Clare took the decision to rope up.

19 JUNE: Pulked everything to the new basecamp through the night. Spent the day resting and sorting out the basecamp. Some good looking peaks within easy reach, but unfortunately most of them were climbed by Rosie's group. Our new position is W10 - 1363m, 69°01.2'N,

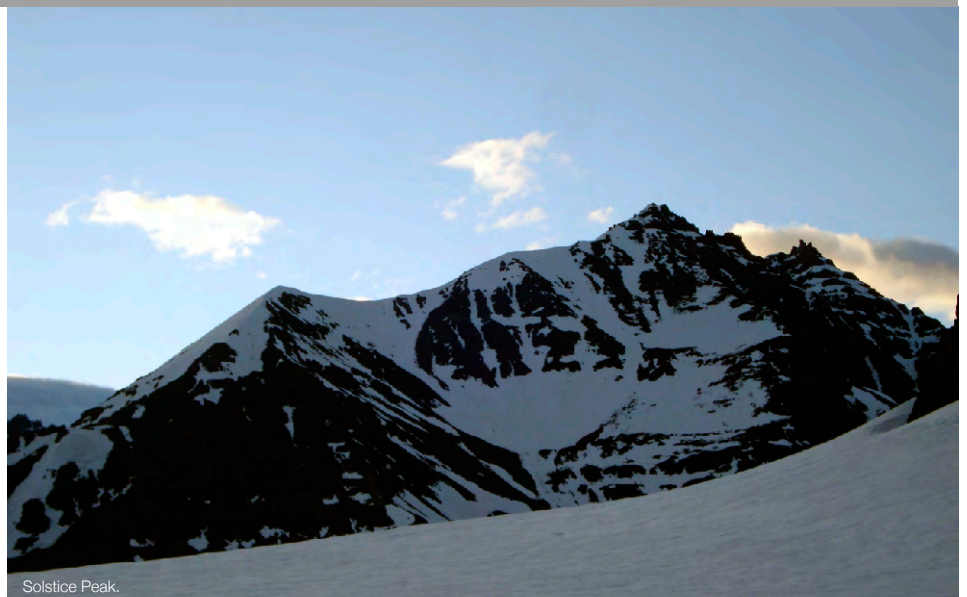
28°08.8'W.

On the night of Tuesday 19, Tracey, Andy and I headed up the glacier which bounds the area (to the West) visited by Bob Dawson in 2003. We are looking for routes on the peaks to the right, all unclimbed and untouched.

As we set out, I realised why we came to the arctic. Quietly skiing up the glacier on fresh powder, the silence all about me, the sky beautiful yet foreboding - it was a scene of almost impossible beauty.

SOLSTICE PEAK BY ANDY GARMAN

ANDY: Base camp, now moved to the centre of Konkordiaplatz, seemed safe from predatory meltwater streams for a while and the toilet block was shimmering in the sun; we had time on our hands at last. So while a mighty crew struck south-east for Camp Chicks, a smaller team comprising Dave, Tracey and Andy headed north towards the icecap and the westerly rim of the area we had intended to explore all along. Departure was shortly after midnight under an unforecast leaden sky, and the mini-expedition was kept light with no pulks taken. A glance back at the little cluster of tents revealed a straggling file of pilgrims off to practice crevasse rescue.



Solstice Peak.

Tracey cut the trail through unfrozen overnight snow and progress felt slow at first as we passed the scrappy coires visible from basecamp, all distances as deceptive as ever. In fact we were covering ground fairly well and after a couple of hours we had placed several glacial rises between us and basecamp, and could start to examine the coires to our right (East). The slopes were noticeably steeper and less promising than those we had seen during our foray further east the weekend before. The few snow couloirs which cut through the ubiquitous bands of loose basalt were broke, corniced and raked by stonefall.

Three hours skiing brought us to the mouth of a larger, complex coire made conspicuous on aerial photographs by the tongue of glacier which appears to curve round 180 degrees like a hook on its northern edge. The larger southern sector of the coire cuts deeply into the mountain chain, backed by fierce ice faces. At one point the ice cuts boldly down a north-west aspect from a shallow col all the way to the bergschrund and would probably go at TD or thereabouts. The northern sector begins as a glacier ramp which gradually merges into its southern cousin; higher up the ramp is separated by an ice-flanked spur before turning sharply back on itself to form the hook. At the confluence of the coire and the main glacier up which we were travelling, a meltwater pool had formed. We had already learned that these pools and streams for all their nuisance value, also provided excellent ready drinking water which was sweet and required no boiling. Therefore we set the heavy sacks down at a respectful distance from its shores and made our bivouac. From this point we could examine the two halves of the coire, and Tracey spotted a line up the northern flank of the dividing spur, starting at the turn of the hook. Above, a potential route could be made



The line spotted by Tracey on the right side of the picture.

out along the spine of the spur and hopefully up onto the main ridge beyond. This became the objective of the remainder of the day, with a continuation to high points on the ridge as time allowed. The base of the spur is only an hours easy ski from the pool, with only a few small crevasses to mind. The snow or ice flank above was steep and much would depend on the conditions. The line of least resistance traversed left to the bergschrund, then up and right, but already we were crossing wet slab avalanche debris whilst technically

19 JUNE DIARY EXTRACTS

still on the glacier. Leading, I was plunging to my knees in soft, moist snow still warm after the cloudy night. Judging by the intermittent commentary from behind, someone's svelte figure was plunging even deeper. All my instincts urged that this was a dangerous slope to ascend, and there were no dissenters when I sounded the retreat shortly after 8 o'clock. We enjoyed a pleasant ski back to the waterhole, arriving just as a plug of cloud was forcing its way up the main valley from the direction of basecamp on Konkordiaplatz. Thick mist and hail were all that remained of the 20th of June.

Midnight at the oasis, and the weather is clearing but only just. Although our route of the morning was re-appearing from the wraiths of mist, the air lacked nip and the snow any crisp, so another attempt was out of the question, as were the other lines of enquiry visible in the coire. Disconsolate, we agreed to push on up the main glacier to see what we might see.

We saw more of the same until at 3am I arrived at the lip of another supercoire, having skied ahead of Dave and Tracey. Its southern edge was almost a carbon copy of the corresponding flank of the coire we had left; one beautiful ice face in particular was reminiscent of the Lenzspitze face above Saas Fee, perhaps a bit steeper but straight as an arrow and evenly inclined from bergschrund to capping ridge. An ascent (TD?) would need a second axe, a cold night and a plan of descent.

But opposite, silhouetted by the horizon-hugging sun was the peak that drew the eye. It was independent a ridge, from this angle at least, and throwing down a long westerly arete to the main glacier. Scanning for lines, I was drawn to the southern flank overlooking the coire I stood in. It was obviously easy-angled and would offer straightforward but unimaginative ways to the west ridge. But the west ridge itself, ending in a steep flank, was the way we went. Under the terminal face, left of centre, we dumped our skis and eyed the lower bands of crags for the places the upper slopes filtered down to the lower apron. I lead the way up a cone of snow of variable consistency intended only to frustrate. Although it was alternately firm neve and powdery confetti with occasional windslab thrown in, it lacked the precarious menace of the snow the day before. The sports plan was to strike up a line above the snow cone, beside rock ribs to the upper triangular face. We could see strange striations in the upper snows which boded I knew not what but probably wanted avoiding. We swapped the lead around when I got tired (so not high up) and Dave led on, pleasantly at first, but then we wandered into the bizarre streaks which were horizontal blades of hard ice sticking out of the snow. I think we followed a figure of eight on iron hard ice until a hard right traverse landed us on the ridge.

I have to say the arete we were sitting astride was one of the most beautiful places I have ever sat. The west ridge descended from the summit past rock towers and steps to a keen razorblade of snow, which curved in a perfect arc to form the right hand boundary of the face we had just climbed. The way ahead followed the curve of the arete into the rising sun. A small cornice kept us on the north side, where the snow was very slabby, and when the arete hit the first rock steps, threatened to send us on a nerve-racking traverse under the slabs. I think someone meant us to get to the summit, because at this point the ridge could be crossed so as to traverse below the cornice. The snow turned more trustworthy in the shade, and was formed into narrow foot-ledges. On these we could avoid every obstacle, and after 3.5 hours and a short steep final snow slope we stood on the summit of basalt-pie, 8am precisely. Grade PD, 2222m.



Looking back along the arete.

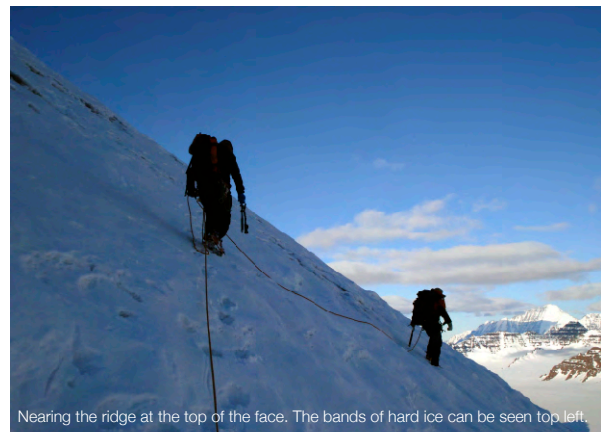
JONATHAN: 19 JUNE: Dave, Tracey and Andy go off to do another peak from its west side, hoping they can find a way up as they saw the mountain on the east side as they were going up to the ice cap.

Rest of us decide to go and get the equipment that was left behind by the Chicks Unleashed expedition. We set off at about midnight. The weather is not bad, but a bit overcast. We follow the GPS arrow and head off into a crevasse field. We hope that we'll get back in a day, and then head off into the mountains ourselves.

A few hours later I am leading the line. Suddenly, I place my ski into the snow and find that there is no stopping point. I find myself falling, thinking 'I will stop in a second', but I go crashing down and knock myself out on the ice. A few seconds later I find myself wedged in a hour-glass shaped narrowing of the crevasse, without my skis on. Unfortunately I do not have a rope on. I hear a call from above "Are you okay?" I reply "Yes, but get me out". They lower a rope and pull me out very slowly, but I am extremely grateful, we go back to base camp to regroup.



Jonathan after crevasse rescue.



Nearing the ridge at the top of the face. The bands of hard ice can be seen top left.

We called it Solstice Peak, because it was.

No-one fancied the continuation over loose spires towards the main ridge whose outlying spur we were on, nor the descent of the icy face, so after absorbing the views to the icecap, we retraced our steps to just above where we had crossed sides. Below was the maze of snowfields which formed the line I had first considered up the flank. It made for an easy descent at a comfortable Facile but in ascent would need a careful note of the line before entering the flank as it is difficult to appreciate the diagonal trend of the snow runnels from close up. It was only left for us to walk round the base of the face back to the ski depot, floundering through the softening snow.

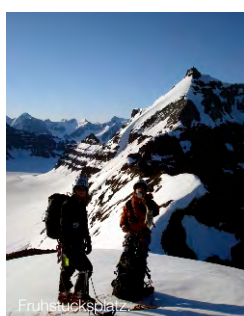
The following night was the last we had available, and although the weather cleared, the temperatures remained high, so we decided on a variation of the plan of day one, and continue to the top of the glacier hook in the coire above our bivi by the duckpond. The hook ends very high on the south-east slopes of a prominent peak dominating the north of the coire, and should give us our best chance to climb it.

The ski to the hook-end took perhaps an hour and a half, circling beneath brooding walls of basalt as bleak as anything on Beinn Bhan. Then we roped up for the start of a rising right traverse across the flank of the mountain above, to gain the ridge encircling the coire. The snow was poor at first, but then more foot-ledge formations speeded us on our way till we reached the ridge, eschewing more direct lines up to the corniced upper ridge. Our fruhstucksplatz afforded a fine appreciation of the glaciers of the far side of the main ridge, where Rob, Malc, Clare and Jonathan had explored a few days before. We could see that the col they had seen met the ridge a few hundred feet below our current position, and that the western side of it, hidden from them, was impassable for all practical

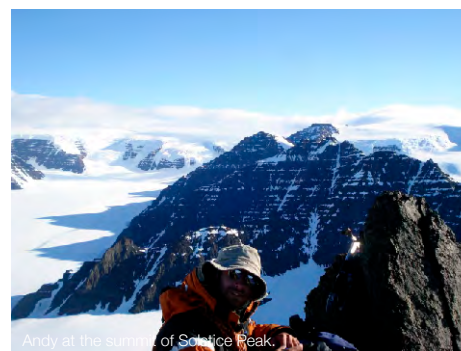
To win time, I suggested a traverse onto the northern flank of the ridge, rather than tackling the moderate rock directly. This proved a misjudgement, however, as the northern snows, like on Solstice Peak, proved to be treacherous windslab over hard ice so we thankfully regained the crest and swore never to desert it again. Keeping to the ridge or its friendlier southern flank we gained height but were ever-conscious of the gathering heat of the sun and our east-facing route of retreat. We endured a few enforced sorties onto snow slopes on the northern side, but then hit against an unbroken girdle of rock. We carried little rock gear, and the only



Entering a steep couloir in descent.



Fruhstucksplatz



Andy at the summit of Solstice Peak.

DIARY EXTRACT

JONATHAN: 20 JUNE: Have a twenty-four rest relaxing at base camp, I look after my bruises and make sure that I have not done anything else. We play scrabble and eat lots and sleep, also practise crevasse rescue.

possible alternative was a long traverse to the north on slithering snow, as the southerly precipices of conglomerate fell dolomically to a small side-coire far below. We turned back, which was a particular shame as the band above, perhaps 20m high, seemed composed of sound basalt, and might have gone at IV or so. We were, at that point, 100m vertically under the summit with a couple of smaller rock bands further up to overcome. The peak

would well reward a second, more forceful attempt. In descent we left the ridge above the rockstep we had previously avoided to the north, and got down directly no bother at all.

The return was uneventful except that the wind had got up and hurried us from bivi to basecamp all the while wondering at the proliferating melt streams and pondering if our welcoming tents were awash or afloat or adrift. In the event all was well but in Dave and Tracey's tent was a bizarre message from Jonathan scrawled on cardboard in mysterious runes whose significance we could barely discern. The Rosetta stone lay in my tent in the form of a note in plain English from Clare. And so we learned about the crevasse and all the fun we had been missing. But our trip was good too.

21 JUNE DIARY EXTRACT

JONATHAN: JUNE 21: Attempt to go and get the equipment again. I led from the start as I need to regain confidence in this environment. We head off in a slightly different direction. Without too much incident we arrive at the dump of Chicks Unleashed equipment. We start to get rid of some stuff that it looks like they don't need. We bury it. After a quick turn around to avoid the heat of the day, we turn on our tracks and head back to base camp, four of us pulling huge pulks of equipment. I am let off, with my accident as an excuse. After a while Alasdair does not want to continue, so I take over his pulk. As the day gets into shape the sun comes up and it gets quite warm. Clare takes over from me in pulling the pulk. We finally reach the base camp after a hard and tiring day. We eat, and talking with the others hear that they have had a good few days.

21-25 JUNE EXTRACTS FROM DAVID'S LOG

DAVID: 21-25 JUNE: Tangent says that the Twin Otter might return to collect the kit belonging to Rosie's group. This would be valuable, as we can't afford to continue pulling two expeditions worth of equipment. First, though, we need to reach higher ground in order that the 'plane stands a chance of landing. I've agreed with Paul W that we will make for the high point of the Konkordiaplatz, which is the joining of the glaciers on which we are currently sat.



After a rest day, we've now pulled our kit and Rosie's kit to within a few km of the high point of Konkordiaplatz. We're only a few km from the mouth of the Borgetinde glacier, at the point where the glacier we are on forks. One fork runs below the East face of EMF; the other heads Northwest into unexplored territory. We're hopeful that our final pick-up will be from where we are now, or at worst a few km up one of the forks. Twin Otter was due to land on Sunday afternoon to collect Rosie's kit, but failed to land in the Watkins mountains so returned direct to Isafjordur.

Sunday night/Monday morning, Tracey, Andy and I set off for a nice looking sentinel peak at the edge of the Borgetinde glacier. It turned out bigger and (avoiding the unpleasant looking snow) more technical than we expected, so we left it for later and a longer trip, but saw some nice unclimbed peaks near Borgetinde.

Plan now is to climb to below the summit tower of Borgetinde (c.3000m) tonight, (Monday night) then to access some/all of the nearby unclimbed peaks from there, and possibly also Borgetinde. We will stay up there Tuesday night as well. Seven of us going - Robs knee, which has been giving him increasing grief, is not up to it.



Twin Otter nose sinks in on the turn.

Call Tangent. Paul W says that the Twin Otter will try to land today (Monday). It does (try). The pilots asked for a snow condition report, which I gave as much better than when the plane crashed at the start of the trip, but still soft (it is midafternoon, after all). The plane lands, but the nose sinks in on the turn. The situation was much better than last time this happened though, and we soon have her out. The pilots are waiting for it to go cold before taking off with Rosie's kit. We will wait until they leave and then set off. Ragnar (the captain) not happy. We hear from Paul W that Air Iceland have now cancelled all Twin Otter ski operations for the remainder of the season. Not ideal, from anyone's perspective. Why do they insist on landing on glaciers at 1300 on a June afternoon? Had they landed at 0200, even 0800, there would have been no problem!

It's now Tuesday morning, the 26th. The pilots didn't want to leave until 0500, and we had to stay in case they needed help. They did – one of the skis was iced in. Once the ski was almost free, they tried to take off, hoping to break free from the remaining ice with engine power. It worked, and they treated us to a fly past and waggly-winged salute.

This means we've lost another nights climbing; very frustrating. Malc, Jonathan and Clare set off in spite of this, to bivi at the bottom of the route up Borgetinde, in order to cut down on travel tonight. I want to see if we can get confirmation of our pick up point - I'm concerned that yesterday's events may mean Flugfelag are reluctant to land here again. No joy with this, as the Twin Otter needs to make another flight, and no conclusion will be reached until later. I tell Tangent that we plan to climb tonight and Wednesday night; Paul understands. Pick up, though, is scheduled for Friday daytime. If we have to move again, things will be cut fine.

Weather forecast remains good. Pick up will be in the early hours of the morning, thank goodness. If we climb some more unclimbed peaks, and perhaps Borgetinde as well, I'll be happy that we have at least achieved some of our climbing objectives. Departure planned tonight for 2000/2100. Speak to Paul W again and find that Air Iceland will only collect us if we move another 40km - effectively onto the icecap! We discuss compromise options, but reach no conclusion. Tracey and I set out on our climbing trip - we can sort out the problems later, I'm going to enjoy this trip.

SGURR THEARLAICH BY TRACEY QUINE



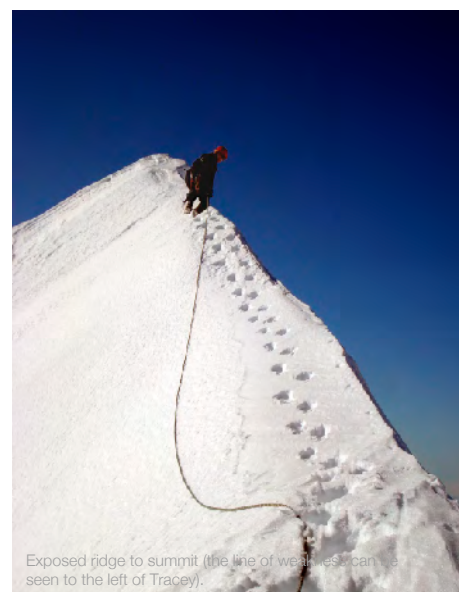
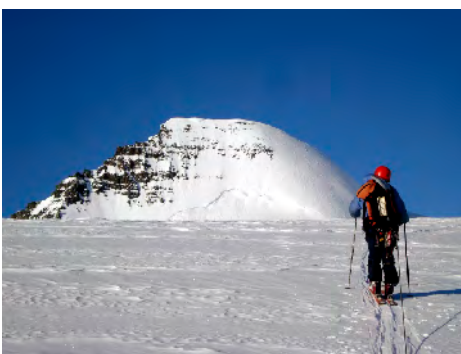
TRACEY: The white massif of Borgetinde shone magnificently in the midnight sun. The deep blue sky highlighted the curves and spires of the snowy skyline. Every summit along this intriguing ridge tempted us and our eyes excitedly scanned the untouched slopes; smooth and promising in places but would the maze of cracks bulging up out of the mountain bar our way?



Dave and I had left Basecamp at 10pm. The snow was crisp and we made good progress to where Jonathan, Malc and Clare were bivvying two hours ahead. Spectacular knife edge ridges of grey granite rose to our right. The rock appeared smooth and relatively inviting compared to the darker, crumbling basalt of our previous views.

Dave and I continued upwards, spoilt for choice. There were three shapely mountains on the left of Borgetinde and two on the right. We watched Jonathan, Malc and Clare ascend towards Borgetinde and then we set off to test the slopes of the snowy triangle left of Borgetinde.

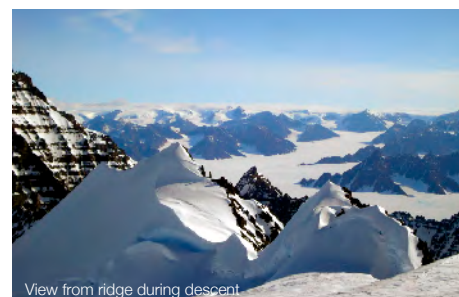
On the lower slopes of Borgetinde a perfect ascent line wound first to the left and then to the right. Our route steepened on good neve, and as we passed very close to avalanche debris our pace quickened. At times the slope above looked impossibly steep but it was always perfectly skinable. Crevasses gaped and glowed blue below us. Above us, enormous layered blocks of snowy ice were frozen in place at precarious angles. Above the seracs fold after fold of snow extended upwards.



Exposed ridge to summit (the line of weakness can be seen to the left of Tracey).

We picked a route up one of the snowy folds. It looked very steep, but would hopefully be climbable. We left the skis and traversed into the steep slope. The snow was deep but stable and it was not so steep after all. We emerged onto less steep slopes and could see the summit way ahead although it was difficult to tell exactly how far. We continued up easy windblown powder until we arrived at a snowy ridge. We kept to the left side of the ridge until I confirmed there was no cornice by lying down and peering over the edge. I saw Jonathan, Malc and Clare descending immediately below us.

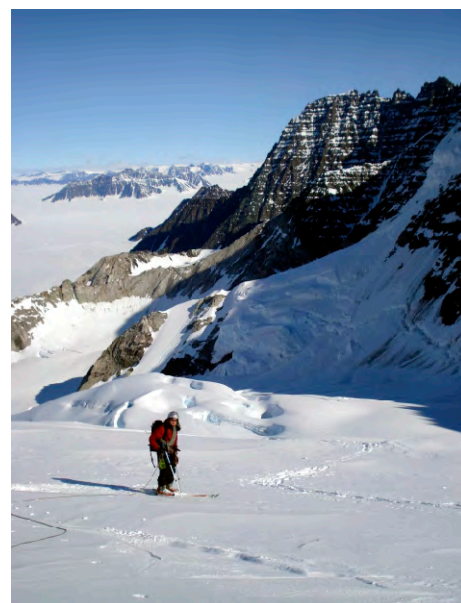
narrower. The exposure was incredible, thousands of metres vertically down to a lonely stony valley below. A line of weakness in the snow and a cornice at the summit meant that the highest point reached (2559m) was not quite the summit.



View from ridge during descent

The ridge got steeper and steeper and

To the east we could see a dark sea flecked with white, an unusual sight! To the north the view was crystal clear to the ice cap and beyond. Thousands of sharp black mountain summits sat under a bright blue sky, while their black ridges descended into a flawless sea of ice. The descent was fabulous! After locating our skis and then cutting a corner by skiing over an impressive snowbridge we were off. The ski descent, believed to be the first from the Borgetinde plateau, was one of the best mountain experiences of my life. We roped together for most of the



descent, which proved surprisingly uncomplicated. Floating down powder, gliding on neve, we passed under huge walls and between immense seracs and crevasses carving the face of the mountain, the only sound the scrape of our skis in the vast silence of the Arctic. Eventually we were spat out onto the main glacier, antlike against the splendid backdrop. The powder was perfect and this day could not have been better!

DIARY EXTRACTS BY JONATHAN PHILIPS

JONATHAN: 24 JUNE: The Twin Otter does not leave that evening. We just sit around making plans for going up Borgetinde. As the Twin Otter leaves, myself, Claire and Malcolm decide to leave too, towards Borgetinde. We decided to leave in the evening, have a days rest, then climb Borgetinde the following evening. Dave and Tracey say they will catch us up at 2300 the following evening. Moving up the glacier, we arrive at a convenient point to stop, slap bang in the middle of the glacier. During the day it is like an oven as the heat reflects off the sides. Rocks and snow fall off the rock face, with increasing frequency.

Half way through the day the weather starts to cloud over - I start to fret because I forgot to GPS the base camp. While we can follow our tracks, if it snows then we may not be able to. After fretting a while I fall asleep.

JONATHAN: 25 JUNE: Hear the approaching sliding of Dave and Tracey, which wakes me up, and I get the pot on for hot muesli. As we clear up, Dave and Tracey head off first, which creates a good trail to follow. We wind our way through the huge overhanging seracs and past the crevasses. Finally I overtake Dave and help them by breaking trail. As we get higher I am feeling quite tired.

Approaching the flat before the last push to the summit, as we peer over the top the wind hits us. It is driving at least 70 mph and it is very cold. We get great views over the whole of Greenland down to the sea. The ice floes look huge and the glacier has many crevasses down to the sea. Although the wind is quite vicious the view is very clear. After taking a few photographs, we decide to head down as the wind could blow us off the ridge which we have to go along to get to the top.

Also, it is getting late and we would like to be past the seracs before the sun gets on to them. As we go down, Claire is happy to get her crampons on and runs down hill. In the final half kilometre we put our skis on and ski down, this is fun and quick.

At advance base camp we melt snow for a good drink and eat the rations we have left behind, while we wait for Dave and Tracey to come down. They have veered off and gone up a subsidiary mountain that no one has been up before. After about an hour they get to us, and said that they have skied right from the top. Dave and Tracey ask for some water which we melt from the snow, and just sit and chat about our experiences.



28-29 JUNE DAVID'S LOG

DAVID: JUNE 28: Tired. Tracey and I covered 35km in our day on the hill yesterday. Spoke to Tangent on return - the position is unchanged, and we need to move higher before being picked up. This went down with the team better than expected; most people seem happy at the thought of exploring another new area - albeit we are only passing through en route to being picked up.

It's now 1116. We've pulked 17 km from the site where the Twin Otter got stuck for the second time, and gained about 300m height towards the position Paul W gave us for rendezvous with the Twin Otter (60°14.175N, 2852.013W, 2285m). This is a considerable distance we given the weight we're pulling, some of the snow conditions we encountered earlier, crevasses we negotiated (one field in particular entailing a significant detour) and the long hill days most people had on Tuesday night/Wednesday morning. New position 69°05.41,

28°31.865. 1752m. W18. Called Paul W to see if pick up possible in this location. We've spent the night pulking across a gigantic and perfectly useable landing ground. The answer appears to be no. I discover that Air Iceland were on the verge of sending a helicopter for us, necessitating the abandonment of all our kit, until Paul W intervened on our behalf. We now need to make good on reaching the agreed landing site - Air Iceland maintained that they will only pick us up from altitude and from a place they have landed before. So probably will be setting off again c.21/2200, for our final destination. Pick up will be the following morning, and we all know that it's unlikely we'll make it in time - we have a lot of weight to pull, a lot of distance to cover, and a lot of height to gain. The novelty of passing through a new area is beginning to wear off, and people are beginning to get frustrated at the amount of moving around. I



On route to pick up.

sympathise - if we had a night pick-up, this position would be fine. However, if we want picking up, we need to move, so no point griping - we just need to get on with it. We certainly can't complain. While not an ideal situation, I can't lose sight of the fact that we're the first people here, in an incredibly stunning situation. It would be worth a team coming here - lots of nice looking routes that seem fairly straightforward.



The peaks climbed by Rob, Jonathan and Malc near our final pick up position.

We set off again about 2100. Pick up will be early tomorrow morning. We establish a routine of 1 hrs pulking without any stops, followed by 5 minutes rest. I'm the timekeeper, and I keep extending the time pulking to compensate for the increasing duration of the rests. I think a few people notice because comments are thrown back at me. But we have to keep the pace if we're going to make it - the plane can't land later in the day, for obvious reasons. As we pass the foot of a basalt ridge the glacier steepens dramatically. We're roped up - more to keep the pace than from any obvious crevasse danger - and Andy is at the front, setting a good pace. We sent some pulks back last time we met the plane, so now only have five. The remaining three team members push on ahead to route-find, so we can concentrate on pulling the blasted weight. The pulk harnesses, which are a little too big, snatch as we go over undulations on the glacier, rubbing and bruising our skin. Tracey has been particularly affected by this.



Maintaining the pace, we reach the pick-up point in very good time, surprising ourselves, and those in Iceland when we call to let them know. We even have time for Jonathan, Malc and Rob to take in a final snow peaks, while the rest of us sort the kit for the flight home. I'm nervous that the plane will arrive while they're away, but my fears are groundless.



Loading the plane for departure.

The plane arrives. I dig a snow pit and give a conditions report to the pilots, hoping all will be well this time. It seems fine. They come in for the landing, my heart literally in my mouth. It's fine - we see our first successful Twin Otter landing!

Suddenly, it dawns on us that we're going home. The focus on achieving the objective has left little time for dwelling that our trip was coming to an end, the arrival of the Twin Otter heralding a strangely subdued atmosphere. We could have stayed there much longer.



SNOW CONDITIONS

ANDY: It may be useful to set down a note of the unusual snow conditions encountered throughout our expedition. It is difficult for our party to place our experiences in any context, as only one member had been to the Arctic before, and then not to a wet glacier. Accounts from Tangent, Air Iceland pilots, and expedition groups in Sortebrae and surrounding areas in the weeks prior all pointed towards unseasonable patterns of high temperatures and high rainfall at higher than expected altitudes.

We became acquainted with our inheritance within seconds of landing, as the plane fell suddenly into a pocket of softer snow while still travelling at speed. On the ground around our landing site at an altitude of 1500m, we discovered conditions underfoot which varied almost by the metre. Probing showed the snow pack to have a thickness of 1.5-1.7m, and the vicinity of the landing site received direct sunshine from 5am to 11pm. The snow surface was smooth and featureless. Landing at 7pm, the plane's skis had made shallow, even impressions to a depth of 15cm for some distance, then made short but deeper indentations up to 30cm, before running consistently deeper and finally burying itself up to the front fuselage.

The surface layers froze from midnight onwards until midmorning. After this time, footholes were generally a foot deep or more, and those not ski-shod routinely fell through to knee and occasionally hip height. There was little on the surface to indicate soft spots. A feature that became apparent whilst digging out the undercarriage was shards of ice-plate up to 2cm thick which belonged to ice sheets below the surface of varying depth and extent.

The first move from the landing site was down the glacier for some 10km to an altitude of 1300m at the end of a long ridge and the confluence of two glaciers. The snow pack thickness decreased, wind-blown features disrupted the surface and crevasses made their presence felt. At least two minor crevasse falls occurred here to myself (briefly in snowshoes) and to Clare on snowblades. The area above basecamp was crevassed and deteriorating rapidly - sorties to retrieve plane debris left behind quickly became precarious.



The join of the two glaciers beside which we camped was a long trough, and two more were crossed the following day when Group I headed over to Einar Mikkelsens Fjeld to link up with Group II. No-one appreciated their significance until the return trip two days later when all three had transformed into fully-fledged meltwater streams generally 0.5m deep 1-10m wide. Once formed, their beds composed of water-saturated ice mush which would not support skis, and they had to be outflanked or crossed at the occasional points where the water flowed beneath the surface leaving bridges up to 50m in extent. For all their undoubted nuisance value, the rivers became prized fresh water sources, suitable for drinking without prior treatment and relieving the

load on stoves and solar waterbags.

Trench digging around basecamp revealed many layers of ice beneath the surface. A local section could show up to 6 ice layers above the glacier ice, mm or cm thick, and usually a few cm apart. However a section from even a short distance away could show a very different cross-section in terms of number, thickness and placement of the layers. The frequency with which certain members of the party fell through soft snow testified to the absence of ice layers in many places.

The streams grew rapidly to collecting areas at 1700m altitude and cutting us off from basecamp when we headed into the heart of our exploration area. The evacuation of basecamp offered an interesting insight into the behaviour of the streams. Faced with a possible outflanking manoeuvre of 15km, Dave and I, exploring the banks of the stream level with camp in hope rather than expectation, immediately found a bridge area. The surface had an unusual "swept" appearance but easily supported skiers and pulks. As the final carry was being made, the bridge broke upstream and water cascaded in a shallow mass over the bridge - this had clearly generated the swept appearance of the surface. The snow underneath did not deteriorate, however, and those at the back of the party were successfully hauled over albeit with wet boots. After a few minutes the surface flow ceased as abruptly as it had started, whilst the flow of the main stream below the bridge continued throughout.

The traverse of Konkordiaplatz was the lowest altitude skiing that I experienced on the trip, although those visiting Chicks Unleashed's camp skied lower again. The



Racing to cross a snow bridge over a melt-water stream

snow surface all over the area was disturbed into waves whose crests ran predominantly east-west and were themselves broken into smooth bumps. Wave lengths were typically 1-2m, and proved a genuine hindrance to pulk travel, as loads toppled or wedged.

The surface carried a dirty, striated effect, perhaps caused by running surface water? These features were peculiar to glacier elevations below 1300m or so.

The snow around basecamp at this level proved the worst for walking over. The



Rob having dug through the snow pack at the Chicks Unleashed base camp.

best skiing conditions were found at 1500-1900m with smooth snow cover and few crevasses. Ski tracks made by teams in May were visible in the second half of June. Later in the month, overnight frosts became ever rarer, resulting in poor skiing conditions even early in the day.

Frosts became ever rarer, resulting in poor skiing conditions even early in the day. Whilst climbing off the glacier, I experienced three types of snow cover that left an impression on me. North-facing slopes below 2000m carried a thick wet snowpack, often directly over hard ice. The lack of overnight frost on many of these slopes kept thoughts of avalanche risk at the front of my mind. Over 2000m, the same slopes showed a very dry surface layer of windslab, which broke badly underfoot but never threatened a slide of the general snow cover. At similar altitudes, but with a southerly aspect, the snow consolidated well when sheltered from the sun, and formed into a ledged structure, as though many people had passed over the area in the preceding days. Although narrow, the ledges provided excellent footing. I witnessed one minor slip by a companion on this ground,

but I don't think the snow was at fault.

The last two days of the expedition comprised a steady uphill haul of the pulks to a height of 2285m. Conditions up to 1900m were much as we had seen earlier. The final slog was westward up a steep glacier and here the snow changed. It lost the appearance of having softened and had been shaped mainly by the wind and hard frozen into sastrugi with the inevitable effect on effort and progress. The highest meltwater we encountered was found en-route at 1900m, though from the aircraft its feeder streams could be traced a distance further.

The weather over the period was generally fair, often with thin or broken cloud cover especially to the north and at night. I can remember 3 days of poor weather with snowfall or reduced visibility. We experienced light rainfall at one of our lower basecamps. Temperatures were comfortable or warm during the day when out of the wind, but any breeze saw most people heading for tents or duvet jackets. Temperatures in the early hours of the morning were within a few degrees of freezing depending on cloud cover.

SNOW CREATIONS: SNOW KARZIS AND OTHER KONSTRUKTIONEN

ANDY: Snow conditions dictated that we had to move basecamp all too frequently, which made the task of providing storage, dining and sanitary facilities less and less rewarding as time went on. The intention at the outset was to provide the base with a food storage pit, waste pit for grey water, a cooking and dining area and a toilet trench. All were located 40-50 yards from the tents, and in the direction from where any furry visitors would be likely to approach from. In the event we dropped the practice of digging a food storage area as there was no gain over leaving the food on the surface to outweigh the inconvenience of half-burying it, and it was the least smelly thing we had with all the other pits, not to mention the climbers who were wandering around.

All the snow constructions were fundamentally limited by the depth of snow, which we typically found to be around 140cm above the ice of the glacier. The storage and waste pits were

simple rectangular holes dug up to 1 metre depth. Waste was added at one end and progressively filled over.

We had heard from impressed Flugfelag Islands pilots of the innovative round table design discovered at another group's basecamp, but whether due to a dearth of chivalry or likelier the influence of the scientific male brain, any knights at our camp would be seated chess-club style on parallel benches. Mention should be made of the excellent dining saloon disinterred at the original Group II basecamp whilst they awaited our arrival. I understood the builders' reluctance to leave it when I saw images apparently showing a spacious, sharp-angled design sunk to 2 metres, with snow walls finished to a high sheen. But you know what estate agent's photos can be like.

The kitchen I saw dug by the same team at the first combined basecamp adopted the same principles, but on the smaller scale determined by shallower snow cover



Original Group II dining saloon.

and lack of time before the onset of bad weather. Excavated snow formed a protective block wall in most directions. Its occupants were sheltered to standing height, and it became a pleasant place to sit and eat out of the wind. It was successful in enforcing the discipline of eating and cooking away from the tent

area, a discipline which relaxed as camps were successively relocated at short notice.

My own contribution was in the toilet area (should I rephrase that?) so I can offer a more detailed insight. This was dug as soon as the two groups were united at the intended expedition basecamp. The first attempt drew on my experience of building igloos and snow holes in Scotland, and consisted in an arced, precarious screening wall of shaped snowblocks individually fitted and rising to 4-5 feet. Behind this, a trench was dug down to the glacier roughly 4.5 feet down. The shortcomings in the design immediately became apparent. The site of the toilet was chosen with respect to the dining area, tent area and the presence of a meltwater stream from which we drew washing and drinking water. Unfortunately, this resulted in the pit lying to the south of the wall, from behind which the muffled yelps of dissatisfied customers tumbling into one crevasse no-one wanted to practice rescue out of could be regularly heard.

That the solar irradiation is the chief enemy of the snow karzi was also revealed in the short life of screening blocks. Less and less was being left to the imagination. The problem lay in the quality of the snow which changed quickly from undiggably hard to an unconsolidatably soft consistency around midday. My usual technique of tramping soft snow to form harder material to cut blocks out of failed, and the bricks were weak, bonded poorly and were eroded rapidly in the heat.

The building of the Mark II kludgie employed the Twin Otter floorboards bequeathed to us in the aftermath of the archaeological digging of the first days. By propping two large boards upright along their longest edges in the snow, it was possible to create a strong, stable wall 3-4 feet thick in a short space of time, packed down by walking on with the boards in place. Its top provided the base of a double wall of cut snow blocks and heaped snow. To alleviate the problem of climbers cascading into the the murky depths, narrower floorboards were slotted into snow on either side of the trench to provide firmer footing. This innovation was not successful as the boards proved Slippery when wet, absorbed the heat of the sun and became liable to contaminati -



Rob at the Group II Snowbath.

on. However, the more substantial wall survived to offer privacy until the time of our enforced and departure. Also an improvement was the narrow slit trench, which could be used with a foot planted to either side for balance, in place of the ungainly and risky squat over the wide leering pit of the prototype. The trench still lay to the south of the wall unprotected from the midday heat.

The heights of civilization were reached when basecamp was placed in the very centre of the meeting of the glaciers which we referred to as Konkordiaplatz. The experience had been gained and was put to use. The boards were used once more to provide a thick, three-walled structure open narrowly to the north only. The first layer of construction, of around 2 feet in height, was 4-5 feet thick and was achieved using the parallel board technique. Above this, I was able to use the thickness of the lower walls and the right-angled corners to throw up another layer shovelled up against boards - no outer retaining boards were possible. Finally, snow blocks were used to shelter the lower walls from the sun and extend the construction up to 6 feet. The sides of the slit trench were now protected from the sun at all times, and pitfalls fell to an all-time low. The area within the enclosing walls was left deliberately untrodden on until the trench was dug out. Viewed from the tents, it looked like a pillbox, and was

wittily dubbed the Ziggurat of Urgh by Al (though perhaps I misheard).

This was the last of the great conveniences, before the expedition slipped into a barbaric dark age with its nomadic lifestyle of hastily dug pits and token privacy. Clearly development had been bolstered by the use of wooden sheets unavailable to most expeditions. The Mark IV will see thick, layered buttresses spring up between retaining walls of snow-block masonry, multiple cubicles, and perhaps a roof.

But all that must await a New Renaissance.



Ziggurat of Urgh

MEDICAL REPORT BY CLARE O'SULLIVAN



CLARE: The remoteness of our location was both an important and valued aspect of our expedition. However, this obviously also meant that there were no healthcare facilities within skiing distance! We were warned by Tangent that in the event of an evacuation, a rescue attempt would need to be mounted from Iceland. We could expect to wait 24 hours or quite possibly much longer for help to arrive. Therefore, it was vital that we had both a medical kit and the expertise to look after ourselves for at least this length of time with potentially serious injuries. The plans we made are briefly discussed below.

PLAN: Tangent's affiliated doctor, Dr. Jon Dallimore, kindly agreed to be our medical home contact. He was on-call 24 hours a day for the entire length of our trip in case we needed advice with a medical query or emergency. We had decided that either Dave or Clare should approve any evacuation before arrangements were made and devised protocols for the

process in various scenarios. On every trip away from base camp at least one EPIRB was taken and each member of the team carried a copy of the evacuation protocol.

TRAINING: It proved impossible to find time for us to complete a medical course together. However, each of us had at least a basic familiarity with first aid. In addition, Clare is a medical student and Dave had a recent qualification in Advanced Medicine for Remote Foreign Travel. With the knowledge that Dr. Dallimore was available, the group felt comfortable with our collective skill level.

EQUIPMENT: Base camp was home to the main medical kit, this was fairly comprehensive, containing everything from micropore to intravenous fluids and antibiotics. Each tent pair had a smaller first aid kit intended to deal with blisters and small wounds whilst out on trips.

It was actually quite simple to compile the medical kits. With advice from Tangent and Nomad Travel, Clare made a list of the essentials, Nomad came up with a price and voila, we had a medical kit. (see appendix for equipment list)

INJURIES: Unsurprisingly, the most common reason the medical kits were opened was for blister care. "Digger's Arm" came in at a close second and even the pilot was afflicted! An unexpected episode of crevasse exploration caused enough concern for Clare to study her Emergency Medicine textbook but miraculously, the adventurer escaped with only rather large, painful bruises. There was also a collision between an ice axe and a nose (causing some puzzling puss), an infected blister, a recurrence of a

knee injury, eye irritation (snow related), a couple of dashes to the toilet area and some minor sunburn. All in all we survived fantastically well!

EVALUATION: Thankfully, we used very little from the medical kits (see appendix). The small kits were a particular success. The waterproof bags were indeed waterproof and sturdy enough to protect the contents. Although we had planned for each tent pair to have one of these smaller kits with them at all times, we found that it was actually large enough to comfortably serve four individuals for a short trip. A small amount of weight could be saved in future by tweaking the contents slightly. For example, the betadine antiseptic paint was very useful and effective but came in a small glass bottle. It would be more practical to replace this with a plastic bottle or with individually packaged wipes.

We had packed the main medical kit into Tupperware boxes within a sturdy plastic container. Unfortunately, we found that large items of a fixed shape were difficult to transport in the pulks - and particularly this box as damage during transit to Iceland rendered it fragile. Although it is obviously necessary to protect the kit as much as possible, packing smaller, rigid boxes into a soft holdall would still be waterproof and significantly less cumbersome in transportation.

Returning to the UK as eight walking, healthy individuals, with the medical kit virtually untouched was a major achievement and a fantastic relief! We are very grateful to Dr. Dallimore, Tangent and Nomad Travel for all the help we received in planning.

EXPEDITION FOOD BY JONATHAN PHILIPS

JONATHAN: One of the problems, or dilemmas in purchasing food for eight people is trying to match everybody's likes and dislikes in a coherent way. The first requirement is to ask everyone what their favourite foods are, and what they dislike. This was done at the first meeting of the expedition, and highlighted the vegetarians amongst us, and also the fact that someone did not like fish of any type.

With this in mind I did research into the sort of calories that were required for an expedition of our type. It was anticipated that, from a base camp, we do several days exploring and climbing at once, returning to base camp for a day or two's rest before setting off again. (This was to be incorrect, as we did a lot more pulking than anticipated). I decided that I would make sure that the meals provided at least 3500 calories a day with maybe a few more on rest days. This also had to be achieved within a weight allowance. While we had an average weight per person of 165 kg per Twin Otter flight (including bodyweight) it was not immediately obvious how much of this

weight allowance could be allocated to food.

I identified different staples of food to take. This included such things as Soreen malt loaf, chocolate of various forms, health bars, yoghurt nuts, dried fruit and flapjack. I wrote to at least 40 food companies outlining what our expedition was to achieve and identifying to each company the food product we were requesting them to provide for the expedition. This was not successful, with about 50% of companies writing back saying that they already supported various charities in the UK, and therefore did not have the resources to provide us. The remaining 50% received no reply.



FOR THE TECHNICAL

How much energy do you need? The obvious; your body is a machine and needs energy to maintain body weight. If, therefore, you eat the same amount of energy that you use during the day, your weight will remain the same. How much energy is this? As a rule of thumb, or for a quick estimate, you need 40 kilocalories (calories are the same as kilocalories) per Kg of body weight to maintain the energy balance. This means that a 70 kg adult requires 2800 calories to maintain the same body weight. This can vary depending on what the average adult is doing - if sitting at a desk then you will perhaps require less calories than someone who works on a building site carrying bricks all day.

A lot of the data on this topic comes from research into running. It is measured that 1.028 calories per Kg per kilometre (run at medium speed) are required for maintaining the same body weight. I therefore took it that on average, we would do about 8 km of equivalent running per day. This would mean that a 70 kg adult would require about 600 kg extra to the 2800 calories. So this would be 3400 calories a day. I rounded this up to 3500 calories per person per day.

This figure next needs to be broken down into different kinds of nutrients. An endurance athlete needs the following split: 60-70% carbohydrates, 15-20% protein and 15-20% fat.

In general, protein is used for muscle repair and growth, and therefore needs to be eaten every day as it is expelled by the body if not used. Carbohydrates are energy and can be broken down by the body and stored as fat, and as for fat - this generally takes care of itself, although as this is what gives food its taste it should be included in main meals.

The best way of eating is considered the grazing technique, eating every few hours in order to keep the body topped up with fuel. This is generally difficult on a day to day basis. However, from previous arctic expedition experience, Clare recommended a 'goody bag'. This was specifically considered to be "lunch" but was to be eaten as necessary by the individual. The goody bag contained high energy food and each team member had their own bag to last a week. This proved to be a good technique and worked well during the expedition, although some people found that they wished they had taken more variety.

FLUID (HYDRATION)

Our bodies are composed of a high percentage (80%) of water, and when these levels slip significantly out of the normal range, performance is impaired. This applies not only when there is a level of dehydration, but also when there is too high a level of hydration. The reason for this is that water is a carrier for many electrolytes and blood concentration - changes in the amount of fluid change these concentrations.

Research shows that a 2% reduction in normal hydration levels can result in as much as 20% reduction in performance. This can lead to exhaustion and impairs performance and decision making. Therefore it is important to keep hydrated. On the expedition, it was left to the individual as to what type of hydration fluids they would bring. The expedition purchased several black water carriers to convert snow into water during the heat of the day. This did prove very useful, when they were filled.

PACKING LOGISTICS

We set aside one weekend to pack the food and other equipment for shipping to Iceland. In view of the complex nature and the limited time to actually pack the food, a lot of planning and buying of food was done before the packing weekend. This was implemented by the following plan:- A food menu was worked out by myself (after a number of discussions and consultations at team meetings) and circulated by email to check that it catered to everyone's tastes. Although an excellent idea to send this around by email, it is perhaps worth phoning people to check that they had actually read and fully understood the menu. Confusion over food on the menu could lead to someone not eating properly on the expedition.

After a few iterations of this, a full food list was drawn up for purchase. This was further broken down into several lists as research at various discount supermarkets had shown that different foods were cheaper in different places. Food was then purchased by Dave and family, as they had the correct combination of cash and discount cards. I myself went to Tesco's to buy anything that could not be purchased from the discount supermarkets. There were a few frantic phone calls to cross check everything had been purchased! Even so, when the packing day came it needed a small bit of fine tuning, at which Dave's family were very helpful as they were dispatched to buy various forgotten items. I had worked out that we needed to have a lot of room to move around and pack the food. So the Lab at which I worked was commandeered for a weekend. Following is a short summary of how it was completed.



Tracey keeping track of weight.

BREAKFASTS

This was fairly easy as the two breakfasts that were chosen were Muesli and Instant Porridge. Muesli was purchased in a couple of kg bags and was broken into small, portion sized Ziplock bags. With the Muesli a quantity of powdered milk was dispensed. This proved very popular as it could be eaten in the bag hot or cold. Porridge was already in individual sachets and was packed into two sachets per Ziplock bag along with a sachet of jam. This proved less popular.

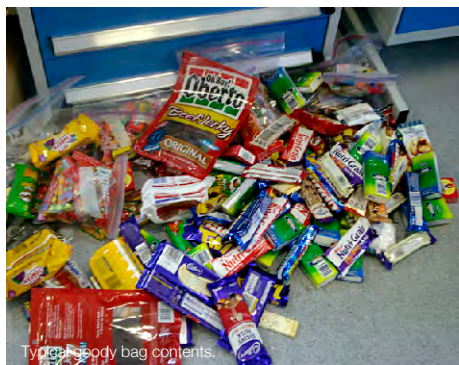
LUNCH

A vast quantity of high energy food and snacks - as seen in the Lunch menu was broken up by individual expedition members and placed in large Ziplock bags - each containing a weeks worth of lunch/hill food. This was known as the 'goody bag', and each bag had the owners name written on it. This was important, as people's tastes were different.

MAIN MEALS

Large Ziplock bags were packed with a complete meal for two persons (or two days main meals for one). This proved successful. The Ziplock bags were packed as shown in the appended table. A complete meal included carbohydrate (e.g. rice/potato) some protein (e.g. fish/meat/beanfeast) and a pudding - mainly powdered custard or angel delight. Soup was included as another way of getting fluid.

The meals were labelled numerically (meal 1, 2 etc). This was for ease of reference, so that similar meals could be selected by a group for ease of cooking. We included three days extra main meals to cater for any delays caused by bad weather or other events. The actual contents of the bags can be seen in Table 1-1 (see appendix).



Typical goody bag contents.

POST EXPEDITION SUGGESTIONS

It is safe to say that everybody got back safely and not undernourished - though several people came back lighter, including me (7 kg/1 stone). This was probably due to the fact that we did a lot more puking than we had anticipated, which would have necessitated a few more calories per meal. Having said that, we did all come back with some left over food from our goody bags, and also some spare main meals, as we spent less time out in Greenland than initially anticipated.

In retrospect we could have taken fewer tins. Savings could have been made on the rice pudding, which was not well received. Weight was an issue at the packing stage, so with fewer tins we could have reduced this. The Wayfarers / expedition food were very convenient as they only required the addition of hot water, and they could be eaten out of the pack. A few comments from various people ranged from "I really liked the meals" to "They were just salt factories" (This is my comment - I only liked the seafood meal). If the water added to the meals was not hot enough, then they were a bit chewy and didn't taste very good. We had not tried these meals before going so perhaps we should have had a taste session before we took them. Goody bags were very successful, although some people wished they had taken more savoury items to eat. There was a general tendency at the packing weekend to grab as much chocolate as possible - possibly as this provided greater calories - so I think this is where the problem stemmed from. I think that we could have packed more dried milk, as this was missing from the tea and coffee. We did pack some all-in-one coffee powder which was successful and very welcoming. The cup-a-soups were an excellent idea. In addition to those contained within the main meal packs, we also packed more of them for general use.

In hindsight, due to the nature of being split up for a few days in Greenland, we should have split the food into two teams. This would have been useful as the goody bags were not split, and some people found themselves without any goody bags for a few days. This was not too much of a tragedy as they had other people to share with and could swap a few days later.

ENVIRONMENTAL POLICY

This policy is based on advice from previous expeditions, and on the British Ecological Survey document 'Environmental Responsibility for Expeditions'.

Given the increasing number of expeditions visiting East Greenland, it is imperative that we take all possible steps to minimise our impact on the mountain environment. Our guiding principle will be to ensure that all areas visited are left as they were before we arrived. This will be addressed as follows:

BEFORE DEPARTURE

Food and stores repackaged in the UK prior to freighting to Iceland. This will reduce the amount of packaging which we will take into base camp. Minimising this will reduce the amount of non-biological waste we generate both at base camp and in the field.

AT BASE CAMP

Camp will be sited a suitable distance from surface water courses if applicable);
Single latrine area and areas for washing/cleaning will be situated away from any surface water courses (if applicable);
Eco-friendly soaps and cleaning materials will be used;
Fuel spillage will be avoided;
Human waste will be buried at least 50cm below snow level, or in a hole that takes it into the bed of the glacier, and away from any surface water courses;
Rubbish storage will be efficient and neat to reduce danger of windblown waste materials;
Stoves will be placed on supports;
Fuel usage will be minimised by using the sun to provide water from snow, and to heat water for washing.

ON CLIMBS/SKI TOURS

All of the above where relevant;
All waste material returned to base camp;
Care will be taken to ensure that no packaging etc. is blown away, in order to maintain the pristine mountain environment;
All signs of uniformity around camps will be removed/destroyed.

ON DEPARTURE

Adequate time allowed for cleaning/clearing base camp site;
All waste taken out of Greenland on departure;
Checks to ensure any buried human waste is completely and adequately covered;
Base camp returned to nature (all signs of uniformity removed/destroyed).

FUTURE EXPEDITIONS

The area has much to offer for future expeditions. Any prospective expedition party should consider the exceptionally warm conditions we faced even in June, (traditionally the best time of year to visit areas such as this one) and plan accordingly.

Our pilots commented that while this year was unseasonably warm (and by bucking the general pattern is perhaps not the best example), the seasons have become warmer each year in a noticeable fashion. Parties planning to visit this area would do well to travel there during May at the latest; landings on or near the ice cap would possibly extend the time available. However, the glacial rivers which opened increasingly frequently, and with little notice, made moving around difficult and necessitated a number of significant detours – an earlier visit would help to avoid this problem. Skis are imperative. Those who had them found snow-blades and snowshoes to be inadequate in the soft snow conditions.

All of the valleys/glaciers which we explored and from which we climbed have much to offer future climbing parties. Time spent camping on the plateau underneath the Borgetinde summit tower would be well worth the effort involved in carrying the necessary supplies up. From this position, as well as Borgetinde itself, one can access most of the climbable peaks in the Borgetinde massif - all but one of which (excluding Borgetinde) remain unclimbed. The altitude would provide good conditions even later in the season (i.e. in June), and the ski descent makes any trip up worthwhile.

The valleys leading to the icecap – at least the two used by our parties to access the icecap – offer less in the way of climbing. A

number of snow couloirs at about Scottish I/II give access to peaks, though on some peaks one would have to negotiate basalt ridges for the final sections, and the couloirs themselves are prone to rockfall. Some exceptions to this rule exist - we spotted an attractive, unclimbed snow ridge, for example - but Poachers Peak is probably the most striking and climbable peak in this area.

From the position where we accessed the icecap, a number of attractive peaks on the edge of the icecap but further North could be seen. As far as we are aware, these remain unclimbed.

With the Borgetinde massif, the area which holds most promise for future parties is the line of corries/peaks in the vicinity of Solstice peak. We identified a number of excellent looking routes, from about PD to TD. Some striking ice lines exist side by side easier snow ramps, albeit with the occasional mound of unconsolidated basalt. That said, it was in this area that we noted some good basalt, which, given the time, would have given good sport. The rock was solid and reminiscent of Cornish sea cliffs with its blocky appearance.

We would be happy to discuss the area in more detail with parties considering a visit.

FINANCIAL STATEMENTS

The below refers to group income/expenditure only, and excludes costs incurred by individuals (e.g. in purchasing personal equipment). Also excluded are costs incurred by the two halves of the team while separated in Iceland at the beginning of the trip; these costs were met by each group separately. The section 'other costs' includes, amongst other costs, group equipment (kindly supported by First Ascent) and expenses in Iceland.

EXPENDITURE

Tangent Expeditions International (Logistics package): £34,000

The above breaks down as follows:

Fares: £1000 (Reykjavik-Isafjördur rtn flexible)

Freight: £2400

Fuel: £300

Other Travel: £25900 (Twin Otter logistics package)

Administration: £2000

Permits: £600

Equipment Hire: £1800

Flights (UK - Iceland): £1200

Insurance: £2800

Food: £1263.36

Medical kit: £350.45

Other costs: £737.50

Group kit (incl repair kit): £197.12

Total expedition cost: £40548.43

INCOME

Gino Watkins Memorial Fund/Arctic Club: £1750

Mount Everest Foundation: £750

Andrew Croft Memorial Fund: £600

Alpine Ski Club: £500

Total Grants: £3600

Member contributions: £36948.43 or £4618.55 pp.

ACKNOWLEDGEMENTS



This expedition could not have happened without the assistance, advice and support of many people.

We owe a considerable debt of gratitude to the following groups, trusts and organisations for significant financial support, without which the cost burden to team members would have been much greater:

The Gino Watkins Memorial Fund;
The Andrew Croft Memorial Fund;
The Mount Everest Foundation;
The Arctic Club;
The Alpine Ski Club.

Thanks are also due to First Ascent for generous assistance with equipment, and to the BMC for their support for the expedition.

Our pilots (particularly David and Johann) have been mentioned before; we thank them again.

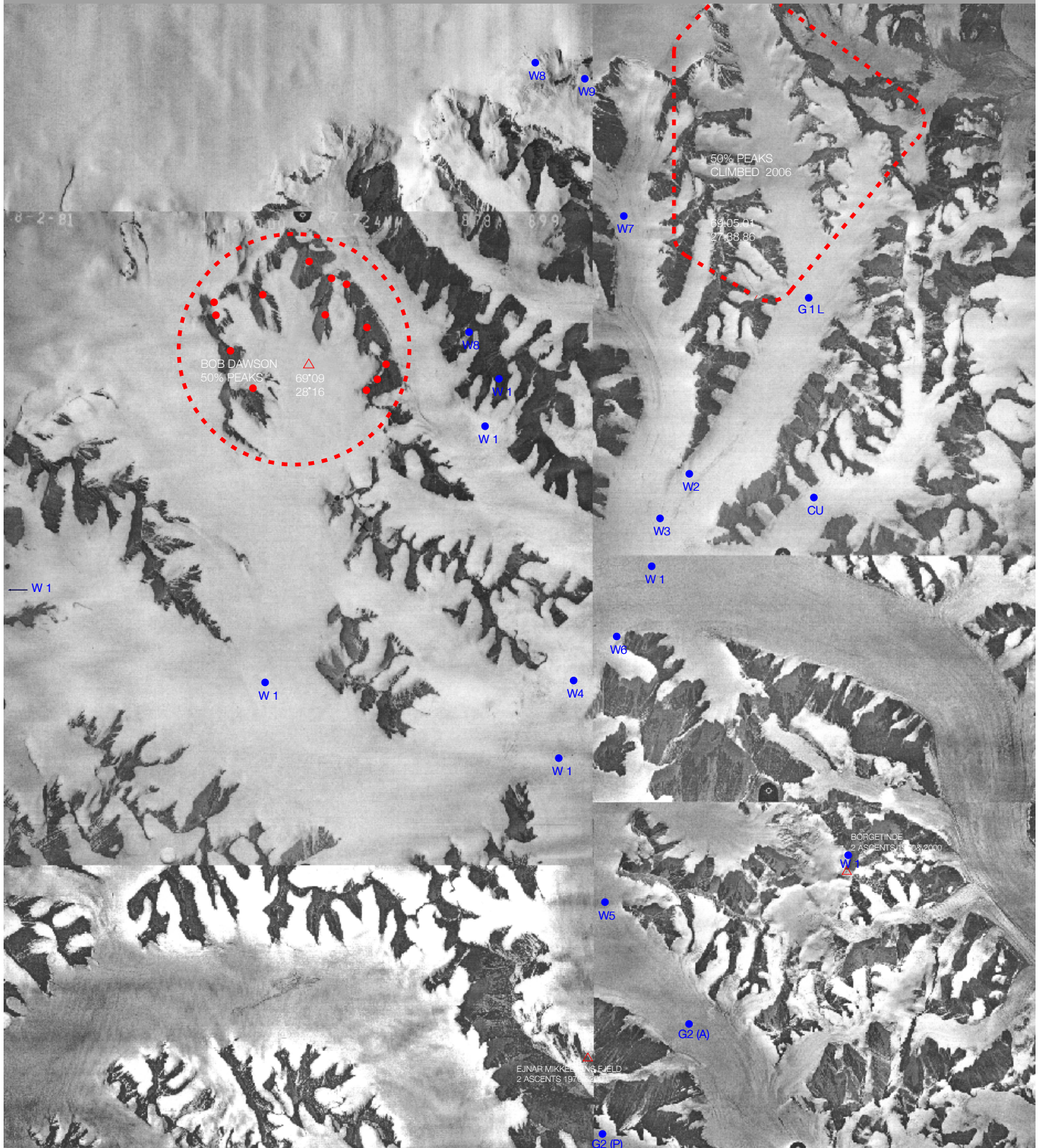
Thanks go to Ray Fitzsimmons for food advice, to Andy Brown for references, and to Paul Walker and various AC members for general expedition advice. Also to Mary and Maria Jakulis for assisting with food purchasing and packing.

Paul Jakulis played a key role in acting as the expedition Home Contact, ensuring that when separated, the two halves of the expedition had a means of contacting one another. Paul also updated friends and family at home on our progress, and acted as a back up for Tangent's support services. Paul's expertise was also invaluable in producing this report; many aspects of this expedition, both in the field and afterward, would have been much more difficult without his assistance.

Finally, thanks go to Dick Griffiths. Dick not only provided us with continuous valuable advice and the benefit of his expedition experience – often at short notice, and while in the midst of planning his own Scouting expedition to Greenland – but, more importantly, provided me with the inspiration and enthusiasm to organise this expedition, through many years of leadership and companionship in the mountains and in the Scouts. Dick - thanks.

APPENDIX

AERIAL PHOTOGRAPH ROUTE KEY



Below is a key to the positions marked on the aerial photographs. Please note that the positions as marked on the photographs have not been changed since they were marked in the field. They therefore represent an estimation as to the position, rather than an exact pinpoint. The lat/long of each position are precise, and are taken from GPS measurements while at the position.

W(number) refers simply to the order in which a waypoint was created. Readers will find the textual description of the position of more use.

LS (W1): Landing site of Group I, where the Twin Otter was buried for the first time. Position: 60°01.3'N, 27°50.8'W. Height: 1552m.

W2: First camp pitched by Group I en route to meet Group II. Position: 69°01.4'N, 28°00.1'W. Height: 1409m.

W3: Kit dump made by Group I en route to meet Group II. Also first base camp of the expedition, where Groups I and II were reunited. Abandoned after trip to ice cap due to danger of being cut off by supra glacial rivers. Position: 69°01.4'N, 28°02.3'W. Height: 1392m.

W4: Second camp pitched by Group I en route to Group II. Position: 68°58.8'N, 28°17'W. Height: 1488m.

W5: Furthest point reached by Group II I search of Group I. Position: 68°55'N, 28°27.4'W. Height: 1444m.

G2 (A): Approximate position of Group II landing site.

W6: Position of Group I camp after travelling from G2(A). Position: 68°58.6'N, 28°14.3'W. Height: 1490m.

W7: Camp site of Tracey, Andy, Alasdair and Dave prior to climbing Poachers Peak. Position: 69°07.4'N, 27°48.7'W. Height: 1711m.

W8: Pile of Stones. Position: 69°10.7'N, 27°46.96'W. Height: 2706m.

W9: Poachers Peak. Position: 69°09.6'N, 27°43.9'W. Height: 2773m.

W10: Site of second base camp, after camp at W3 was abandoned. Position: 69°01.2'n, 28°08.8'w. Height: 1363m.

W11: Campsite of Andy, Tracey and Dave prior to ascents of Solstice Peak and attempts on other surrounding peaks. Position: 69°05.5'N, 28°08.3'W. Height: 1532m.

W13: Solstice Peak. Position: 69°07.8'N, 28°04.3'W. Height: 2222m.

W14: Unnamed peak. Position of high point: 69°06.7'N, 28°04.7'W. Height: 2285m.

W15: Base camp set up to meet Twin Otter, where it sank for the second time. Also striking off point for peaks in Borgetinde massif. Position: 68°59.1'N, 28°17.7'W. Height: 1494m.

W17: Summit of unnamed peak adjacent to Borgetinde climbed by Tracey and Dave. Position: 68°51.8'N, 28°14.6'W. Height: 2842m.

W18: Position of camp en route to pick up point (W16) from final base camp (W15). Position: 69°05.4'N, 28°31.9'W. Height: 1752m.

W16 (Off area covered by photographs). Final pick up position: 69°14.175'N, 28°52.013'W. Height: 2285m.

EVACUATION PROCESS

If evacuation is appropriate (agreed by Dave and or Clare, or Dr Dallimore).

*** DO NOT ACTIVATE EPIRB * EPIRB** to be activated only in the case of Satphone failure and where immediate assistance is required.

STEP 1

If serious medical emergency call Jon Dallimore for medical advice

Jon Dallimore: 0044 129 162 6554 / 0044 7710 254394

STEP 2

Call Tangent on 0044 1539 822363 / 0044 7887 556089 (Paul)
0044 1539 822363 / 0044 7887 536649 (Lucy)

If Tangent unavailable refer to sheet no. 2

Brief Tangent on situation. Include:

Assessment/diagnosis of casualty;
Whether Dr Dallimore has been consulted;
Casualty location;
Your location;
Action being taken (e.g. if casualty on the hill, are they being evacuated to Base Camp, what treatment has been administered, etc);

STEP 3

Contact insurance company. State intention to evacuate and brief insurance company on situation. Include:

Reason evacuation is necessary;
Assessment/diagnosis of casualty;
Whether Dr Dallimore has been consulted.

Insurance Emergency Contact: 00353 91 560 608

YOU **MUST** OBTAIN AUTHORISATION TO EVACUATE CASUALTY BEFORE PROCEEDING. **IF UNABLE TO CONTACT INSURANCE COMPANY AND EVACUATION IS TIME CRITICAL PROCEED TO STEP 4**

STEP 4

Await instructions from Tangent. Tangent will arrange evacuation by Twin Otter or helicopter, plus police/medical/rescue teams as appropriate.

STEP 5

Contact Home Contact and brief on situation.

Home Contact (Paul): 0044 753 823571 / 0044 207 262 2379

Stand by and await instructions. If you have not done so already, call Jon Dallimore for medical advice:

Jon Dallimore: 0044 129 162 6554 / 0044 7710 254394

SHEET 1: EVACUATION PROCESS CO-ORDINATED BY TANGENT

SHEET 1: EVACUATION PROCESS CO-ORDINATED BY TANGENT

DO NOT FOLLOW THESE INSTRUCTIONS UNLESS YOU HAVE TRIED AND FAILED TO CONTACT TANGENT ON ALL NUMBERS VIA SATPHONE. SEE SHEET 1 FOR THIS PROCESS

*** DO NOT ACTIVATE EPIRB ***

EPIRB to be activated only in the case of Satphone failure and where immediate assistance is required.

STEP 1

If serious medical emergency call Jon Dallimore for medical advice

Jon Dallimore: **0044 129 162 6554 / 0044 7710 254394**

STEP 2

Contact insurance company. State intention to evacuate and brief insurance company on situation. Include:

Reason evacuation is necessary;
Assessment/diagnosis of casualty;
Whether Dr Dallimore has been consulted.

Insurance Emergency Contact: **00353 91 560 608**

YOU MUST OBTAIN AUTHORISATION TO EVACUATE CASUALTY BEFORE PROCEEDING. IF UNABLE TO CONTACT INSURANCE COMPANY AND EVACUATION IS TIME CRITICAL PROCEED TO STEP 3

STEP 3

Call Greenland Chief of Police and brief on situation. **00299 32 1448 (Office)**
00 299 32 4194 (Home/24hr)

STEP 4

Call Home Contact. Brief on situation. Include:

Assessment/diagnosis of casualty;
Whether Dr Dallimore has been consulted;
Casualty location;
Your location;
Action being taken (e.g. if casualty on the hill, are they being evacuated to Base Camp, what treatment has been administered, etc);
Instruct Home Contact to establish contact with and brief Tangent;
If you have not spoken to insurers, instruct Home Contact to establish contact with and brief insurers;
Inform Home Contact that you are about to initiate evacuation procedure;
Instruct Home Contact to keep you informed of developments.

Home Contact (Paul): **0044 7753 823571 / 0044 207 226 2379**

STEP 5

Contact the following:
Frissi (Twin Otter / Air Iceland): **00354 460 7080 / 00354 894 5390 (mob)**

Brief Frissi on situation. Include:

Assessment/diagnosis of casualty;
Whether Dr Dallimore has been consulted;
Casualty location;
Your location;
Action being taken (e.g. if casualty on the hill, are they being evacuated to Base Camp, what treatment has been administered, etc);

State that you have been unable to contact Tangent;
Inform Frissi whether you have obtained authorisation to evacuate from insurers;
State that you have briefed Home Contact (and what they are doing);
Nature of assistance that you require (Doctor, search/rescue teams, etc).

**FRISSI WILL NOW ARRANGE DETAILS OF EVACUATION. STAND BY AND WAIT FOR FURTHER INSTRUCTIONS.
AVOID UNNECESSARY USE OF SATPHONE TO ALLOW EMERGENCY SERVICES TO CONTACT YOU.**

If you are unable to contact Frissi, contact the following and brief as for Frissi:

Isafjordur Airport: 00354 456 3000
Greenland Chief of Police: 00299 321448
Greenland (Scoresbysund) Police: 00299 99 1022

If Twin Otters are unavailable for rescue purposes, evacuation will take place by helicopter from Constable Pynt. Contact details:

Constable Pynt Airport Manager: 00299 99 38 50
Air Greenland (Constable Point): 00299 99 3858
Scoresbysund Hospital (Constable Pynt): 00299 99 1011
Scoresbysund Hospital (doctor at home): 00299 99 1021

STEP 6

Stand by and await instructions. If you have not done so already, call Jon Dallimore for medical advice:

Jon Dallimore: 0044 129 162 6554 / 0044 7710 254394

SHEET 2: EVACUATION PROCESS WHERE TANGENT UNAVAILABLE

SHEET 2: EVACUATION PROCESS WHERE TANGENT UNAVAILABLE

DO NOT FOLLOW THESE INSTRUCTIONS UNLESS YOU HAVE TRIED AND FAILED TO CONTACT TANGENT AND ALL OTHER CONTACTS ON ALL NUMBERS VIA SATPHONE. SEE SHEET 1 AND 2 FOR THIS PROCESS

STEP 1

Is evacuation agreed by Dave and/or Clare? If so:

ACTIVATE EPIRB

STEP 2

Refer to Sheet 1 and continue to attempt to establish contact with Tangent. If Satphone is operational but Tangent unavailable refer to sheet 2. Continue until you establish contact.

STEP 3

Issue MAYDAY call on VHF. See script attached to radio.

SHEET 3: EVACUATION PROCESS WHERE SATPHONE INEFFECTIVE

SHEET 3: EVACUATION PROCESS WHERE SATPHONE INEFFECTIVE

PERSONAL KIT

Twin Otter weight limit 160kg each =

Italics = weight estimate

Shipping deadline: Kendal April 21st

BA weight limit 23 kg each

Internal Greenland flight weight limit =

FOOD WEIGHT =	240	kg
GROUP KIT + BODYWEIGHT=	745.54	kg
TOTAL SHARED WEIGHT (food +	985.54	kg
PERSONAL KIT ALLOWANCE =	36.81	kg
PERSONAL KIT CURRENT =	29.16	kg
TOTAL WEIGHT =	1218.8	kg
Are We OK so far?	YES	

Item	Make/ model	weight each (kg)	Number	Total weight kg	Ship
(italics = to be confirmed)					
Sleeping etc					
sleeping bag		1.23	1	1.23	y
sleeping bag liner		0.05	1	0.05	y
pillow case		0.10	1	0.1	
thermarest		0.20	1	0.2	
sleeping mat for under tent		0.20	1	0.2	y
thermarest chair			1	0	
slippers			1	0	
bivvy bag		0.78	1	0.78	y
Total Sleeping/chilling Weight:		2.56		2.56	2.26
Clothing					
Outer:					
leather boots	Meindl	1	1	1	
lightweight waterproof	Lowe Alpine	0.1	1	0.1	
waterproof trousers	Berghaus	0.1	1	0.1	
Down Jacket		0.6	1	0.6	y
Montane smock		0.875	1	0.875	
Ski trousers?		0.6	1	0.6	y
gaiters		0.4	1	0.4	
goggles					
Inner:					
powerstretch leggings	Lowe Alpine	0.21	2	0.42	
powerstretch top	Lowe Alpine	0.24	1	0.24	
HH top	HH		1		
gloves			4		
	thin lowe alpine	thin lowe alpin	0.09	1	0.09
		very thin		1	
		dachsteins		1	
		buffalo		1	
		ice		1	
hat					
	pink	0.12	1	0.12	
	balaclava		1		
	buff		1		
socks		0.07	5	0.35	
t shirts			1		
?shorts			1		
swim suit?			1		
underwear			1		
Total Clothing Weight:				4.90	1.2
Exploring Gear					
red rucksac		2.1	1	2.1	
daysac		0.4	1	0.4	
rucksac liner?			1		
crampons and bag	DMM aiguille	1.25	1	1.25	y
shovel		0.51	1	0.51	y
probe		0.2	1	0.2	
transeiver		0.3	1	0.3	
Climbing					
axe hammer and adz		1.49	1	1.49	y
nut extractor?		0.05	1	0.05	
helmet	petzl ecrin	0.46	1	0.46	
prussiks		0.05	1	0.05	
harness, belay device, HMS screwgate		0.69	1	0.69	y
slings					
	grey sling + red HMS	0.19	2	0.38	
	black sling and scregate	0.11	1	0.11	
ab tat			5		
pulley and pulley krab		0.08	1	0.08	y
headtorch		0.07	1	0.07	
rock boots?	?	0.47	1	0.47	
Navigation					
map case			1		
GPS		0.153	1	0.153	
whistle			1		
compass		0.02	1	0.02	
altimeter watch		0.05	1	0.05	
Skiing					
skis, bindings and bag	Atomic	5.6	1	5.6	y
boots and inners		3.7	1	3.7	y
skins		0.47	1	0.47	y
poles		0.3	1	0.3	y
haarscheisen		0.28	1	0.28	y
Total Exploring Weight:				19.18	14.37

Eating					
knife		0.01	1	0.01	
fork		0.01	1	0.01	
spoon		0.01	1	0.01	
spork		0.01	1	0.01	
cup		0.04	1	0.04	y
bowl		0.01	1	0.01	y
water bottle		0.177	2	0.354	
flint/lighter		0.02	4	0.08	
tea towel			1		
additional food			2		
Total Eating Weight:				0.52	0.05

Other					
wet wipes					
toothbrush					
toothpaste					
towel					
camera					
batteries					
film					
clothes washing detergent					
sun screen					
sun glasses					
spare sunglasses					
neck cord for sunglasses					
penknife					
pen					
paper					
books					
games					
wallet, money, credit card, passport, plane tickets.					
lip sun black					
black sleep headband					
Total Other Weight:				2.00	

TWIN OTTER LOADS: FLIGHT ONE

Body weight: $584/2 = 292$ kilos.
Tangent kit less pulks (fuel, rifle, flares, VHF, satphone): 60 kilos.
Box 2: Main meals. 15 kilos.
Box 7: Porridge. 9 kilos
Box 18: Medical kit. 9 kilos.
Box 15: Clare's personal kit, lighters, three stove bases. 6.5 kilos.
Clare's skis and poles: 5.5 kilos.
Tracey's skis: 7 kilos.
Dave's skis: 7.5 kilos.
Andy's skis: 7 kilos.
Tracey UK stuff: 13 kilos.
Andy UK stuff: 15 kilos.
Clare UK stuff: 16 kilos.
Dave UK stuff: 12 kilos.
Box 13: Stoves, pans, etc. 14 kilos.
Box 8: Alasdair & Clare's goody bags. 22 kilos.
Box 9: Jonathan's goody bags, plus remainder of Clare's and Tracey's. 35 kilos.
Box 11: Andy, Malc, Dave goody bags. Plus one unmarked. 31 kilos.
Box 10: Robs goody bags (all) plus 4 Dave goody bags. 20 kilos.
2 tents: 13 kilos

Above comes to 609.5 kilos. Add on Andy and Clare's personal kit from above and we will be close to the limit. Maybe take one rope as well.

TWIN OTTER LOADS: FLIGHT TWO

Bodyweight $584/2 = 292$ kilos.
Pulks: 40 kilos.
Box 1: Main meals. 10 kilos.
Box 3 (Alpen): doesn't exist anymore. Instead take breakfasts from Tangent yellow ski bag and place in pulks. 14.5 kilos.
Box 5: Main meals, 1 goody bag for Dave, JP, Tracey, Clare and Malc. 25 kilos.
Box 6: Main meals. 25 kilos.
Box 12: Climbing gear. 30 kilos.
Box 4: Main meals. 32 kilos.
2 tents: 13 kilos
Jonathan skis and poles: 7.5 kilos
Rob skis: 5 kilos
2 Tangent skis: 14 kilos.
Box 19: Alasdair's personal kit. 5 kilos.
Box 20: Alasdair's personal kit. 8 kilos.
Box 21: Robs kit. 10 kilos.
Box 22: Robs kit. 7 kilos.
Jonathan UK stuff: 12 kilos.
Rob UK stuff: 16.5 kilos.
Malc UK stuff: 19 kilos.
Alasdair UK stuff: 14 kilos.

Above comes to 599.5 kilos. Add to this Malc, Jonathan and Alasdair personal kit from the split boxes above and we will be near the limit.

BOXES TO BE OPENED AND SPLIT:

Box 14: Malc's personal kit, Clare's axes, snowstakes. 13 kilos.
Box 16: Andy and Jonathan personal kit, Clare's Karrimat. 22 kilos.
Box 17: Andy, Jonathan, Clare and Alasdair's kit. 11 kilos.

TABLE 1.1 EXPEDITION FOOD

Meal 1	4 times ZIPLOCK (medium)
Cup a soup	2 pkt
Savoury rice	2 pkt
Beanfeast Chilli	1 pkt
Custard	1 pkt
Cake (Battenburg) or Jaffa cakes	1 portion
Meal 2	4 times ZIPLOCK (medium)
Cup a soup	2 pkt
Mashed pototoe	100g in a ziplock bag small
Beanfeast mince	1 pkt
Custard	1 pkt
Dried fruit	40g in a ziplock bag small
Meal 3	4 times ZIPLOCK (medium)
Cup a soup	2 pkt
Beanfeast Bolougne sauce	1 pkt
Pasta	150 g
Double Choocolate swiss roll	0.5 cake
Custard	1 pkt
Meal 4	VEG VER (1 ZIPLOCK BAG)
Cup a soup	2 pkt
Salmon	1 tin
Pasta	2 pkt
Cranberries	10 g
Custard	1 pkt

Meal 4	MEAT VER (3 ZIPLOCK BAG)
Cup a soup	2 pkt
Ham	1 tin
Pasta	2 pkt
Cranberries	10 g
Custard	1 pkt
Meal 5	VEG VER (1 ZIPLOCK BAG (MEDIUM))
Cup a soup	2 PKT
Corned Beef	100 g
Mashed Pots	1 tin
Tuna fish	1 cake
Jamican Ginger cake	1 pkt
Custard	1 pkt
Meal 5	MEAT VER (3 ZIPLOCK BAG (MEDIUM))
Cup a soup	2 PKT
Corned Beef	1 tin
Mashed Pots	100 g
Jamican Ginger cake	1 cake
Custard	1 pkt
Meal 6	(4 ZIPLOCK BAG (MEDIUM))
Cup a soup	2 pkt

Pitta bread	4
Sundried tomatoes	2
Grated hard cheese	100g
Border biscuits	2 pkts
Custard	1 pkt
Meal 7	MEAT VER 3 ZIPLOCK MEDIUM
Cup a soup	2 pkt
Lamb Shank	2 pkt
Mashed pots	100g
Rice pudding	1 tin
Meal 7	MEAT VER 3 ZIPLOCK MEDIUM
Cup a soup	2 pkt
Mashed pots	100g
Salmon fish	1 tin
Rice pudding	1 tin
Meal 8	MEAT VER 3 ZIPLOCK MEDIUM
Cup a soup	2 pkt
Vacuum packed hot dogs	1 pkt
Mashed pots	100g
Salmon fish	
Dried fruit	20 g
Angel Delight	1 pkt
Meal 8	VEG VER 1 ZIPLOCK MEDIUM
Cup a soup	2 pkt
Mashed pots	100g
Salmon fish	1 tin
Dried fruit	20 g
Angel Delight	1 pkt
Meal 9	4 ZIPLOCK BAGS MEDIUM
Cup a soup	2 pkt
Pasta	200g
Pesto	1 tube
Dried cheese	20 g
Dried fruit	20g
Angel Delight	1 pkt
Meal 10	4 ZIPLOCK BAGS MEDIUM
Cup a soup	2 pkt
Beanfeast chill	1 pkt
Rice	2 pkt
Pancakes	100g
Jam	2 pkt
Meal 11	4 ziplock bags
Cup a soup	2 pkt
1 tin of Mackerel	1 tin
tomatoe soup	1 pkt
Curry powder spoonfuls in small ziplock bag	2
Rice	2 pkt
Jaffa Cakes	2 pkt
Custard	1 pkt
Meal 12	4 ZIPLOCK BAGS

Cup a soup	2 pkt
Wayfares / Expedition food	2 pkt
Jamican Ginger cake	cake 0.5
Custard	1 pkt
Meal 13	4 ZIPLOCK BAG
Cup a soup	2 pkt
Wayfares / Expedition food	2 pkt
Rice pudding	1 tin
Meal 14	4 ZIPLOCK BAG
Cup a soup	2 pkt
Wayfares / Expedition food	2 pkt
Rice pudding	1 tin
Meal 15	4 ZIPLOCK BAGS
Cup a soup	2 pkt
Wayfares / Expedition food	2 pkt
Semonila	1 pkt
Jam	2 pkt
Meal 16	4 ZIPLOCK BAGS
Cup a soup	2 pkt
Wayfares / Expedition food	2 pkt
Lemon cake lyons	0.5
Meal 17	4 ZIPLOCK BAGS
Cup a soup	2pkt
Wayfares / Expedition food	2 pkt
Blueberries	10 g
Custard	1pkt
Meal 18	4 ZIPLOCK BAGS
Cup a soup	2 pkt
Wayfares / Expedition food	2 pkt
Carrot cake	0.5
Custard	1 pkt
Meal 19	4 ZIPLOCK BAGS
Cup a soup	2 pkt
Wayfares / Expedition food	2 pkt
Foxes biscuits	2 pkt
Custard	1 pkt
Meal 20	4 ZIPLOCK BAGS
Cup a soup	2 pkt
Wayfares / Expedition food	1 pkt
Battenburg cake	1 pkt
Custard	1 pkt
Meal 21	3 ZIPLOCK BAGS
Cup a soup	2 pkt
Mashed pots	100g
Tuna / Salmon	1 tin
Olives	handful
Angel Delight	1 pkt
Dried fruit	20 g
Meal 22	MEAT VER 3 ZIPLOCK BAGS
Cup a soup	2 pkt
Mashed pots	100g
Corned beef	1 tin
Textured veg protein	200 g
Angel Delight	1 pkt
Dried fruit	20g
Meal 22	VEG VER 1 ZIPLOCK BAGS

Cup a soup	3 pkt
Mashed pots	100g
Textured veg protein	50 g
Angel Delight	1 pkt
Dried fruit	20g
Meal 22	VEG VER 1 ZIPLOCK BAGS
Cup a soup	3 pkt
Mashed pots	100g
Textured veg protein	50 g
Angel Delight	1 pkt
Dried fruit	20g
Meal 22	VEG VER 1 ZIPLOCK BAGS
Cup a soup	3 pkt
Mashed pots	100g
Textured veg protein	50 g
Angel Delight	1 pkt
Dried fruit	20g
Meal 23	4 ziplock bags
Cup a soup	2 pkt
1 tin of Mackerel	1 tin
tomatoe soup	1 pkt
Curry powder spoonfuls in small ziplock bag	2
Rice	2 pkt
Pancakes	2 pkt
Jam	2 pkt
Meal 24	3 ZIPLOCK BAGS
Cup a soup	2 pkt
Pasta	1 pkt
Tuna / Salmon	1 tin
Custard	1 pkt
Cherry cake	0.5
Meal 24	1 ZIPLOCK BAGS
Cup a soup	2 pkt
Pasta	1 pkt
Salmon	1 tin
Custard	1 pkt
Cherry cake	0.5
Meal 24	1 ZIPLOCK BAGS
Cup a soup	2 pkt
Pasta	1 pkt
Salmon	1 tin
Custard	1 pkt
Cherry cake	0.5
Meal 25	3 ZIPLOCK BAGS
Cup a soup	2 pkt
Egg noodles in a medium ziplock	0.5 pkt
Tuna	1 tin
Cashew nuts	1 pkt
Angel delight	1 pkt
Dried fruit	20g
Meal 25	1 ZIPLOCK BAGS
Cup a soup	2 pkt
Egg noodles in a medium ziplock	0.5 pkt
Salmon	1 tin
Cashew nuts	1 pkt
Angel delight	1 pkt

Dried fruit	20g
Meal 26	3 ZIPLOCK BAGS
Cup a soup	2 pkt
Coucouc	1 pkt
Tuna	1 tin
Sundried tomotoes	1 handful in a small ziplock bag
Soy sauce	1 pkt
Custard	1 pkt
Dried fruit	20 g
Meal 26	1 ZIPLOCK BAGS
Cup a soup	2 pkt
Coucouc	1 pkt
Salmon	1 tin
Sundried tomotoes	1 handful in a small ziplock bag
Soy sauce	1 pkt
Custard	1 pkt
Dried fruit	20 g
Meal 27	MEAT VER 3 ZIPLOCK BAGS
Cup a soup	2 pkt
Coucouc	1 pkt
Lamb Navarin	2 pkt
Tuna	1 tin
Custard	1 pkt
Cake	0.5
Meal 27	MEAT VER 3 ZIPLOCK BAGS
Cup a soup	2 pkt
Coucouc	1 pkt
Lamb Navarin	2 pkt
Tuna	1 tin
Custard	1 pkt
Cake	0.5
Meal 28	MEAT VER 3 ZIPLOCK BAGS
Cup a soup	2 pkt
Egg noodles	1 pkt
Ham	1 tin
Custard	1 pkt
Cake	0.5
Meal 28	VEG VER 1 ZIPLOCK BAGS
Cup a soup	3 pkt
Egg noodles	1 pkt
Makeral	1 tin
Custard	1 pkt

GOODY BAG SHOULD CONTAIN TYPICALLY FOOD FOR 7 DAYS PER DAY

1000 Calories

The following is a shopping list for the breakfasts, Goody bags and main meals. The list also shows what was on offer for the goody bags (highlighted).

Angel delight	40		
Alpen bars	8	4	32
Beef Jerky	6	2	12
Crud crunch bar	8	1	8
Dairy milk	8	8	64
Dorina crackers			0
Double deckers	8	4	32
Dried dates	20	7	140
Dries fruit	20	8	160
Foxes biscuits		2	0
Galaxy	8	6	48
Green Black			
Chocolate	8	5	40
Haribo	8	4	32
Hula hoops	8	5	40
Jaffa cakes	8	5	40
Jordans Fruseli bar	8	3	24
KitKats	8	4	32
Maomi sweets	8	4	32
Natural museli bars	8	7	56
Nugget fruit Juice	8	5	40
Nutri grain	8	4	32
Nutri grain raisin bake	8	5	40
Nuts and fruit	50 g	8	10
Oat cakes	8	2	16
Penguin bars	8	3	24
Picnic	8	4	32
Poppet raisains			30
Pringles	8	10	80
Protein bars	8	3	24
Roasted peanuts	10 g	8	16
Seeds fruit and nuts			0
Custard powder	40		
Twix	8	4	32
Wine gums	8	4	32
Chewing gum			
Ziploc bags 1	216 @5.49		2
Ziploc bags medium	160 @ 6.15		
Ziploc bags large	102 @ 5.59		
Mashed potato	40		
Dried fruit	52		
Tea	200		
Coffee	200		
Drinking Chocolate	200		
Pasta	24		
Swiss roll	4		
Salmon	5		
Grate dhard cheese	16		

Border biscuits	8			
Lamb shank	6			
Vuum packed hot dogs	14			
Pancakes	16			
Packet of tomotoe soup	4			
Tuna	20			
Semonla	4			
Blueberries	8			
Foxes biscuits				
Cashew nuts	4			
Egg noodles	16			
Sundried tomatoes	8			
Couscous	16			
Lamb Navarin	6			
Tea	28	6	Bag	168
Oatso simple	14	8	Pkt	112
Chicken Korma	20	FCEF*		
Chilli con carne	10	FCEF*		
Spaghetti bolognese	20	FCEF*		
Chicken tikka	10	FCEF*		
Beef and potato casserole	10	FCEF*		
Beef stew and rice	10	FCEF*		
Wolf fish and artic prawns	20	FCEF*		
Vegetable tikka	6	FCEF*		
Vegetable cassrole	6	FCEF*		
Tuna and pasta	10	FCEF*		
Museli	14	8	150 g	112
Sugar	Sachets		3 kg	
Sun-dried Tomatoes		2	Pkts	
Cakes		Various	20	
Cup soups		Pkts	200	
Mackerel		Tins	10	
Textured Veg Protein		g	500	
Angel Delight		Pkts	50	
Beanfeast		Pkts	20	
Curry Powder		g	200	

FCEF* = First choice expedition foods

Claire O'Sullivan

Greenland Expedition Medkit

Nomad Pharmacy 3 - 4 Turnpike Lane, London, N8 0PX, Tel: 0

Analgesics

Always attempt to seek medical advice before using medicines

Product	Quantity
Paracetamol 500mg Tabs	48
Ibuprofen 400mg Tabs	24
*Tramadol Caps 50mg Tabs	10

Antibiotics

Always attempt to seek medical advice before using antibiotics

Product	Quantity
*Ciprofloxacin 250mg Tabs	10
*Metronidazole 400mg Tabs	30
*Flucloxacillin 250mg Caps	28
*Erythromycin 250mg Tabs	28

General Medical Items

Always attempt to seek medical advice before using medicines

Product	Quantity
*Loperamide 2mg Tabs	30
Oral Rehydration Sachets	6
*Nifedipine Caps 10mg	14
Chlorpheniramine 4mg Tabs	28

Eye, Ear and Nose

Always attempt to seek medical advice before using medicines

Product	Quantity
*Chloramphenicol 1% Eye Ointment 4g	2
Normal Saline Pods 25ml	3
Eye Bath	1
Eye Dressing BPC No. 16	1
*Amethocaine 1% Eye Drops Minim	10
Fluorets Ophthalmic Strip	10
Cotton buds	20

Sterile Surgical Equipment

Product	Quantity
Sterile Surgical Gloves (Medium)	2
Scalpel (Disposable)	2
Mersilk Suture 3/0	1
Stitch Cutter	2
Dental Needles	2
Syringe 2ml	5
Syringe 5ml	3
Syringe 10ml	2
Green Needles	5
Blue Needles	5
Orange Needles	5
Green Venflon	2

Medi-swabs	10
Giving Set	1

Injections and Infusions

The following drugs should only be used by a doctor or a suitably qualified person

Product	Quantity
*Haemaccel 500ml Infusion	2
*Dextrose Saline 500ml Infusion	2
*Lignocaine 1% Injection 5ml Amps	5
*Hydrocortisone 100mg Inj	1
*Tramadol 100mg injection	5
*Adrenaline 1:1000 Inj 1ml Amps	5
*Water for Injection 5ml	1
*Ceftriaxone 1g inj	1

Powders & Creams for the skin

Always attempt to seek medical advice before using medicines

Product	Quantity
Hydrocortisone Cream 15g	1
Calamine Cream 50g	1
*Bactroban Oint15g	1

Comprehensive first aid

Product	Quantity
Thermometer	1
WaterJel Dressing 10x10cm	2
Burn Bag for Hand	1
Jelonet Dressing 10x10cm	2
Gauze Swabs (sterile)	3
Non Adherent Wound Pad 5x5cm	10
Non Adherent Wound Pad 10x10cm	5
Micropore Tape 2.5cm	1
Zinc Oxide Tape 2.5cm	1
Fabric Plaster Strip (6.3cmx1m)	1
SteriStrips	2
Lancets	10
Crepe Bandage 7.5cm	1
Wound Dressing No.15	1
Triangular Bandage	1
Safety Pins	6
Steripods 10ml	5
Scissors	1
Tweezers	1
Disposable Gloves	10
SAM splint	1
Vaseline	1
Povidone Iodine Antiseptic Solution 100mls	1

020 8889 7014 April 2007

Please consult the data sheet before use.

Use

Mild pain, temperature
Joint inflammation & pain
Severe pain

Please consult the data sheet before use.

Use

Gut, urinary tract infections
Amoebic dysentery & giardia
Skin infection
Skin, gut & chest infection

Please consult the data sheet before use.

Use

Acute diarrhoea
Rehydration
Frost Nip
Allergies & insect bites

Please consult the data sheet before use.

Use

Eye infections
Eye wash
Eye washing
Eye bandage
Eye anaesthetic
Eye examination
General use

Use

Surgical use
Incision
Stitching
Suture cutting
Oral injection
Injection
Injection
Injection
Injection
Injection
IV administration

Injection site preparation
IV administration

by qualified person.
Use
Plasma substitute
Fluid replacement
Local anaesthetic
Allergic reactions/anaphylaxis
Moderate to severe pain
Anaphylaxis
Diluent
Antibiotics
3. Please consult the data sheet before use.
Use
Skin allergy & insect bites
Sunburn, itching & rash
Antibiotic cream for burns

Use
Temperature measurement
First aid burn dressing
Burns
Burn treatment dressing
Wound cleaning
Non-stick sterile dressing
Non-stick sterile dressing
Surgical tape
Surgical tape
Plasters
Wound closure strips
Sterile needles for popping blisters
Muscular injury
Heavily bleeding wound
Securing injured limbs
Safety pins
Disposable antiseptic sachets
Scissors
Tweezers
Wound handling
General Purpose splint
General Purpose
Antiseptic solution

Claire O'Sullivan

Greenland Expedition Medkit

Nomad Pharmacy 3 - 4 Turnpike Lane, London, N8 0PX, Tel: 020 8889 7014 April 2007

Analgesics

Always attempt to seek medical advice before using medicines. Please consult the data sheet

Product	Quantity	Cost	Tick if required
Paracetamol 500mg Tabs	48	1.00	
Ibuprofen 400mg Tabs	24	2.25	
*Tramadol Caps 50mg Tabs	10	5.25	

Antibiotics

Always attempt to seek medical advice before using antibiotics. Please consult the data sheet

Product	Quantity	Cost	Tick if required
*Ciprofloxacin 250mg Tabs	10	7.50	
*Metronidazole 400mg Tabs	30	5.25	
*Flucloxacillin 250mg Caps	28	5.25	
*Erythromycin 250mg Tabs	28	5.25	

General Medical Items

Always attempt to seek medical advice before using medicines. Please consult the data sheet

Product	Quantity	Cost	Tick if required
*Loperamide 2mg Tabs	30	5.25	
Oral Rehydration Sachets	6	2.35	
*Nifedipine Caps 10mg	14	5.25	
Chlorpheniramine 4mg Tabs	28	1.99	

Eye, Ear and Nose

Always attempt to seek medical advice before using medicines. Please consult the data sheet

Product	Quantity	Cost	Tick if required
*Chloramphenicol 1% Eye Ointment 4g	2	5.25	
Normal Saline Pods 25ml	3	1.50	
Eye Bath	1	2.00	
Eye Dressing BPC No. 16	1	0.65	
*Amethocaine 1% Eye Drops Minim	10	7.50	
Fluorets Ophthalmic Strip	10	1.00	
Cotton buds	20	0.30	

Sterile Surgical Equipment

Product	Quantity	Cost	Tick if required
Sterile Surgical Gloves (Medium)	2	1.45	
Scalpel (Disposable)	2	1.10	
Mersilk Suture 3/0	1	2.25	
Stitch Cutter	2	0.30	
Dental Needles	2	0.50	
Syringe 2ml	5	1.00	

Syringe 5ml	3	0.75	
Syringe 10ml	2	0.60	
Green Needles	5	0.25	
Blue Needles	5	0.25	
Orange Needles	5	0.25	
Green Venflon	2	4.30	
Medi-swabs	10	0.40	
Giving Set	1	3.50	

Injections and Infusions			
The following drugs should only be used by a doctor or a suitably qualified person.			
Product	Quantity	Cost	Tick if required
*Haemaccel 500ml Infusion	2	13.40	
*Dextrose Saline 500ml Infusion	2	6.50	
*Lignocaine 1% Injection 5ml Amps	5	5.25	
*Hydrocortisone 100mg Inj	1	5.25	
*Tramadol 100mg injection	5	8.50	
*Adrenaline 1:1000 Inj 1ml Amps	5	5.25	
*Water for Injection 5ml	1	3.00	
*Ceftriaxone 1g inj	1	15.00	

Powders & Creams for the skin			
Always attempt to seek medical advice before using medicines. Please consult the data sheet			
Product	Quantity	Cost	Tick if required
Hydrocortisone Cream 15g	1	2.50	
Calamine Cream 50g	1	2.30	
*Bactroban Oint15g	1	7.95	

Comprehensive first aid			
Product	Quantity	Cost	Tick if required
Thermometer	1	6.00	
WaterJel Dressing 10x10cm	2	8.00	
Burn Bag for Hand	1	5.00	
Jelonet Dressing 10x10cm	2	1.10	
Gauze Swabs (sterile)	3	0.90	
Non Adherent Wound Pad 5x5cm	10	2.50	
Non Adherent Wound Pad 10x10cm	5	2.50	
Micropore Tape 2.5cm	1	1.75	
Zinc Oxide Tape 2.5cm	1	2.50	
Fabric Plaster Strip (6.3cmx1m)	1	2.00	
SteriStrips	2	2.00	
Lancets	10	0.20	
Crepe Bandage 7.5cm	1	1.79	
Wound Dressing No.15	1	1.70	
Triangular Bandage	1	1.00	
Safety Pins	6	0.30	
Steripods 10ml	5	2.50	
Scissors	1	1.50	
Tweezers	1	1.00	
Disposable Gloves	10	1.60	
SAM splint	1	12.00	
Vaseline	1	1.00	
Povidone Iodine Antiseptic Solution 100mls	1	2.00	

Plastic Boxes	4	16.00	
Prescription Fee	1	7.50	
Sub-Total		240.93	
Total		240.93	

