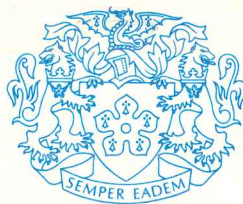


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CITY OF LEICESTER POLYTECHNIC

The Leicester Polytechnic Students
GREENLAND EXPEDITION 1972

KÛGSSUATSIAQ
SØNDRE SERMILIK
SOUTHERN GREENLAND

Edited by Andrew Barbier



CITY OF LEICESTER POLYTECHNIC

The Official Report of Leicester Polytechnic Students

Greenland Expedition 1972

Edited by Andrew Barbier

Patrons	The Lord Bishop of Leicester, The Right Reverend R.R. Williams
	The Lord Lieutenant of Leicestershire, Colonel R.A. St George Martin
	The Right Worshipful Lord Mayor's of Leicester
	Alderman P. Watts Alderman S. Tomlinson
Scientific Sponsor	Dr. Martin Halliday, Senior Lecturer, School of Biology, City of Leicester Polytechnic

July 8th – September 15th, 1972

JANUARY 1973



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INTRODUCTION

INTRODUCTION

The idea of an expedition to Greenland originated during the Leicester Polytechnic Øksfjord Expedition to Finnmark, Arctic Norway in July 1970. Not only was this the first mountaineering and scientific expedition from the polytechnic, but it was also organised solely by students. It seemed a perfectly logical step, to try a more ambitious expedition - of a similar nature - to a much more remote area. Luckily, three of the original team of five, from the Norway expedition, were interested and took over the initial job of organisation.

The project slowly took shape and whilst in the Pennine alps in 1971 the basic plans were worked out. On returning to college in September we started having regular meetings at various houses to thrash out all the many problems with which we were faced.

The next few months we spent acquiring maps, aerial photographs (from the Geodaetisk Institut, Copenhagen) and amassing as much information about Greenland as was possible. By Christmas, we had decided on the Kap Farvel area of Southern Greenland. Prior to this we considered the Petermann area on the East coast. After various discouraging reports we were finally convinced by Dr. Peter Friend at Cambridge University, that the area was almost impossible to enter, under present circumstances. We also ruled out the Staunings as quite a large number of expeditions had been there in recent years. Finally we settled on the South tip.

'Mountain', the climbing magazine, had produced a whole issue on Greenland (issue No.6, Nov. 1969) and described the Kap Farvel area as "An area of impressive rock spires. Much scope for first ascents. Poor weather, difficult access, Boat Charter expeditions". This gave us grave doubts, but also a great challenge. In 1968 and 1971 the Irish Greenland Expedition had been to South Greenland. Fortunately Alan knew the leader, Joss Lynam - a fellow member of the Irish Mountaineering Club. Alan was hastily dispatched to Dublin, for a long weekend, to glean information. Joss was extremely helpful, providing detailed information on travel, physical geography, local contacts and rescue facilities etc. He also added a cautionary reminder about the very bad weather they had experienced both in 1968 and 1971.

As a result of this meeting and other information, we decided on a valley known as Kūgssuatsiaq at the head of Søndre Sermilik, running N-S ($60^{\circ} 41' \text{ N} - 44^{\circ} 50' \text{ E}$). This valley was very remote, situated 80 kilometres up the fjord from the nearest settlement Nanortalik (refer maps 1 and 2).

The objects of the expedition were to carry out a scientific survey on the effects of glaciation on the Ecology of Kūgssuatsiaq and to climb and explore the mountains and glaciers of the surrounding area. Both objects were of equal importance.

The History of exploration in this area can be summed up briefly. The Danish Government have been carrying out a Geological and Botanical survey of Greenland. We wrote to the Greenland Botanical Survey, led by Dr. Lars Kliim-Nielsen. The reply was very encouraging, it seemed that they had only surveyed the Isortoq valley eight kilometres South East of our valley and they had been nowhere else in the whole of Søndre Sermilik. Further to this, our Quantitative Ecological work would be completely new to South Greenland - indeed the whole of Greenland. Lastly, not only was the valley unexplored, (scientifically) but few botanical collections had been made in Greenland at high altitude. This was something which as mountaineers we could easily tackle. The G.B.U. hence asked us to make a collection of plants for them which we were very pleased to do.

Previous mountain exploration had centred on Tasermuit Fjord which ran parallel to Sermilik - fifteen kilometres to the East (refer maps 1 and 2). As mentioned earlier the Irish went in 1968 and 1971, St. Andrews University in 1960 and 1971, and French expeditions in 1956 and 1971. (The latter had to be rescued after one of the climbers broke a leg. This did not help relations between climbers and the Danes.) Two English Expeditions climbed in the area in 1957 and 1961. However, in Sermilik, only three expeditions had attempted any climbs.

1962 Oesterreichisch-Deutsche Gronlandsexpedition - A six man party led by Toni Durnberger, based in the valley at the head of Sermilik and on the Eastern side. They had climbed many peaks including point 1870 metres and point 1930 metres (refer map 3).

1968 An Austrian expedition climbed in and around the large moraine filled valley North East of Kûgssuatsiaq. They climbed point 2150 metres (we named the Bishop) and point 2050 metres (refer map 3) and most of the peaks surrounding that valley.

1971 Tyroler Gronland Expedition led by Ernst Herzinger.

This expedition was based in Kûgssuatsiaq (refer text) and made 30 ascents and claimed to have climbed all the important summits on the left-hand side of the valley. As far as we could establish no report was published of this expedition.

The activities of this expedition did not cause us to change our plans, as on the right-hand side of the valley, stood Kûgssûp Qâqâ (2142 metres) a very important peak, which had surprisingly not yet been climbed.

At the outset, it seemed that we had selected an ideal area for an expedition, very little previous exploration, extremely remote and situated in some of the most awe-inspiring mountain scenery in the world.

Thus at the end of 1971 having chosen the area, we were left with three basic problems, which are common to all expeditions.

The first and most important was the selection of members. People are the raw material of expeditions and it only requires one selfish or awkward person to ruin the atmosphere of an expedition. We were lucky. We knew each other and had climbed together extensively in the British Isles. All of us were acquainted with basic campcraft and winter mountaineering. Six of the party had climbed together in the Alps, and four had had previous expedition experience in Norway. The expedition comprised ten members and only one change was made from the party agreed on in December. We were all students at the Polytechnic and members of the College Caving and Mountaineering club.

The final team was:-

+ o ANDREW BARBIER, B.Sc., 23 years old, Leader. Just completed a joint honours degree in Biology and Chemistry.

KEVIN BARRATT, B.Sc., 21 years old, Scientific Supervisor. Just completed a joint honours degree in Biology and Chemistry.

o MICK DAVIS, 21 years old, Equipment Officer. Completed a course in honours Mathematics.

+ o ALAN DOUGLAS, 23 years old, Food Officer. Architectural student, year VII.

+ o PETER ELLIS, 25 years old, Deputy Leader and Secretary. Architectural student, year VII.

+ o GRAHAM HUDSON, H.N.D., 23 years old, Medical. Deputy President (sabbatical) Students' Union. Studied Mechanical Engineering.

ADOLF KING, B.Sc., 27 years old, Scientific member. Just completed an Applied Chemistry degree.

IAN LAMBERT, 21 years old, Travel. Now in third year of Business Studies degree.

o PETE MEADS, 21 years old, Communications. Just completed a diploma in Electrical Engineering.

o HARRY WILSON, 25 years old, Treasurer. Just completed an H.N.D. in Business Studies and Diploma in Marketing.

+ Member of the Norway Expedition.

o Alpine experience.

The second problem involved obtaining permission from the native country to carry out the expedition (ref. Appendix 1). Greenland is part of Denmark and previous experiences have shown the Danes to be very wary of expeditions, especially climbing ones. This being mainly because of risk of accident and the great difficulty encountered in rescue attempts. This strict access control imposed by the Danes, has helped Greenland maintain a certain aura of remoteness.

We were required to submit a lengthy application containing information on all aspects of the expedition - especially our safety precautions. With this in mind we purchased a rubber dinghy and outboard, a comprehensive set of flares and assembled a good first aid kit.

We learnt of another British expedition visiting Sermilik (12 kilometres South East of our valley based at the head of Ipatit Kûat) the Greenland (Cape Farewell) Expedition led by Roger Smith. This six-man party was a purely mountaineering one and was well equipped with radio, stretcher and a doctor. We made reciprocal arrangements in the event of accident, utilising all the manpower, flares, boats, and radio we had at the disposal of both expeditions. Luckily this proved superfluous; but we were nevertheless grateful for the security offered by Roger and his team.

It wasn't until five weeks before our departure, that we finally were given the go ahead - a waiting period of six months. This was a traumatic period, especially close to the departure date. I hate to think what we would have done had permission been refused.

The third problem involved all the hard work - raising the money to go. The project cost nearly two and a half thousand pounds (ref. Appendix 6). We contributed one thousand ourselves leaving fifteen hundred pounds to be raised by sponsorship. Here we were exceptionally lucky to have three eminent patrons; The Lord Bishop of Leicester, The Right Reverend R.R. Williams, a member of the alpine club; the Lord Lieutenant of Leicestershire, Colonel R.A. St George Martin, O.B.E., J.P. and the Right Worshipful the Lord Mayor of Leicester, Alderman Percy Watts, J.P. (Alderman Stanley Tomlinson kindly took over in May at the start of his term of office.) Also we had a scientific patron, Dr. Martin Halliday, from the School of Biology, Leicester Polytechnic. He had been to East Greenland in 1963 and Spitsbergen in 1965. To back up this we had the support of the College Governors and the School of Biology. We all realised that without the help of these people it would have been impossible for us to raise the money and get permission to go to Greenland.

By Easter we were still £750 short of our target. We packed our two tons of equipment in the Union building at this time, to ship to Greenland. It was like learning to run before one can walk.

ESTER POLYTECHNIC STUDENTS GREENLAND EXPEDITION 1972



LEFT TO RIGHT STANDING

MARRY WILSON, ADOLF KING, ALAN DOUGLAS, GRAHAM HUDSON, PETE MEADS, MICK DAVIS, IAN LAMBERT, and PETER ELLIS

SITTING

EVIN BARRATT, ANDREW BARBER

PLATE 1

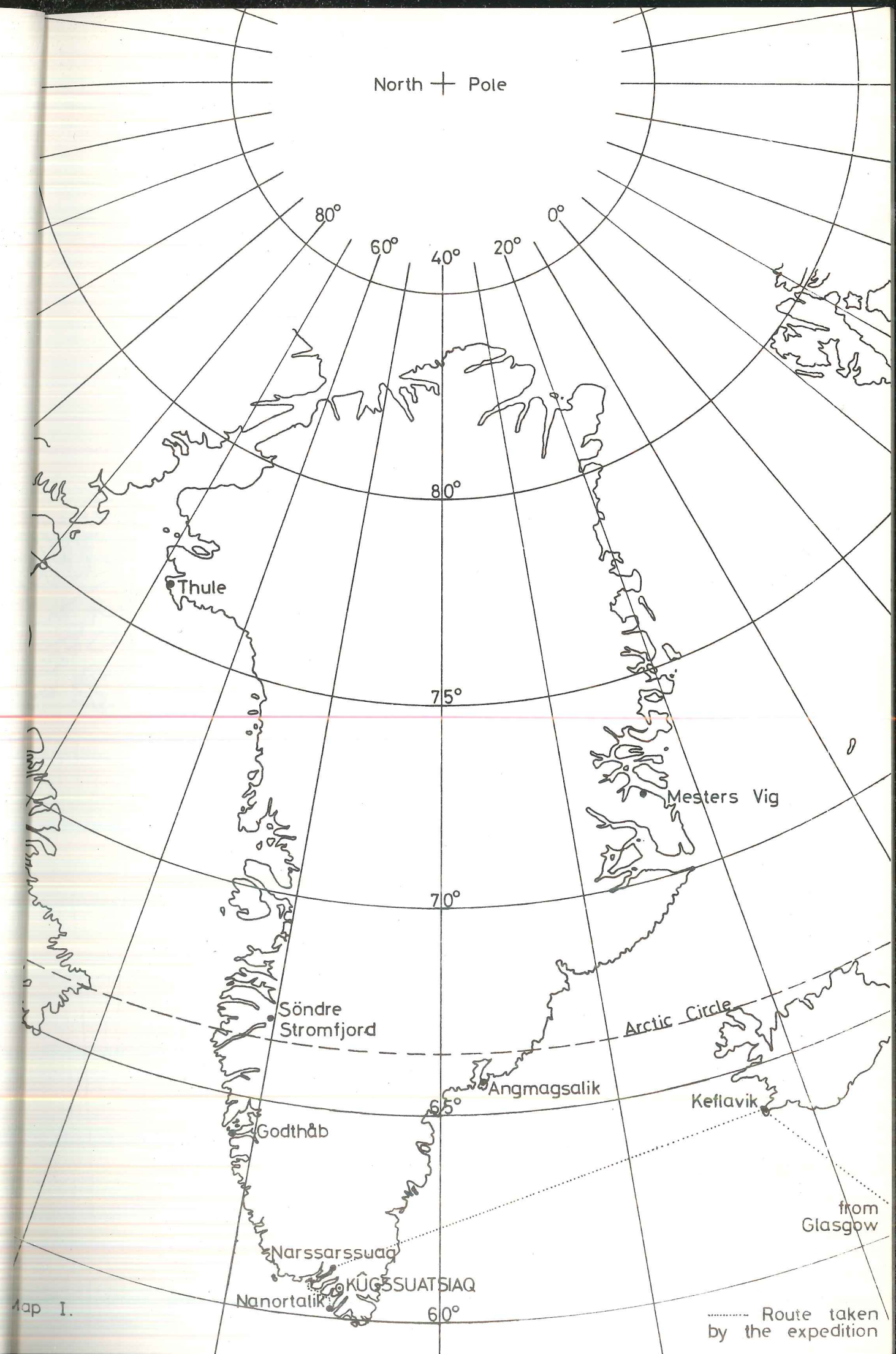
It wasn't until half way through May that we really definitely knew we could go. In the space of ten days we received £700 and the permission. This was unbelievable and from that moment the expedition often seemed like a dream. One or two of the grants were totally unexpected and it was a great honour to receive every one of them. In saying how lucky we were we do not forget the help that our patrons gave us in writing flattering letters of recommendation and giving advice.

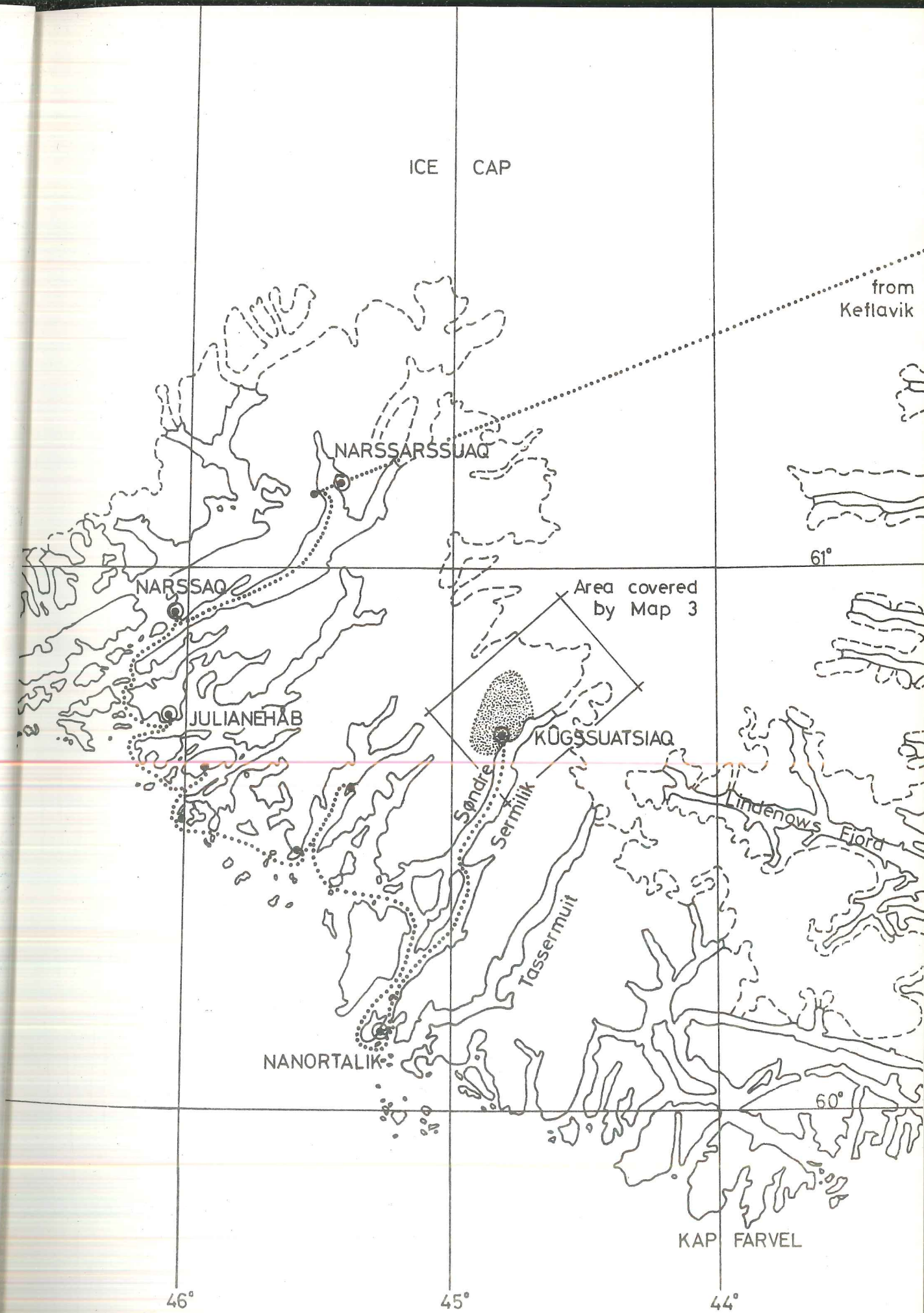
It was a bitter moment at the end of June, barely two weeks before our departure, when John Precey our Medical Officer had to withdraw from the party with a back injury that had been troubling him for over a year. Whilst we were away he had a disc removed and is now well on the way to a complete recovery.

With the luck that seemed always with us, a replacement was found in Graham Hudson. He had been a member of the Norway expedition and so was probably the ideal replacement for John. So with a mixture of regret at John's withdrawal, and pleasure at having such a well qualified replacement, we accepted Graham as the new Medical Officer.

Although all our major problems had been settled, and our equipment was on its way to Greenland via Denmark, there were still numerous small items to attend to during the last few weeks before we flew to Greenland. Rescue insurance was arranged, and the various odds and ends purchased. However our day of departure finally arrived, and after a Civic send off at the Town Hall we set off on our long journey.

TRAVEL REPORT
BY
IAN LAMBERT





Map 2.

Scale
in kilometres



Area visited by
the expedition
in relation to
Southern Greenland

TRAVEL REPORT - by IAN LAMBERT

Once the decision had been made on the area in which the expedition was to be held, the travel problems fell into two sections:

- a) Getting the members of the expedition to and from the area, and
- b) Getting the heavier items of equipment to some advance point where they could be collected by the expedition and thence carried by local methods.

An expedition to an area such as we were planning poses great problems. Not so much in reaching the objective, but in making allowance for taking forgotten or delayed items along with the members of the expedition on the 'plane, and in planning far enough ahead to be able to despatch everything that will be required.

The obvious choice of travel agent to help us in arranging the air tickets was 'Exploration and Travel', a specialised company set up by Dr. Martin Slessor, the Scottish University Professor. Well known in the climbing world, he has amongst others things led many expeditions to various parts of Greenland. With their help the flight arrangements were completed with only a few snags, and they were also able to get rescue insurance cover for us.

Another distinguished mountaineer Joss Lynam, leader of the two Irish Greenland expeditions, was of great service to us in our early plans. He provided the name of Lis Jensen (now married with the name of Østerby), assistant to the Mayor of Nanortalik, who was later to be instrumental in the success of our stay in the inhabited parts of Greenland.

One week of the Easter vacation was utilised to prepare the equipment and food ready for packing by B.W.S. Export Packaging of Leicester, in the special crates they were donating to the expedition.

Our other worries were at this stage eclipsed for a time by the dock strike, which threatened to delay our cases in Britain. This may have resulted in them missing the M.S. Edith Neilsen which was to carry them from Copenhagen to Nanortalik. In order to allow us to pick up some surveying instruments from the Royal Geographical Society, and still catch the last boat out before the strike, our freight agent, D.C. Andrews Ballantyne & Co. Ltd., arranged for us to deliver the crates directly to the S.L.I.C.K. container terminal in London. This was eventually achieved despite miscalculations, requiring two vans instead of one. I also managed to run one of these into the back of the other through handbrake-failure in the middle of London.

A relatively quiet period followed until the week before we were due to leave, when John Precey, as we had feared for some time, had to withdraw on account of a back complaint which failed to improve. There was also some worry about which date we would

leave as the tickets had been wrongly dated. Luckily the necessary ticket alterations were very efficiently carried out by Mrs. Slater of the Glasgow branch of Dixons travel agents, and we were once again ready to depart.

The all important final drink was taken at a local pub in Leicester, and we considered ourselves as prepared as we ever might be. One notable exception was Kev (the scientific officer) being absent from the last-night festivities. He explained the following morning that he had been up until 3.00 a.m. calibrating the anemometer equipment out of a car window! These instruments, in particular the cup arrangements constructed out of wire crosses and half table-tennis balls, were to provide great amusement on the outward journey. Indeed on the plane flights they seemed to get better service from the stewardesses than ourselves, being allocated a seat to themselves.

The official farewell by the Lord Mayor of Leicester proved to be quite a jolly affair, when he and the Lord Lieutenant wished us good luck on behalf of the people of Leicester - a sentiment which we appreciated. His next gesture in bringing out the drinks was equally well received.

We emerged from the Town Hall some time later to bid farewell to a fairly sizeable number of friends and well-wishers, and we were finally ready to depart.

Glasgow was reached by road with sufficient time to spare to have what we considered might be our last civilised meal for a rather long period. Much to the protestations of Alan our food officer.

In order to allow Malc. and Patricia Charlesworth, who were to return the mini-bus for us to Leicester, sufficient time to find accommodation for the night, we drove up to the airport considerably before the scheduled 2.30 a.m. departure of the Icelandair flight. This was to take us on the first leg of our journey.

Being rather a large and conspicuous group we soon attracted the attentions of the airport police - nice gentlemen all - who, noticing the amount of baggage we were unloading from the bus, stood shaking their heads dourly for a while. We should have no chance of taking all this with us on the flight - we would be lucky to get on ourselves - this flight was always jammed with parties of climbers. Not only did this plunge us into deep despair over our chances of eating for the next three days, as we were planning to carry this food as hand baggage, but it also reminded us of what had been our constant fear - that we should arrive in "our" valley and find an expedition already there, about whom we had heard nothing.

As it was, our fears were groundless. The only other climbers on the half empty plane were a small group of Frenchmen who were only going as far as Iceland.

However, through lack of knowledge of airport procedures, we asked advice on our hand "baggage" and were told it would be weighed. It was with heavy hearts that we dumped the weightier items of food, though not before filling our pockets with choice tins of ham etc. In the event our hand baggage wasn't weighed, and talking with other groups of climbers we soon adopted the technique of staggering onto aircraft with hand baggage weighing as much, if not more, than the rucksacks put in the hold. Anyone with a sharp conscience was reassured by being demonstrated the difference in size between Mick, our biggest, and Harry our smallest members, both of whom occupied the same size seat. However the regulations exist, and should the plane be full an expensive excess baggage charge could be incurred - be warned.

Keflavik, the international airport in Iceland, was reached safely at 03.45 a.m. local time, a gain of one hour on British clocks. However the air-terminal clocks registered 10.45; confusing at that time in the morning, until we realised we had arrived in the middle of a power-cut.

Our luggage was quickly unloaded and checked through customs; a little too quickly for us as we didn't wish to catch the costly airport bus for the hour's ride into Reykjavik only to have to come back later in the day. Just as the driver was getting impatient Harry came to the rescue, as he was to do on a number of subsequent occasions. He had found a friendly airport cook named Harry, and we were soon comfortably set up in the aircraft-crew's television room.

At this stage our tickets would have had us waiting a complete day to catch the scheduled S.A.S. flight. Enquiries being made we found there was an Icelandair flight to Narssarsuaq at 17.45 p.m., and our informant was only too pleased to change our tickets for us. So we settled down to sleep in relative comfort knowing that we should be landing in Greenland later that day.

And so it was, although not before a group of four of us narrowly escaped being thrown into the guardhouse! We had been warned by the cook who had befriended us, not to venture outside the air-terminal building, although his command of English did not reach to explaining why. However, as anyone who has tried watching re-broadcasted American afternoon television for any length of time will know, there are only certain limits to which intellects brought up on the good old B.B.C. can stand. And so it was that when asked for our "base passes" some distance from the terminal buildings, in fact in the middle of the NATO base which surrounds the airport, we were rather at a loss for words. This state rapidly changed when we heard ourselves referred to in a thick American drawl by the military policeman calling up reinforcements as "four Icelandic Nationals". We loudly proclaimed our birthright, saying

"we're British dammit". We walked back to the terminal followed at some distance by a couple of puzzled policemen.

Apart from a couple of rather worrying false run-ups whilst a warning light failed to go off, the flight from Iceland to Greenland was comfortable, and we relaxed eating the delicious meal and reading information handed out about the history of settlement in Greenland. Flying over the southern tip of the country afforded us plenty of scope for using our cameras, and a good chance to see for the first time the immense scale of the mountain scenery we had come so far to climb.

Here is an excerpt from Andrew's log:-

--- "The journey by air to Narssarssuaq from Iceland must be one of the most impressive in the world. We had tremendous views of the pack-ice on the East Coast of Greenland; the sheer immensity of Greenland; thousands upon thousands of mountains glistening in the sun; then the ice-cap with Nunataks poking through; finally the breathtaking landing at Narssarssuaq, when the pilot seemed to bank the 727 jet along several fjords and minutes later we were in Greenland. Everybody on the expedition, oblivious of the other passengers, were all suddenly shaking hands and embracing each other, reminiscent of Leeds winning the cup at Wembley. It all seemed like a dream, which we were all afraid to wake-up from."...

The landing was certainly one of the most spectacular events of the journey, with the pilot banking very steeply around the bowl of mountains at the head of the fjord to drop down abruptly onto the airstrip. From above it was easy to see why this particular place had been chosen, essentially from lack of an alternative. The runway took up most of the flat ground between sea and mountains, the only flat ground of this size for a considerable distance around.

After our delayed take-off from Iceland at 18.30, we now had to put our watches back another three hours, and consider ourselves having arrived an hour before take-off.

Our dramatic scenic arrival, and treatment on the way were soon explained to us when we realised we were the only ones on the flight not on a package tour, which involved staying for a number of days at one of the two expensive hotels which together composed the majority of the buildings at Narssarssuaq. Whilst we were objects of interest to the other passengers, we were of even more interest to the steward in charge of the airport who wanted to know what we were doing on his flight! However this mood did not last long, and he proved to be one of the best of the very friendly group of people who live and work on this, the largest island in the world. An expanse of 840,000 sq. miles, 708,000 of which is under permanent ice-cap, and yet a population of only 50,000. Most of the people we had contact with whilst travelling around the country were Danish born, for few of the Greenlanders spoke any English and we even less Greenlandic. However, without exception they seem imbued with the

legendary hospitality and friendliness of the nature-born. We can never express our real gratitude for the way in which we were treated whenever or wherever we turned up.

Our accommodation problems at Narssarssuaq were solved by a few words from Harry, who was quickly being recognised as the foremost chatter-up of the expedition, and we were soon ensconced in the newly re-decorated departure lounge.

Supper consisted of six cod donated by a fisherman down on the pier, and we retired early to enable us to be installed in the coastal steamer which was to carry us around the coast before the scheduled airflight arrived at 8.00 a.m.

This was achieved with some assistance from the local builder's volkswagen pick-up, which took us the half-mile from the air-terminal, to the pier where the Tateraq was moored. At first sight, to our eyes, her 82 feet length looked frighteningly small, especially as she was dwarfed by an iceberg at least twice her size which had come aground about fifty yards short of the staging. However, the more we travelled on her, the more our admiration grew for her Greenlandic crew and in particular the captain, who, whether as on the outward journey conning her through the ice-floes from the mast-head, or keeping her bows "parked" on the bare fjord-side - (the only method of taking on and off passengers at some of the small fishing settlements she stopped at), displayed a skill in handling his boat. Many a captain of some of the largest ocean-going merchant ships around the world today could do with emulating his skill.

It had been suggested by the K.G.H., that if, as had seemed possible at one stage, our equipment couldn't go directly to Nanortalik, we could make use of this coastal service to transport it. We were somewhat relieved to know that this would not now be necessary as we stared into her cavernous hold which at a squeeze might have taken two of our seven crates!

Well before the arrival of the rest of the passengers we were well barricaded in the best seats. We sat back to enjoy the two day journey around the coast which, whilst only being a distance of some 120 nautical miles, involves numerous stops at the many small fishing settlements for whom the "Tateraq" is the equivalent of the twice-weekly village bus. At these calls what appeared to be the entire population, normally around 50 or 60 people, came down to the landing. Apart from a few sheep the entire economy of these communities rests on what they can obtain from the sea, and centres around the modern fish processing plants, which specialise in high value fish cuts which are in demand all around the world. An item still produced is the "stock fish", small cod dried on the open or wooden frames until of a bent leathery appearance. In this state it apparently still finds markets in Italy and the southern United States.

Harry's powers came into their own again, and before a couple of hours were up, through the help of the captain, a local administrator travelling back from his holidays in Denmark, and a school inspector, we were assured of quarters for the night in Julianehaab - one of the larger towns around this part of the coast, with a population of over three thousand. These proved to be in one of the luxurious dormitories at the large boarding school, empty for the moment through school holidays. Whilst these holidays were thus useful to us in this way, they meant that we were followed wherever we went by a crowd of very friendly, but after a while, very wearing children. Indeed, at times in Nanortalik, the house appeared to be besieged by the whole five hundred children of school age on the island. A figure which, when linked to the total population of the island - only 1,300, forms a statistic typical for the country, recognised as holding the threat of large-scale social problems. In the next few years when these children find they are unable to get work in the fish-factories or on the boats, the resulting unemployment will be a great problem.

Julianehaab was reached in the early evening, and we were conducted up to the dormitory by one 12 year old lad who was distinguishable from the rest by the pipe he was smoking!

All the accommodation we were offered suffered one aspect - the stifling heat of a fully adjusted central heating system - apparently on the assumption that we were from warmer climes!

After a sparse meal from our limited resources, cooked on the room's electric plates, we all partook of the luxury of hot showers, and retired to bed early in order to be up in good time to catch the Tateraq before her departure at 8.30 the next morning.

This we succeeded in doing, although not in good enough time to secure our prize seats of the previous day.

A slow cold journey followed, with the general mist and ice scenery being enlivened by short stops at small fishing communities. One of these settlements, Sydprøven, proved to be one of the few natural harbours in the fjord, of which the Tateraq took advantage to off-load. This was somewhat offset by the twenty minutes it took to extricate ourselves when a large iceberg drifted in behind us. The remaining space was taken up by a fishing boat, which, if anything, seemed under less command than the 'berg.

An account by Andrew of our arrival and
Recollections of the boat journey -----

"Our journey by boat from Narssarssuaq to Nanortalik was one of the most enjoyable parts of our expedition. Memories of the huge ice-bergs floating serenely in the fjord; the beautiful sunsets; the tiny fishing communities with crowds of friendly people waving; the cold wind; and more mountains than I'd ever dreamed of - describe in a small way this voyage into the timelessness that is Greenland.

We were still waxing poetically about the awe-inspiring beauty of it all, when the news that our gear had not arrived hit us. Here we were within a few hours sailing of the expedition valley, but we could do nothing but sit and wait. It was fortunately not as bad as it sounded. Lis Jensen had everything prepared for us. In a matter of minutes our gear was whisked off to 'our' house (where we were to stay courtesy of Nanortalik) and we found ourselves eating and drinking at Lis and Harry's house. The dream was still with us, the equipment would be only one week in arriving and we were left free to roam around Nanortalik and get to know a little of the Greenlandic Customs."

.... Of the 8 days spent in Nanortalik we were all able to look back later with pleasure as a very profitable part of the expedition, in which we got to know and like the warm-hearted people who lived out in Greenland - both Danish and Greenlandic. For two of the team, when the time came to return home, they found that for the present staying promised a more worthwhile existence (Graham and Mick).

The following week was passed; in wandering around the island; in endless chess tournaments; going to watch an Italian film with Danish subtitles and going out in twos and threes in Harry's fishing boat (this was to take us to Kûgssuatsiaq) up Tasermuit. Not only did the latter help to pass the time, but the fish we brought back provided a basis for a large proportion of our meals. It was an unfortunate situation indeed for Mick who disliked fish; at the end of it some of us were beginning to sympathise with him.

We also met the members of the Greenland (Cape Farewell) Expedition - led by Roger Smith. This provided a wonderful opportunity to discuss fully our rescue tactics.

On what was to be our last night we played the local football team. The pitch may not have been up to the class of first division clubs in this country, in fact it didn't have any grass on it, but retrieving the ball from the pack-ice which fringed one end of the "ground" added a degree of novelty. I will pass quickly over our narrow defeat - we lost 3 : 1 with our goal being scored by the man they had lent us. However, it certainly wasn't through lack of crowd support; we were vigorously cheered by what appeared to be the whole population whenever we managed to touch the ball.

Adolf, who displaying unexpected skill in the goal was an instant hero. The fact that five of our team had never played before and most wore climbing boots must have made us look a real spectacle.

Afterwards a riotous evening was spent in the local bar - Klamers. This was sparked off by the football game and the fact that our gear came in on the Edith Nielsen just as we downed the first drink. The football team (and the local Greenlanders) insisted on buying all the drinks, the result being - as true British climbers - we over-indulged. The end of the evening saw the expedition house looking somewhat like a hospital. I had broken my glasses, Mick and Pete (Bear) had lost and broken watches respectively, Alan (Ping) had lost his camera, three members eventually collapsed and our reputation was spread far and wide.

Morning dawned for most of us around dinner time, and if we had been bothered we could have looked back later on the day as one in which very little was spent on food. However, our equipment was here, a factor which helped us recover rather quicker than would have otherwise occurred. After getting it moved from the K.G.H. terminal to the fishing quay, we awaited the return of Harry - Lis's husband, and Henning who were to take us up the fjord to our valley. They came back from fishing at 1800 hours, and by 2000 hours we had the "Blue Star" loaded up with our equipment. We were sailing away from Nanortalik to the waves of our cricket team of local children and the strains of Rule Britannia played on a mouth organ by Anker - a German we had met on the Tateraq, who was staying with friends in Nanortalik.

The cold soon closed down and we all sought refuge in some dry corner - not easy on a boat the size of the "Blue Star" with two tons of equipment and 14 people. For a few of us lying on top of the equipment, the hold with the hatch shut provided a warm if somewhat "fishy" retreat.

Eventually our slow pace, avoiding the numerous floating ice-floes ceased altogether. So we all collected on deck to view what we had come to see. In fact very little could be seen through the mist, except the large pile of morainic debris which blocked the end of the valley through which the river had burst a small gorge.

We had little time for thought, Harry and Henning were impatient to be off to lay their nets. The "Blue Star" was unable to get in close, so the equipment was transported into two small boats and hand hauled along a line to the shore. A quick demonstration by Harry of the rifle he had lent us, for protection from 'Polar Bears', and they were off.

As the boat left us we began to wonder if the predictions of bad weather had been correct and were we to spend the next seven weeks in this mist and misery?

This was no time for regrets so we quickly pitched tents at the site of the Austrian camp of 1971. We were appalled by the large amount of litter left by this party, cardboard boxes and tin-cans were strewn everywhere, the more annoying fact being the knowledge that they were the first human beings to tread this valley.

We were woken up at mid-day by Harry who was almost hysterical about the view. We all got out of our tents to find clear blue skies and a magnificent view of our surroundings. The weather couldn't have changed at a better time.

In no time at all we seemed to be loaded up and picking our way up the very barren valley in search of a Base-Camp. The best place was $1\frac{1}{2}$ miles from the fjord, and probably the only suitable place in the whole valley. The next few days were a blur of pitching tents, swatting mosquitoes and sweating up the valley with our large loads.

APPENDIX TO TRAVEL REPORT

THANKS TO

Den Kongelige Grønlandske Handel
(The Royal Greenland Trade
Department)
Strandgade
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Mr. T.W. Brookin
D.C. Andrews Ballantyne & Co. Ltd.
Commercial Square
Freeman's Common
LEICESTER.

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FOR

Arrangements and Details of
Sea Transport to Greenland
and Coastal Steamer Service.

Air-flight Arrangements and
Rescue Insurance.

Last Minute Ticket Alterations.

Donation of Special Packing
Cases and Packing Services

Arrangement of Freight to
Copenhagen.

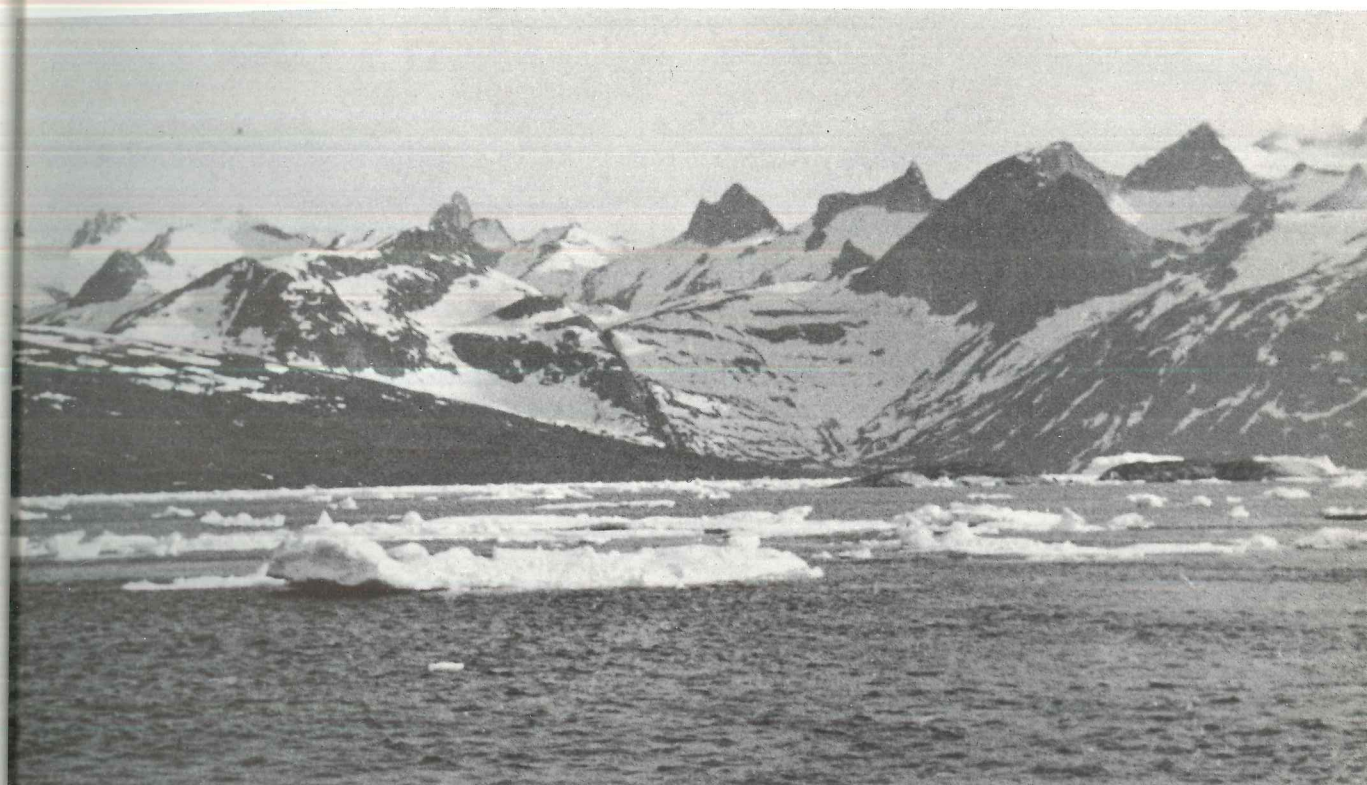


PLATE 2



PLATE 3

CLIMBING REPORT

PREFACE TO CLIMBING REPORT

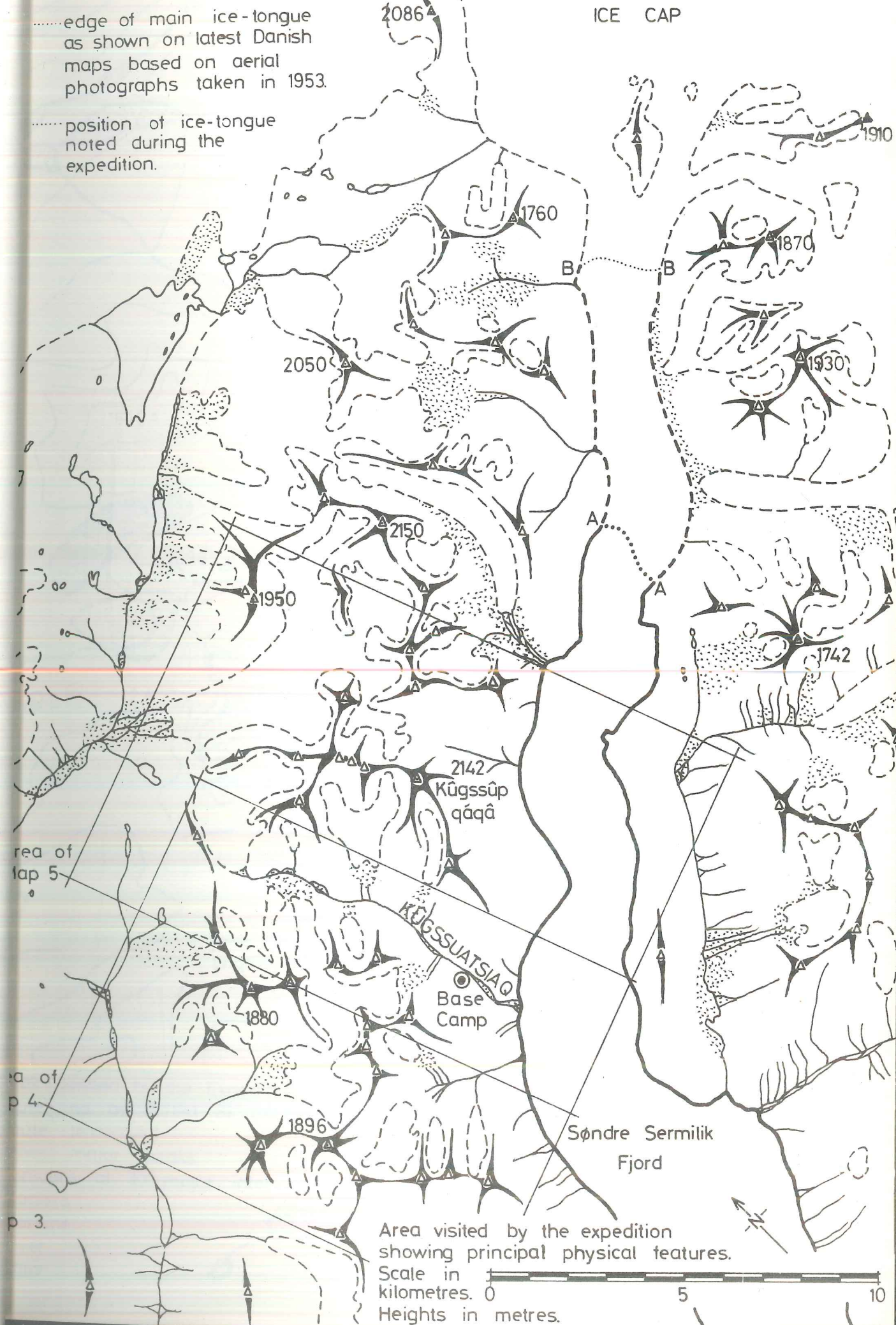
The expedition was centred in Kūgssuatsiaq (refer Map 2) and had as its mountaineering objectives the surrounding granite peaks. Kūgssuatsiaq is ice-free for most of its length and cuts through the middle of the most impressive and biggest mountains at the head of Søndre Sermilik. The highest of these is Kūgssūp Qáqā (2142 metres). This and the peaks closest to it were our main objectives.

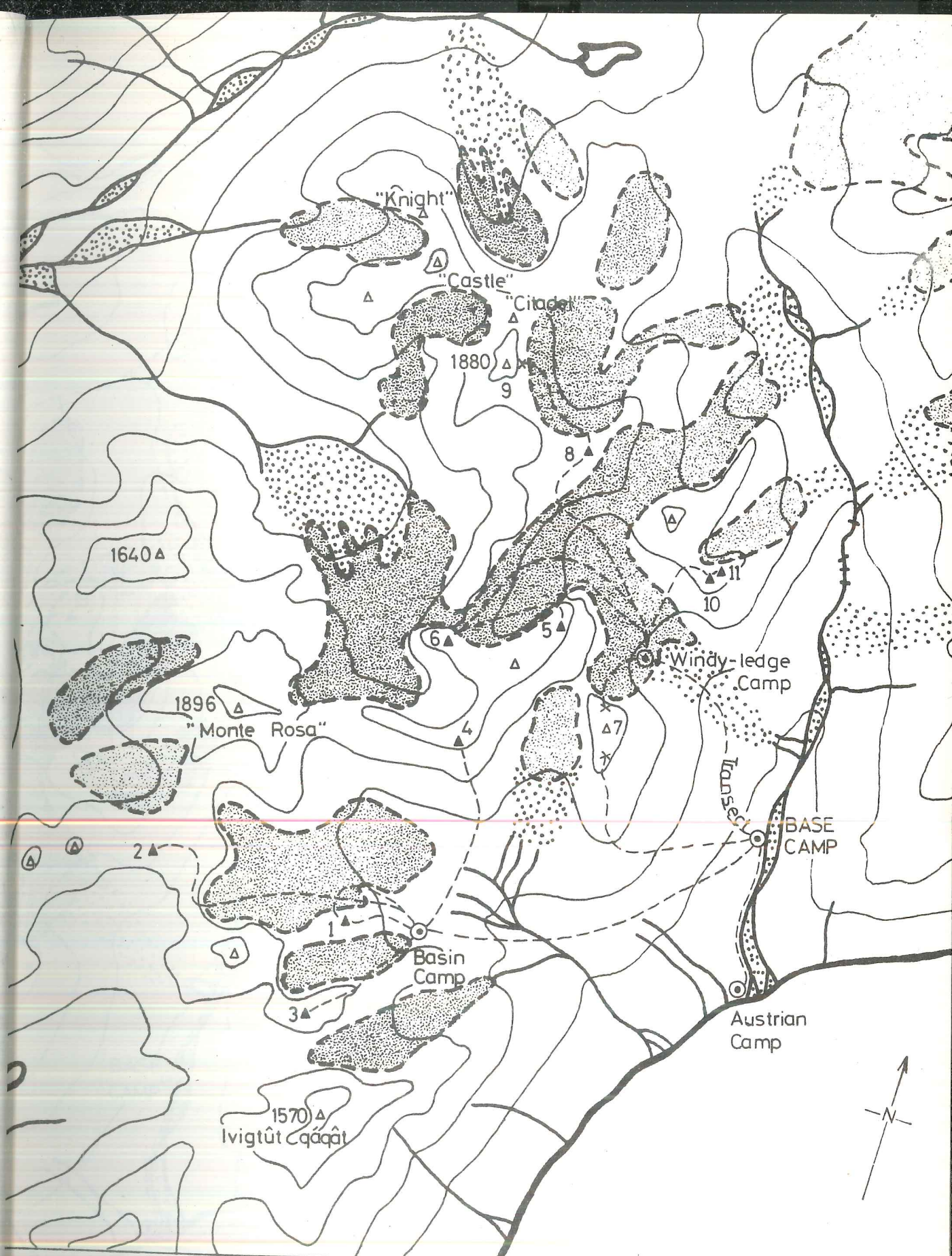
The party split into groups of five to carry out our two main functions. One group climbed from an advance-camp and the other carried out the scientific programme from Base-Camp. Each week saw a different party climbing together, giving everyone a chance to rest and have a change of company.

After the loss of one week in Nanortalik, instead of cutting down on our programme of six periods of seven days, for exploration, we simply shortened the exploration time and one week in Kūgssuatsiaq became six days.

In the following pages the mountaineering and exploration work is outlined. Peter Ellis describes the first period July 24 - 31, in the article 'Early Days'. This includes the initial reconnaissance and the time spent at Basin-Camp (refer Map 4). The party then re-assembled at Base-Camp and decided on a week of exploration at the top of the transect (refer Map 4). This second period is outlined by Andrew Barbier in 'The Windy Ledge', July 31 - August 6. In the third and fourth weeks both parties used the same advanced-camp - 'Lost Lake Camp' (refer Map 5). Alan Douglas discusses the period August 6 - 12 in 'Rio Grande part I' and Andrew Barbier the second period August 12 - 18 in 'Rio Grande part II'. Finally, in weeks 5 and 6 a camp was set up in the 'Faswat Al' valley August 19 - 27. This stormy period is summed up by Alan Douglas in 'The Scara Brae Affair' (refer Map 5).

Table one on the following page is a summary of the ascents and major attempts on mountains during the expedition. The names and numbers corresponding to those on maps four and five. These names have not yet been ratified by the Danish Government.





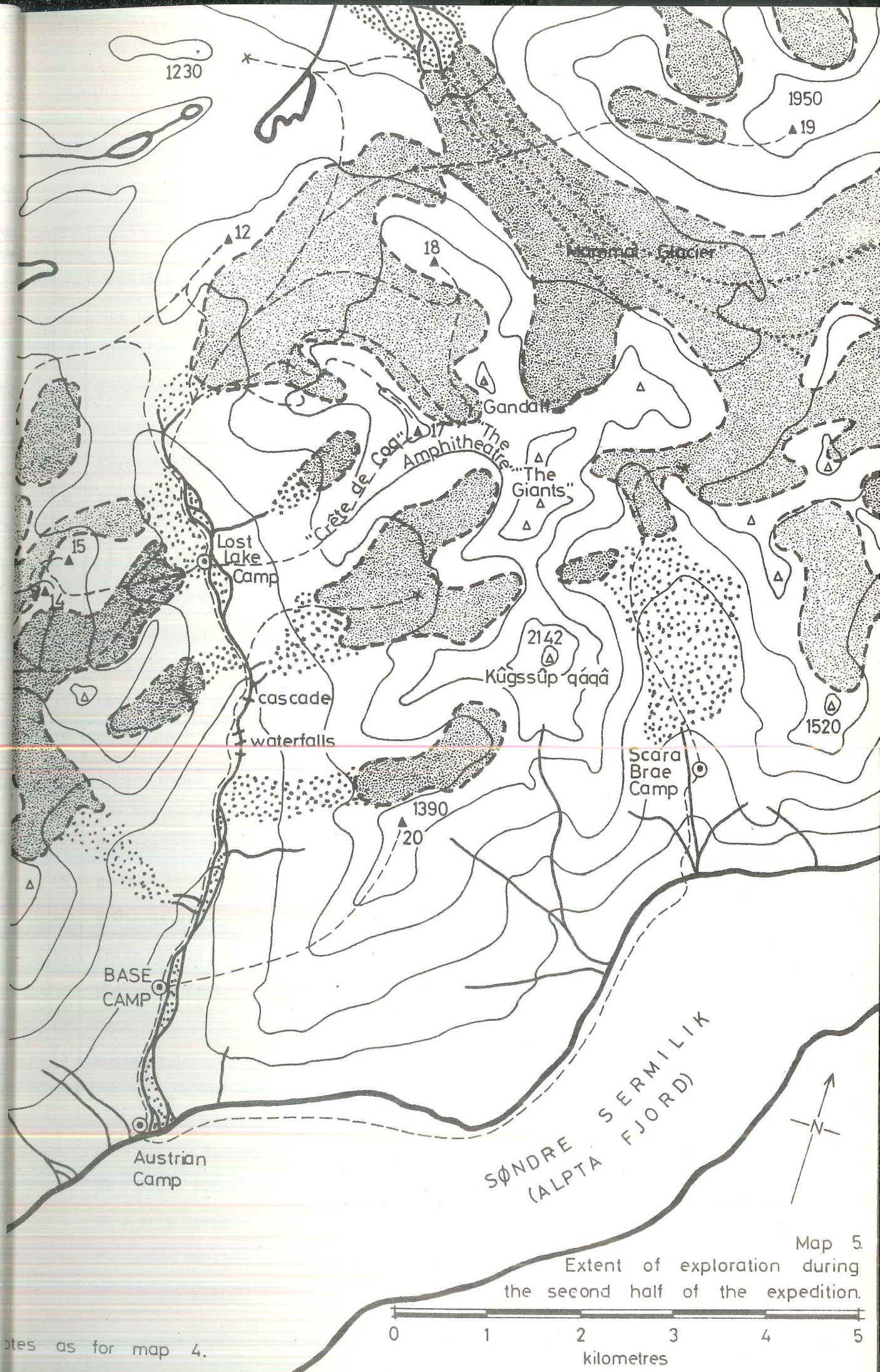
Peak climbed by the Expedition (with route), no. as in list of ascents.
 Route terminated
 Other major peaks
 Contours at 300 metre intervals
 Glaciers
 Moraine
 River
 Lake



0 1 2 3 4 5
 kilometres

Extent of exploration during the first half of the expedition.

Map 4.



notes as for map 4.

TABLE 1

LIST OF ASCENTS AND MAJOR ATTEMPTS OF MOUNTAINS
BY THE LEICESTER POLYTECHNIC STUDENTS' GREENLAND EXPEDITION 1972

	MOUNTAIN	HEIGHT IN METRES	DATE	ROUTE	CLIMBERS	GRADE	ASCENT
1	The Pawn	1050	27/7	N.E. ridge	PE, AD, PM, IL, HW	F	1st
2	Stroll-on	1450	28/7	S.E. ridge	PE, AD, PM, IL, HW	F	1st
3	They-were-There	1350	29/7	N.E. ridge	PE, AD, PM, IL	PD	1st
4	Untrodden Peak	1640	30/7	S.E. ridge	PE, AD, IL, PM	AD	2nd
5	Kûgssuatsiaup Qáqâ	1680	2/8	West face	AB, GH, IL, MD	PD	2nd
6	Rubble Peak	1600	2/8	East face	AB, GH	F	2nd
7	Grimsby	1350	3/8	North Gulley	AB, PM	AD +	Not climbed
			25/7	South ridge	PE, AD, PM, IL, HW	AD +	"
8	The Restaurant	1650	4/8	South ridge	AB, GH, IL, PM	F	2nd
9	King	1880	4/8	East face	AB, GH, IL, PM	AD	Not climbed
10	Nell	1500	5/8	S.W. gulley	AB, GH, IL, PM	PD	2nd
11	Nell's other Breast	1500	5/8	S.W. ridge	AB, GH, IL, PM	F	2nd
12	Whaleback	1350	8/8	South face	PE, AD, GH, AK, HW	F	1st
13	Antler Ridge	1450	8/8	North ridge	PE, AD, GH, AK, HW	F	1st
	The Restaurant(8)	1650	9/8	East face	PE, AD, GH, AK, HW	F	3rd
14	Romulus	1350	9/8	South ridge	PE, AD, GH, AK, HW	F	1st
15	Remus	1350	9/8	West ridge	PE, AD, GH, AK, HW	PD	1st
16	Crête de Coq*	-	11/8	Many pinnacles on south ridge	PE, AD	D	1st
17	Chien de Blé	1850	11/8	S.W. ridge	PE, AD	PD	1st
	Whaleback (12)	1350	14/8	South face	AB, KB, MD, PM, IL	F	2nd
18	Centurion	1750	15/8	S.W. face	AB, KB, MD, PM, IL	PD	1st
19	White Slab	1950	17/8	E. face and ridge	AB, PM, IL	F	1st
20	Inip Qáqâ	1390	30/8	S.W. ridge	GH, IL	F	2nd

AB - Andrew Barbier

GH - Graham Hudson

* A long traverse covering
many pinnacles

KB - Kevin Barratt

AK - Adolf King

MD - Mick Davis

IL - Ian Lambert

AD - Alan Douglas

PM - Peter Meads

PE - Peter Ellis

HW - Harry Wilson

EARLY DAYS
BY
PETER ELLIS

JULY 24th - JULY 31st 1972

EARLY DAYS - by PETER ELLIS

JULY 24th - JULY 31st 1972

Base Camp having been firmly established, and the bulk of the load carrying from the fjord dump completed by Sunday 23rd July, the members of the expedition divided themselves into two parties of five.

Whilst Andrew, Kevin, Graham, Mick and Adolf tackled the task of setting up the scientific stations along the 'transect', Alan, Harry, Ian, Peter and I spent two days carrying out a reconnaissance of the surrounding area for possible advance camp sites, and generally familiarising ourselves with the mountains. The plan for our group on 24th July was to ascend the ridge leading to Inip Qáqá (1390 metres), immediately north-east of Base Camp, as we felt this route would give us the best introduction to the peaks on all sides. However, we had not given full consideration to the condition of the river when laying down our plans, and it was not until we had passed the waterfalls and cascade (3 Km upstream from Base Camp) that we all succeeded in crossing to the east bank. Climbing Inip Qáqá now being out of the question, we had lunch close to what would eventually become "Lost Lake Camp", and after some scrambling among moraines nearby we retraced our route to Base Camp. Inip Qáqá had evaded us for the time being, in fact this was to be the last peak climbed during the expedition.

Next day we concentrated our efforts on scaling the ridge west of Base Camp, ~~leading to the small but prominent peak later~~ christened "Grimsby". We had decided that the area west of the ridge seemed suitable (from the map at least) for our first session of mountaineering, so we each carried a food box and a few items of climbing gear. After a considerable flog through large boulder debris we reached the crest of the ridge. Here we lunched whilst looking across a large moraine filled basin to some pleasant peaks around three small glaciers, and agreed that this area would indeed be suitable for our first mountaineering session.

Lunch over, Alan suggested that, as we were so far up the ridge - "why not nobble off the peak above us"! The rest of the party being enthusiastic, we left our gear on the ridge and set off for what appeared to be the summit. After 45 minutes of not too difficult scrambling we reached a small shoulder below what was in reality the first of a pair of peaks, the farthest one naturally being the true summit. It was obviously too late to tackle both the peaks so we returned to our gear and descended into the large basin. We left the excess items under a huge boulder and marked the spot with one of our orange fluorescent sheet markers, which we had obtained from the Army. (N.B. These markers were exceptionally useful for marking points in featureless areas. They were extremely light to carry, simple to secure, and easily visible from some distance. They were especially valuable for marking our route along the transect and greatly facilitated the surveying programme.)

Our return to Base Camp followed a relatively straightforward route, contouring round the end of the ridge rather than over it. It was during this return trip that our party encountered the only live mammals observed during our stay at Kûgssuatsiaq - a pair of Arctic Hares (*Lepus timidus*). Approaching Base Camp, we realised that something was amiss, but it was not until we were almost there that we realised what was wrong. Only one of the large base tents was standing, and on arriving back at Base we found Andrew and Adolf sewing up a large tear in the climbing tent, the result of freak winds. This was not to be our last encounter with these winds and eventually we accepted them as part of the climatic cycle, occurring at the ends of unsettled periods. (South-east Greenland is noted for the occurrence of 'Föhn' type winds, so whenever we observed characteristic wave patterns in the clouds, a quick check of the tent guys proved a worthwhile precaution.) It was still a little windy as we re-erected the tent, but after a hectic 30 minutes we had it up again looking better than before. By the time we had repacked the tent and prepared our evening meal it was 2030, and then we retired early ready for a full day's carrying to establish our first advance camp.

As Kevin and Mick set off on the first transect run, our party began packing ready for the carry. By the time we had finished Kevin and Mick had returned, and it was after mid-day when we said our goodbyes. The weather was very hot and humid as we set off - staggering up to the ridge suffering the effect of the sun and our loads. Retracing our steps of the previous day, we stopped for lunch at the entrance to "The Basin" and then took it easy to the site of the advance camp "Basin Camp" (refer Map 4). The site selected was a small level patch of snow close to a stream below ~~the centre of the three western glaciers. The two Mountain Tents~~ were soon pitched and we returned to pick up the food dumped 1 Km down the valley. That evening, as we prepared dinner, the weather looked far from promising with cloud building up across Søndre Sermilik.

The weather cleared during the night and we woke late to a fine day. By the time everyone had got out of their sleeping bags and finished breakfast it was almost mid-day, so a long trip was out of the question. A short, broad snow gulley up a flat-topped spur to our west provided us with enough sport for the afternoon. Progress was straightforward until we reached the top of the snow where we had to traverse onto some very loose rock for the final 50 metres. It was at this point that we realised just how unstable much of the rock was going to be for the rest of the expedition. Even the more stable-looking rock could not always be trusted with confidence, and human-sized boulders would crash downwards in unnerving situations. Once up the gully we strolled over to the highest point on this glacial flattened spur and had a late lunch. Our situation was certainly inferior to all the surrounding peaks, and with an altitude of barely 1000 metres "The Pawn" seemed an appropriate name. (refer Map 5 and Table 1)

We returned to Basin Camp by way of a small col giving easy access to the northernmost and largest of the three glaciers, which was followed round the back of the spur. Whilst dinner was being prepared I collected a few specimens for our flora collection and found some Ptarmigan egg-shells. We later found the old nest in a very small clump of *Salix* at an altitude of a little over 800 metres. (During the course of the expedition we established proof of this bird breeding at over 1000 metres.) Returning from my collecting session, the evening meal was ready - soup, re-hydrated meat and vegetables, and re-hydrated apple with custard, followed by coffee. The climbing menus tended to be a little more basic than those down at base camp. Efforts to cut down weight resulted in the greater use of de-hydrated foods, but even so, there was ample variety and we rarely tired of our climbing diet.

Next morning we managed to get up at a more reasonable hour, having decided to tackle a medium sized peak $2\frac{1}{2}$ Km west of Basin Camp which necessitated the crossing of the glacier on which we had been the previous day. The weather was fantastic without a single cloud in the sky - indeed it was too hot and we rested three or four times before reaching the foot of a steep rock col at the head of the glacier. The ascent of the col proved easier than expected and soon we were on top of the col. From here we looked south over new ground centred on a wide and barren valley (see Plate 4), the floor of which was covered in snow and moraine. As we gazed over this desolate scene our minds wandered back to the outside world when a lone jet arched across the sky on its way to North America. During the period at Kûgssuatsiaq these solitary planes were to provide the only link with the world we knew - so close and yet so far.

As the white trail disappeared our attentions reverted back to our lonely rocky scene and our reason for being there. From the col we struck off up a fairly easy snow slope onto a ridge to the north, and then along a meandering cliff edge to the highest point (1450 metres) of "Stroll On". We found no cairn so we claimed our first real virgin peak, and proceeded to build our own cairn. Any sizeable boulders still lying on the ground after the building operation had been completed were systematically 'trundled' over the sheer face. Having exhausted the supply of boulders, and time pressing we retraced our steps, having an amusing time on the snow slope down to the col. Reversing down the col itself seemed to go smoother than the ascent, and then followed the plod back across the glacier through soft, wet, sugary snow.

After the usual early night with a little reading by candle-light, we slept well, through the cold hours, rising on Saturday morning a little after 0730 to find low cloud enshrouding the camp. However, this cleared over breakfast and climbing was on for the day. At least for four of us - Harry wasn't feeling too good so chose to remain in camp. The rest of us decided to tackle the ridge immediately west of camp which led to a summit of about 1350 metres. Two large gendarmes surmounted the ridge and we approached our objective via a snow slope between them. After a steep climb

we rested at the foot of the upper gendarme, then followed an unstable traverse round the back of the gendarme where a quantity of loose rock had recently fallen. Although at an altitude of over 1150 metres a number of alpine plants were growing on small south facing ledges. However my request to stop for some specimens was met with disapproval by the rest of the party behind me, who were eager to regain firmer ground beyond the gendarme. This we quickly did by way of a short snow gully which led onto a fine snow arête leading up to the summit block (refer Map 4, peak No.3 and Plate 5).

At 1330 we sat grouped on the summit, some taking photographs whilst others prepared lunch. We sat gazing over the vast expanse of ice and mountains which spread out before us. Peak after peak stretched out to the south and east, whilst to the north east the bleak desert of snow and ice merged into the hazy horizon. Apart from the view from the plane this was our first opportunity of studying the great inland ice-cap. The edge of the ice-cap seemed quite close, but in reality it was over 20 Km away. So vast was the scale that it was difficult to judge the sizes and distances involved.

Lunch over we built a cairn and retreated from the summit of "They were There" - a name given to the peak at a later stage in the expedition in recognition of a well-worn expedition phrase. The return journey was made via a higher snow field, steeper than the one used on the ascent, avoiding the unpleasant traverse around the gendarme. A small bergschrund was easily negotiated and we hastened back to camp for a brew. Harry was in his sleeping bag and still not feeling too good, but managed to take a drink and later ate a little of the dinner. The meal over we took advantage of the warmth of the dying sun before it crept behind Ivigtût Qaqat. As usual some of us sat among the warm rocks reading or writing, whilst others practised their snow-braking techniques or collected flora specimens. Soon, however, the air grew colder and as the moon rose over the peaks east of Søndre Sermilik we retired to the comfort of our sleeping bags.

Sunday was to be our last day in "The Basin", so we were determined to climb something worthwhile, but even as we prepared breakfast we were still debating as to which would be the peak to receive our attention. Eventually we settled for one of the larger peaks on the crenelated ridge which formed the northern limit to "The Basin". Harry was still not feeling too good, so he decided to walk at a lower altitude whilst the rest of us attempted our largest peak to date, some 200 metres higher than "Stroll On" (refer Map 4, peak No.4 and Table 1).

We crossed the floor of "The Basin" and parted company at the foot of the main central ridge. The four of us proceeded up through the boulders intending to join an obvious snow gully about half way up. At first the rock was poor and loose, little more than a pile of stones, but the quality of the rock improved as we drew level with the bottom of the gully, so we continued climbing up the ridge.

Approaching the final section of the ridge, a few desperate moves were made before we reached a small col some 150 metres below the summit, where we lunched before continuing further.

It was well into the afternoon as we roped up in two pairs for the summit bid. Peter led off with Ian, then Alan and I followed the dubious line over broken rock. As Alan and I reached the top of the second 40 metre pitch and untied, we met Peter and Ian returning from their scramble to the summit block which they declared unclimbable. However, not wanting to leave a problem unchallenged, I investigated the lichen encrusted block and found that, by trusting the friction provided by the lichen, I was able to scale the block. My immediate satisfaction quickly drained away when something shining attracted my attention - a beer can was thrust into a crack and beneath it an empty brandy bottle containing a small piece of paper. Yes - the Austrians (1971) had beaten us to this one. Alan joined me briefly on the summit and we left the names of our party in a modest meat-paste jar to keep company with the brandy bottle for the rest of time.

As it was now after 1600 we wasted little time in rejoining Peter and Ian who had been preparing an abseil. They were naturally disappointed in missing the true summit by a few metres and later on the peak was called "Untrodden Peak" to indicate their feelings. We quickly abseiled down to the col, picked up our gear and descended into a small gully below. A second small gully led us into the main gully which was followed as far as a waterfall. Here we traversed back onto the ascent route and then back down to Basin Camp via three small snowfields and a long scree run. Harry had returned earlier from his walk and was a little concerned about our well being until he heard the familiar cry of "brew up" from four thirsty and weary climbers, scrambling over the last section of the boulder field.

Rather than spend another night in "The Basin" we decided to break camp and return to Base for a full day's rest before starting our first scientific session. So refreshed by a brew we packed up and returned uneventfully to Kûgssuatsiaq. Arriving back after dusk we ate a welcome meal with a few 'extras' from our base store, and exchanged news with the others. They still looked pale, compared with our tanned faces, as they had been forced to spend most of their free time inside the tents to avoid the plague of mosquitoes. Naturally they were looking forward to going up to a new camp and to be exploring fresh ground. We too were eager to carry on the scientific work, but first we planned to spend a quiet day exploring the upper reaches of the fjord in our rubber dinghy - but that is another story!

WINDY LEDGE
BY
ANDREW BARBIER

AUGUST 1st - AUGUST 6th 1972



PLATE 4



PLATE 5

WINDY LEDGE - by ANDREW BARBIER

AUGUST 1st - AUGUST 6th 1972

At last we could leave the mosquito infested base-camp, no more transect bashing and no more scientific work for a week. It was these thoughts that filled the minds of Andrew, Graham and Mick as they prepared to carry loads up to advance-camp two (refer Map 4). Our hearts were with Adolf and Kev, the two scientific stalwarts, who faced another week, sweating inside the big tent, and mosquito swatting. Pete Meads and Ian were having another week in the mountains and, judging by their tanned smiling faces, this seemed agreeable. Despite bad reports of loose rock and the weather being too hot for climbing, we were much too eager to leave base to worry unduly. We were also intending to use alpine starts as much as possible.

We were all ready by 1030 and left - staggering under our enormous loads of food and climbing gear. The mosquitoes seemed to realise that it was their last bite for a week and organised a final great onslaught on our sweating bodies. As always, when load carrying, one finds oneself miles away, thinking of something completely different, for example food. This is the only way to relieve the drudgery of these long slogs.

By the time I had reached the Barley Sugar Station (No.4 on the transect) I seemed to have left the others a long way behind. Adolf, Pete Bear, Harry and Alan were somewhere above me doing the transect, and the rest of the climbing party was straddled out crossing the huge boulder moraine between stations three and four (refer transect survey). Only poor old Kev remained at Base-Camp sharing company with his friends the mosquitoes. Not a soul was in sight. It was a pity that I couldn't savour this beautiful moment as I felt sick. I drank some water, deciding that unless I carried on quickly, I'd soon grind to a complete halt. I picked up the load again and struggled on to Station 5 having another rest. It was here that I discovered that the golden syrup can I was carrying had been filled with jam. I found this out when I opened my sac to find jam spread over it. This was all I needed and in a blaze of temper, I stormed up to Station 6. The final straw occurred when my rucsac strap snapped. "So Much for Bloody Karriamor!" I said to myself. Below, Graham was resting at Station 5. I think it was only this slight suggestion of a race which drove me on, over the huge terminal moraine to the glacier where our camp was placed. Exhausted by the heat and the exertions I dropped my sac and set about preparing a brew. A little later Graham arrived (1330) much relieved to have finished the 'walk'. We busied ourselves having lunch and putting the gear in the tents. Slowly the hours ticked by. We began to get worried and were just about to set off down to look for the others; when three people all in a row, slowly plodded onto the glacier.

It was now three o'clock and we had planned a reconnaissance trip to the col above the glacier. Ian, Mick and Pete had had too much sun

to consider coming and so we went on our own. We quickly reached the backwall of the cirque of peaks and climbed past a large ice-fall on our left, continuing on up through a large area of crevassing. By the time we had negotiated all this the evening had arrived and the sun was setting. It was a beautiful position to be in, we had found a route onto the col, and seen a route onto Kûgssuatsiaup Qâqâ, 1680 metres (peak No.5) - tomorrow's objective. It was also wonderful to see some mountains at last. It's a vastly different world viewing mountain summits from a glacier than from the valley. We were surrounded by impressive mountains. Kûgssûp Qâqâ, the biggest, was glinting at us from the other side of the valley. It looked even more ferocious from this vantage point. The huge 900 metre south-west face was lit up in the evening sun, but despite this, the whole peak had the foreboding air of the Eiger about it. If we were to climb it we were going to need a lot of luck. The idea of being stuck on that face frightened us both as we stood gazing at its immensity that evening.

Back at camp we found Ian cooking tea amongst the boulders. We quickly shovelled the food down before it got cold. Whilst we were eating, a couple of transect bashers (Adolf and Alan) emerged, waved and disappeared back to Base, it seemed so incongruous. We were soon in our bug bags in the hope of an early start in the morning.

0300 hours August 2nd. The Alarm! Oh Hell! Graham looked out and pronounced that it was cloudy. He groped for his trousers in the darkness, and struggled around for several minutes mustering up the effort to get up. It seemed a ridiculous hour of the morning. Or as Alan would say, "It's not morning until its been light for a few hours!" As usual I found the effort harder and dragged myself out to find Graham still trying to light the stoves. All that could be heard, above the roaring wind, in the other tent was Mick snoring peacefully. Again the transect team (this time Pete and Harry) emerged onto the glacier. They shouted to tell us that it was very hot at Base (17°C) and then quickly went back down.

The others were not very pleased when I woke them to say that breakfast was ready. It had taken a long time as the wind had been blowing out the stoves, it was also very cold. Pete came over to our dining area and announced that he wouldn't be coming, he thought the weather looked too bad, anyway he needed the rest. After what seemed like ages the rest of us set off, cramponing up the glacier. It did not take long to retrace the steps of yesterday. We crossed the area of bad crevassing and started to tackle the loose, rocky, West face of Kûgssuatsiaup Qâqâ (refer Plate 6).

It got harder and looser, Graham kept muttering about trying another route and glaring at me when I ignored him. Although this part of the route was sheltered from the buffeting of the wind, we could still hear it rushing round the base of the mountain. After a few hundred metres we emerged over the lichen encrusted summit ridge (the lichen seemed to hold most of the mountains in Kûgssuatsiaup together). We were nearly blown back down the mountain by the force of the wind. Everything seemed incredibly loose, even the Bear

would have been worried. We edged slowly to the summit (which had been cairned by the 1971 Austrian team) and so claimed a second ascent, the highest peak so far for the expedition at 1680 metres - nearly 6,000 feet.

The view was dramatic. On all sides rock and ice peaks poked up on the skyline. I had never seen such a large collection of mountains in one panoramic view. It made Wales look like a ploughed field! The summit we were standing on commanded excellent views of all the major peaks in the area. We viewed Kûgssûp Qâqâ (Plate 17) and the Monte Rosa, 1896 metres (Plate 9). The latter in all probability had been climbed by the Austrians in 1971. Nevertheless it is a magnificent peak, with huge hanging glaciers sweeping down from its Northern face. On its South Eastern face the Basin Camp party had viewed extremely steep rock towers and faces. Regretably we were unable to attempt this isolated mountain - certainly the Queen of the area.

We glanced down at our camp and to our dismay saw Pete re-erecting Graham's tent which had just been blown down. It was this event which earned this advance-camp and the glacier the name "Windy Ledge". As we descended Mick and Ian came up to join us at the summit.

This vantage point also commanded a good view of the peak next to us, to the South-west (refer Plate 6). It was still early in the day and so it seemed feasible to attempt it. Ian, however, assured us that it had been climbed the week previously and so we decided not to bother. We descended, lunched and then separated. Ian and Mick descended back to the camp, and Graham and I crossed the upper part of the glacier to climb 'Rubble-Peak' (Peak No.6). This did not take very long and we certainly named the peak very aptly. On the summit we gazed back at the big peak between us and Kûgssuatsiaup Qâqâ. An easy route lay up the West face and it would only take a matter of a few hours at the most. With Ian's words in the back of our minds we decided that one ascent was enough. Unfortunately we found out later, to our dismay, that they had not climbed the peak at all, but one to the South of it (Untrodden Peak). This peak was thus well named - Forgotten Peak, - it was a great pity.

After a high quality trundling session (a sport to be enjoyed only when one is certain that no-one else is in the near vicinity, which we never have chance to do in Britain) - we returned to camp. Mick and Ian had found an easier route back which made it possible to glissade nearly all the way.

We got back by 1330 hours to find a brew ready, and the others repitching both tents. The wind had now thankfully died down, but yet again this Föhn wind had blown down the Base-Camp tent.

It was raining when we went to bed and it carried on for most of the night. An early start was completely out of the question, so we relished a long awaited lie in. Indeed this was the first one we

had had since we arrived in the valley. We certainly made sure of this and established the expedition record of 17 hours in bed. (This was to be absolutely smashed some weeks later.) Foolishly, soon after we got up at 1130 hours, Pete and I decided to try 'Grimsby' (Peak No.7), completely underestimating it. We crossed the glacier and started climbing the North Gully. I led a 150 foot pitch at V.S. on the loosest rock I have ever encountered. Not one foothold or handhold was firm. Water poured down the route and so we had no hesitation in abseiling back down onto the glacier. We returned, in the rain, to Windy Ledge.

Tomorrow we hoped to have an early start for the attempt to climb 'The King', 1880 metres (Peak No.9, refer Plate 8). In all probability the Austrian team had climbed 'King' by its easy-looking South ridge - as it was such an important peak. It is doubtful that they would have attempted the steep East face, so we would at least be able to claim a new route - maybe a first ascent?

At four o'clock Graham forced me out of the tent to cook breakfast. It was a beautiful morning - not a cloud in the sky. I wondered how much longer this weather could last. By 0530 hours we were on our way up to the summit of 'The Restaurant'. (see Map 5, Peak No.8). The name was derived from the phrase by Mick "I'm not coming to this Restaurant again"! He used this whenever it was cold, windy or just unpleasant whilst eating.

At 0730 hours we had reached the summit. This view was one I will remember for the rest of my life. Of the ice-cap and all the big peaks of the area lit up by the early morning sun. Anyone who tells me that the world's mountains are climbed out, should come to Greenland. Many of them have not even been seen at ground level. Standing on this summit, viewing most of the big peaks of Southern Greenland, seemed to me the realization of all the months planning. The utter solitude of our position was not broken by anything, not one living thing could be seen in all that space.

After a brief photographic session, we began to rope down a steep ice-gully. The object being to cross the bergschrund, then a large glacier, back over the bergschrund and climb a long snow and ice gully on the East face of King (see Map 4 and Plate 8). We were soon in difficulty. When Graham reached the bergschrund he found a fifteen foot drop and a jump outwards of ten feet. Hundreds of feet to his right lay a snow bridge, but we didn't fancy the long traverse over the top of the dangerous looking bergschrund. I became impatient and shouted to Graham to hurry up and jump. Graham has this reputation of being cautious, so I ignored his comments about it being difficult. He muttered aloud, took the rope in, and tested whether it would reach the bottom. Finally he decided to give it a try.

Our position was precarious. Graham was on a 150 foot run-out. He had put no runners in. If he slipped into the bergschrund, the

resulting pendulum would probably have dragged me off also. It seemed like hours before he jumped. Afterwards there was a few seconds pause and then "Come on Andrew its OK!" So with my fate sealed - I went down. When I arrived at 'the leap', I almost had a heart attack. This time he really had pulled something out of the bag. It was a long way to jump. Graham was standing below me. He had a broad grin on his face. He knew I had to do it to save face. I decided after several minutes that the only way I could do it would be to count to ten and then jump. One - two - three - four - five - six - seven - eight - Woosh! I fell through the cornice and plummeted downwards, landing just on the tip of the bergschrund. Then it was my turn to laugh as Pete and Ian came down, both of them thought the jump was ridiculous.

It was getting late as we quickly traversed the glacier and found ourselves below the long gully, which we fondly imagined would lead easily to the summit. Graham and I led on up, finding the going very tiring in the deep snow. After about 10 pitches (150 feet) it started to get dicey. As it was late in the afternoon the sun had melted off the layer of good snow and ice, leaving the patches of almost impossible green ice beneath it. Graham led an awkward pitch of this stuff without belays. I reached him with difficulty and led through - again hitting the bad ice. It was foolhardy to consider finishing this gully. We either had to cut steps (extremely awkward on hard ice) or front point. The latter was dangerous without ice-screws - which we didn't expect to need - and had of course forgotten. An estimated 200 metres of the climb remained.

Foolishly, I moved on to rock. Below - the others were looking absolutely fed-up. "What was he doing prancing around on the rock making little ground?" This 'easy' climb was slowly becoming an epic. I looked across at the ice-cap realising just how remote from any help we were. It was nearly 2 o'clock, we'd been on the move 8½ hours without a break. Mick (who was resting at the Windy Ledge) was expecting us back at four (as we hadn't planned a bivouac). If we didn't turn up a flare would go up starting a call-out - this would not only eventually involve us and Roger Smith, but the Danes in Nanortalik 80 long kilometres away! Slowly the summit slid from my mind. Giving in is not easy, especially when its your decision.

The others came up to the tiny ledge and Ian then led through on rock at about severe.

We just stood no chance on rock at that standard. It would take us at least four hours to the summit assuming it got no harder.

Graham and I led two more ice pitches to join Ian and Pete on the rock again.

The fact that the climb would go made our decision all the harder. It would have been OK if only we'd arrived at the bottom a few hours earlier, before the melt. The route would have to wait for someone else.

So with these thoughts in mind we retreated regretfully and abseiled down the mountain. The long walk over the melted glacier took hours, our reward being a beautiful sunset as we again reached the summit of the Restaurant. From the col, we bellowed to Mick to assure him we were safe and to get the tea on. A long glissade down the glacier and we were back - 1830 hours! We'd been climbing thirteen hours with only a brief stop for lunch. It had been an excellent day despite our failure to finish the route.

It was 0930 before we saw the light of day the following morning. The weather again was fantastic. Not for the first time, Joss Lynam's warning went through my head and I wondered when the weather would break. We didn't leave camp until 1130 in our attempt to climb 'Nell' (Peak No.10). The route lay up the obvious S.W. snow gully.

It wasn't long before we reached a col and started climbing the west ridge. Again we were exposed to the loose rock which we had come to expect in this valley. It wasn't a long ridge and we were soon kicking steps up the final snow slope - to the summit. The Austrians had also climbed Nell and so we ended our week with five second ascents.

We spent the afternoon building a large cairn, eating lunch and again trundling. Back at Base, Kev thought that the mountain was starting a landslide - it must have made a tremendous noise. Pete Bear was surveying the transect with a theodolite. He turned it to the summit and jealously watched us (upside down) dislodging huge boulders and cackling with delight. After about an hour, we tired of our game and climbed the summit very close to Nell which we named 'Nell's other Breast' (Peak No.11). It didn't take long to rope down our route and we returned for tea.

The following day we unfortunately had to go back for another transect session. Our camp was completely shrouded by fog which was very common early in the morning. As we arrived back at Base-Camp Pete, Harry, Adolf and Alan were just setting off to establish our third advance-camp. When they returned we all sat round a camp-fire discussing the expedition. It was a beautiful clear night. Pete had very luckily caught several cod and we ate this by our fire. As if by signal from a guiding hand we looked up to see great streaks of Greenish light, high up in the ionosphere. It was our first view of the Aurora Borealis and made the occasion of change of camp seem almost momentous.

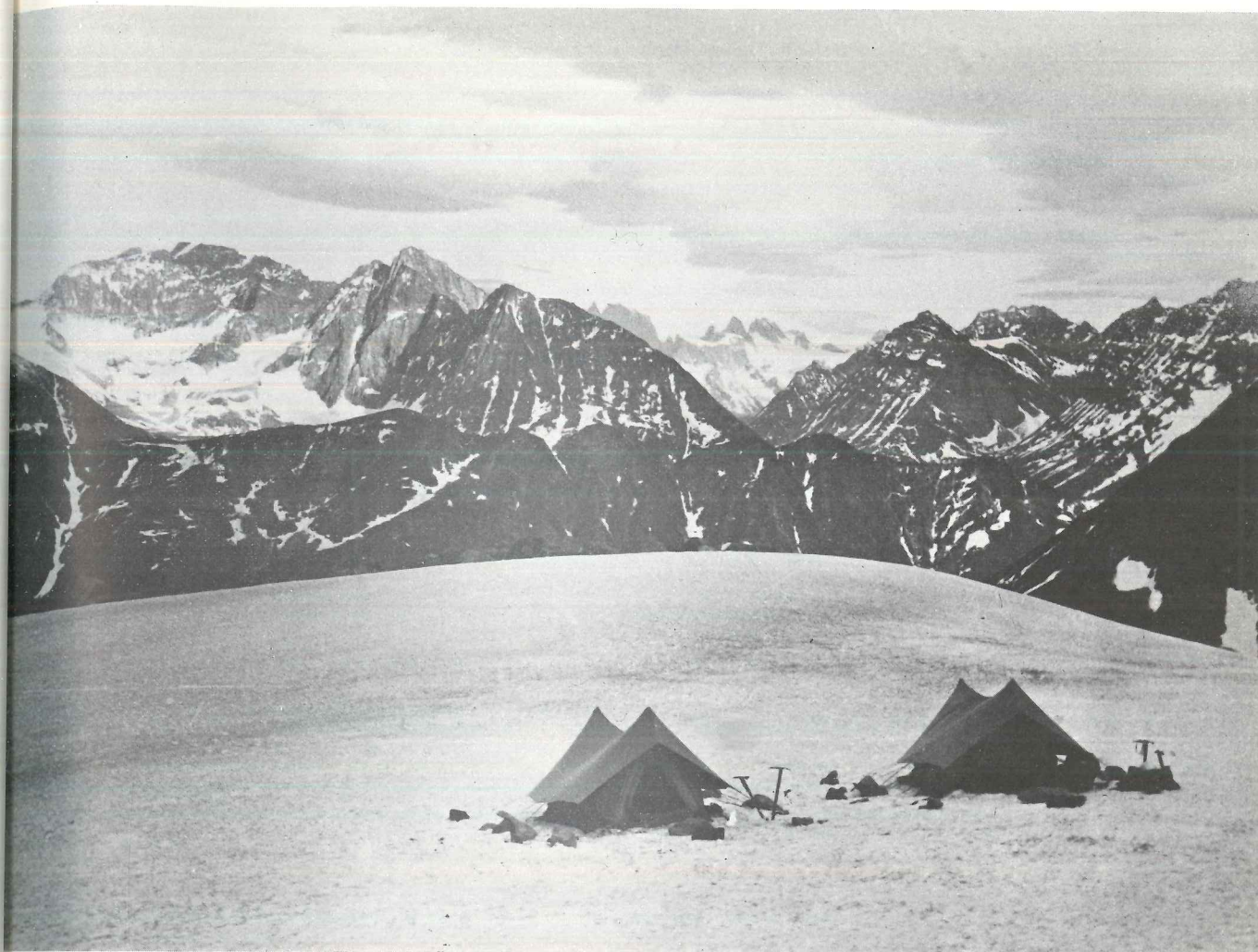


PLATE 6



PLATE 7



PLATE 8

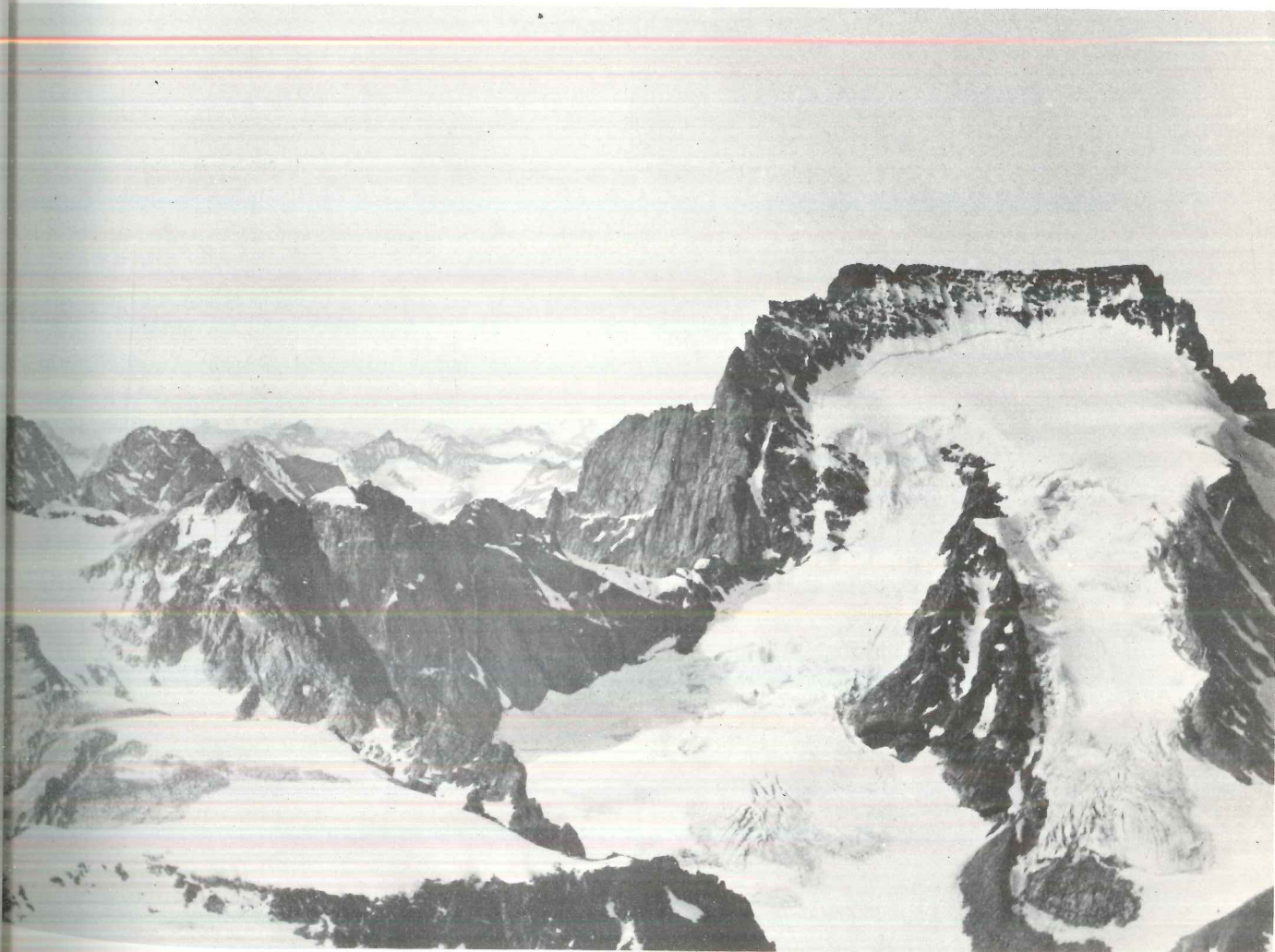


PLATE 9

R I O G R A N D E - P A R T I

B Y

A L A N D O U G L A S

6th - 12th AUGUST

Advance camp 3 was situated above the waterfalls at the head of Kûgssuatsiaq, some 4 - 5 km north of Base Camp - altitude approximately 1500 metres (refer Map 4, Plate 10).

This section of the valley, 'the Rio Grande', is broad and flat, very different in profile and character from that below. Because of its position and height it gives access to a large area and offered tremendous scope both for climbing and exploration. Lost-lake campsite was situated on the margin of what is marked as a lake on existing maps but its site is dry and stoney now. It was by far the best of our campsites (especially Base Camp) - the only patch of grass in a bareness of rock and snow, beautiful views in every direction, stream at arm's reach, almost no mosquitos - fabulous! (Plate 10)

Our obvious first objective was to follow the valley to its head, to see if we would have any difficulties in crossing the glacier and to gain a better view of the area generally. On reaching the glacier we found it to be gently sloping, with few crevasses and from it we could climb easily onto the low broad ridge of Whaleback (1350 metres) that flanks it to the NW. Although not a particularly high or impressive summit it did claim the distinction of being the only one to be climbed by every member of the expedition. To the NE we could see, for the first time the green inland valleys and low rolling hills which lay between us and the Inland Ice; to the south Kûgssuatsiaq from the glacier to Sermilik fjord, and to the SE some of the most impressive and beautiful peaks in the area including the King and the Restaurant. From Whaleback we climbed Antler ridge, a loose rubble pile with two rocky summits. These both cairned, we scrambled back down to the glacier and thence to the camp site. (Plate 8)

On the following day the weather was still perfect and we set out to try some of the peaks to the west of the valley. Once over the scree slopes behind the campsite we were at the foot of the steep but uncomplicated glacier which runs NNE between the Restaurant and Nell. We cramponed and roped up and as we gained height Adolf, the heaviest amongst us was soon cursing the soft snow which he sank into at every step. A short section near the top was crevassed and bare of snow but presented no real problem: almost before we knew it we had reached the highest point of the glacier and were looking down its steep slopes to Windy Ledge far below. Opposite us the sharp and elegant summit of Kûgssuatsiaup Qâqâ had suddenly come into view - a short scramble and we were on the summit of the Restaurant, (1650 metres), Graham for the second time. (Plate 12, Peak No.8)

We packed away ropes and crampons, enthused over the view for a while and added four more names to the list left a week before. Back on the glacier, Adolf gave an excellent but unintentional demonstration of an ice-axe brake, which is just as well as we were still unroped. We scrambled down the ridge towards the glacier on the other side, below the King (avoiding the widest part of the bergshroud). From this glacier we could easily reach the summits of Romulus and Remus (both 1350 metres, Peaks 14 and 15). Though loose and extremely broken they were well worth while - particularly the latter which drops away vertically on one side to the tumbled seracs and crevasses of the ice-fall 500 - 600 metres below.

The descent was via a long snow slope between Romulus and Remus, a running glisade, avoiding piles of boulders on the way. It had been an excellent day; three summits climbed, easy but varied climbing, impressive situations and fabulous views.

On the day before we returned to Base Camp Peter and I climbed what turned out to be one of the most sustained and difficult of the routes climbed during the expedition - the long and jagged ridge of Crête de Coq, leading to the summit of Chien de Blé (1850 metres, Peak 17). The others decided to attempt the other end of the ridge from the glacier and if possible meet us on the summit. The beginning of the climb was the, by now, all too familiar plod up steep boulder and scree slopes. Eventually we reached the more 'solid' rock above, scrambled between tottering pinacles to the summit of the first gendarme. Instead of the expected view of the ridge, and perhaps the Chien de Blé beyond, we could see no further than the next gendarme, separated from us by a deep cleft. We scrambled down part of the way but were forced to abseil the last few metres - and so it went on, one enormous gendarme following the next, each steeper and more difficult than the last. Some times we could move together, more often it was necessary to belay whilst the other climbed. The sides of the ridge, with near vertical drops to the glacier cwms far below were mostly too steep to traverse and we were forced to keep to the crest almost all the way.

A few gendarmes later, whilst setting up yet another abseil we heard three voices echoing from the opposite ridge. We shouted back but could make no sense of their replies - if they were trying to say they were going back then we would go hungry, as they had all the lunch and spare food! As the afternoon wore on our main concern was the difficulty of the return if we came to a drop too long for our 45 m of rope or a gendarme too steep or loose to climb. Meanwhile Peter seemed more interested in the occasional specimen of Greenland flora that survived at this altitude and would stop at every little ledge to examine an Arctic Poppy or some such. This was followed by gymnastics to find the right tin hidden away in his rucksack in which to store the precious specimen whilst I belayed him from above - the things people do in the cause of science!

So we went on, each gendarme higher than the last, then suddenly we were at the top of the last one and the summit finally came into view. The final snow slope was the type of stuff that we could walk on for a few steps only to sink to our thighs at the next - exhausting. The summit plateau is broad and rounded and ends in a vertical drop to the glacier, 600 - 700m below. We could only guess at the true highest point but left a cairn at the most likely spot, congratulated each other and headed down.

From the western end of the summit plateau we found a likely gully and clambered down over wet rocks and snow. I slid on a patch of water-ice and ground uncomfortably to a halt amongst the boulders lower down. After Peter had administered first-aid we continued with more caution, abseiled over a waterfall and finally reached the snow slope below.

It was nearly nine hours since setting out before we arrived at the campsite again. We were elated to have completed the route as it had turned out to be, for both of us I think, one of the most enjoyable of the expedition. The degree of sustained difficulty and concentration gave a sense of achievement which seemed lacking on easier routes, however good the view.

R I O G R A N D E P A R T I I

B Y

A N D R E W B A R B I E R

AUGUST 12th - AUGUST 18th 1972

RIO GRANDE - PART II - by ANDREW BARBIER

"It's the last day of the scientific week (August 12th). This time all five of us are due to go up into the mountains. It's to be Kev's one and only sortie. Naturally he is pleased. His pale almost emaciated face (as a result of mosquito bites) is in need of sun and glaciers."

Unlike the previous twenty-three days we had had our first storm last night and the weather was still foul. Everyone had the feeling that we were in for the predicted period of bad weather.

When we eventually got up, the clag and the barometer were still low. The 'long breakfast ploy' was brought into operation in the hope of an improvement for our load carry.

No such luck! So, at eleven we set off with fairly light loads to replenish 'Lost Lake Camp'. Not much need be said about this carry, except that it was wet, manky and unpleasant. We met the others on their way down - at the cascades. The rain had now changed to snow. We exchanged news and carried on.

It took another ten minutes to reach the camp. It was obvious why it had been named 'Lost Lake Camp'. It was situated by the side of a large glacial infilled lake. The river now flowed by the side of the large alluvial plane. 'Lost Lake Camp' was almost ideal. Surrounded by mountains, it had running water and was well sheltered (Plate 10). The whole area was known as 'The Rio Grande' and on all sides the view was ice and boulders, excepting the Southerly view - over to Isortoq. The mountain tents were placed on a lush area of vegetation - which was subsequently well Botanised.

Back with reality. We stood freezing by the tents. The snow was blowing everywhere. Mick, Ian and Pete buttered Ryvitas whilst I checked the snow-plastered tents.

We didn't linger, quickly setting off back to Base Camp. I still hobbled painfully as a result of my accident two days before "Whilst doing the plant survey at Station 5, I stood on a large boulder. This act seemed innocent and perfectly safe. Kev's rucksac lay a couple of feet below. Its owner was bending over examining plants nearby. As soon as I stood on the boulder it lurched sideways, threw me off and pinned my left leg to the ground. Not satisfied with this it rolled forwards and perched itself on Kev's rucksac - full of scientific gear. As I lay writhing on the floor, Ian and Kev pushed the boulder down the moraine and inspected the damage. It could have been the shock that made me burst out laughing at this sight, but Kev did not seem amused. His sac was almost bent in half. It took a lot of pulling and prising to make it look almost normal. We were faced with yet another bill - most of the scientific gear inside was ruined."

I had not broken anything but bruised my leg. Walking uphill proved bearable, but descending was painful.

Back at Base Camp the climbing party were entrenched in their tent, they had even banned the wearing of boots in it!

Soon a brew was ready and the conversation turned to plans for the next few weeks. The Rio Grande party all favoured a change of valley to attempt Kûgssûp Qâqâ from the other side, and also climb some other peaks. The plans all assumed good weather, and plans were also made to climb Grimsby, Ivigtût Qâqât and Inip Qâqâ from Base Camp (refer Maps 4 and 5). These plans seemed very idealistic.

Even though we were climbing tomorrow, our scientific duties remained until the end of the day. The readings still needed taking every two hours, Kev had to analyse the nematode samples, Pete and Ian were correlating the plant results, and Mick, as always, was involved with the long task of keeping the met data calibrated and listed neatly in a table. This job was to save many hours back in England.

The following morning (August 13th) the weather had improved. We quickly packed and set-off for our climbing week. The rest of the day passed without event and we eventually climbed happily into our sleeping bags in our new and beautiful surroundings.

A late start (1030), we had all had a poor night's sleep and all movements this morning had seemed unco-ordinated. Last week the others had climbed most of the nearby peaks, our job would be to venture further afield if possible. We decided to climb Whaleback (No.12, Map 5) to have a look at all the surrounding peaks.

It was a perfect day for this, not a cloud in the sky (that's been said before). The route was really just a long plod, only this time we had met snowy rock to climb - instead of the good conditions last week.

We reached the cairn at 1230. A photographic session quickly followed and discussion about tomorrow's route. This was to be the mountain to our North East (No.18). We then got down to the more serious stuff - sunbathing. Here we discovered that, if Ian turned sideways he became invisible. He was thus proclaimed the thinnest member of the expedition. Kev busied himself taking mountain photographs and blinding us with the reflection of the sun on his white flabby chest. A party of Snow Buntings were playing nearby. It seemed hard to believe we were on the summit of a very remote mountain. The contrast of these events and then a glance down the barren Kûgssuatsiaq valley was exhilarating, the panorama itself was again tremendous. To the South East, the magnificent ridge of King, Citadel, Castle and Knight was visible. The unbroken huge vertical face was almost oppressive. Whereas to the North, the ice-cap and an area of undulating mountains - not unlike the Carnedd's, were visible. After this siesta we returned to the Lost Lake Camp down Whaleback and into the Rio Grande.

At tea we had some trouble with petrol stoves. Mick, a confirmed paraffin man, burnt his hand and threatened to "Launch the buggers

into the stream"! His acquaintance with these stoves had never been a happy one. The year before, in the alps, one of them had 'blown-up' on him. He was perpetually scared of an encore.

August 15th. "No excuses this morning as I fumble with the stoves at 0400 hours. It is a cold, clear morning, beautiful, but I am grateful for having my duvet."

We eventually left camp at 0530 hours and stumbled northwards to the Whaleback glacier. Here, Kev experienced his first ever glacier. Mick fussed round him, mothering him, making sure he was tied on properly and checking his ice-axe and coils. At last we were all five roped together and set off across the glacier. Myself, Mick, Kev, Pete and Ian. The conditions being near perfect. The sun was just picking out the summits of the peaks and the glacier remained cold but firm. We made good time and had soon crossed the head of the glacier to reach the rock below Centurion (No.18, Map 5). (Ian named the peak later because of its commanding position.) It was a wonderful feeling to cross an untrodden glacier.

There were no surprises from the rock when we reached it, it was loose and manky. Helmets on, we roped up as two parties. Ian and Pete, then Mick, Kev and myself. This was another new experience for Kev - scientist and fell-walker, who kept asking for photographs of himself in this unique situation. It was certainly a contrast to Base Camp. He already looked better - no mosquitoes to pester him and no calculations to work out.

We climbed on for a few hundred metres and eventually reached the summit. I should say one of the summits, the top being a series of pinnacles. We stood on the second highest. Ian and Pete traversed the ridge and climbed the true summit, whilst Kev, Mick and myself prepared lunch and photographed our surroundings. Again the view was almost unbelievable. This time we viewed a new area - the peaks at the head of the Mammal glacier (Map 5). The crowning point was point 2150 metres, which we later named - The Bishop (Map 3). This had been climbed by the Austrian team in 1962 (Plate 13). Our attention was also fixed on point 1950 metres, later named White Slab (No.9, Map 5, Plate 11). This became our objective for the next day's climbing - it involved an early start - as it was a long way from 'Lost Lake Camp'.

It was almost ten o'clock when we left the summit and descended to the glacier. We then traversed Whaleback glacier in a Southerly direction, passing below the summit of Gandalf to the Amphitheatre (Map 5). This being the point where, Harry, Adolf and Graham had given up on their attempt to climb Chien de Blé.

Below us was a vertical drop of nearly 500 metres. From East to South the panorama was filled by a huge row of peaks - The Giants and Kûgssûp Qâqâ. We gazed in awe at these rock citadels, huge unbroken faces of rock nearly 900 metres high; plastered with snow and ice. The route we had proposed up Kûgssûp Qâqâ looked steep

and ferocious. Although not as high as the Trolltind this cirque of peaks should offer some tremendous routes of extreme severity. Our hope was to climb these peaks from the back, but judging by the map, they were of equal steepness all round. Here I recalled the phrase used by Metchoir Anderegg whilst viewing the Zmutt ridge of the Matterhorn from Dent Blanche, "It goes; but I'm not going!" This sentiment was shared by most of the expedition members about these steep faces.

On our way back to 'Lost Lake Camp' the weather began brewing up badly. We were above the cloud level, but Base Camp was enveloped in cloud and to the West a huge bank of Cumulus could be seen 'on its way'. (This was to be our last day of perfect mountaineering. The cloud we saw that day was to envelop South West Greenland for almost the next two weeks.)

It did not take long to recross the glacier and return. After a good meal we collapsed into bed hoping for a good day to attempt White Slab.

At 0200 hours the alarm went off. We didn't even bother to look out as the rain was beating against the tent and had been since midnight. At about twelve Pete and I cooked breakfast - it was still raining.

After a lazy day reading and writing, Mick emerged out of his sleeping-bag to cook tea. He had spent a period of 23 hours in his sleeping-bag! Finally, at seven o'clock, Kev crawled out - a total of twenty-five hours in his bag without moving! This was an expedition record, shattering the previous time by many hours.

This seems to be one of the necessary qualities of a good expeditioner. To be able to fester in style for days or even weeks, in bad weather, then suddenly to go out to climb for days on end with little rest. Kev certainly was proving himself a competent festerer!

August 17th, 0245. The alarm! I peered out, to my disgust the weather was good - not a cloud in the sky. Mick and Kev were pretending that it was all a dream. Getting up at this hour is often the hardest thing one ever does during the day. The night before it seems great to propose an early start and a great route. But in the morning, I for one, always regret my foolish words.

In the other tent - as Pete said later - "I heard the alarm and then silence, Oh Great! the old devil's not getting up, next thing he was shaking the tent saying breakfast was ready - it wasn't a dream"!

We were all ready by 0445. Unheard of - but nevertheless true. It was warm and the cloud was building up. Again we made for the Whaleback glacier. We retraced yesterday's steps in good time and



PLATE 10





PLATE 12



PLATE 13

stood viewing the route up White Slab. We then descended onto Mammal glacier. Here the party split into two. Mick and Kev to explore the valley below and Pete, Ian and myself to climb White Slab. Just before parting we discovered fairly fresh fox tracks leading up the glacier (refer Mammal report).

Our party cramponed up, roped up, and set off up the steep snow/ice slope of White Slab (1950 metres). Although steep the climbing was not very hard - we moved quickly. Clouds began building up around us - we moved even quicker.

After the initial steep section (300 metres) I discovered that I'd left my camera on the glacier, but as we were moving into cloud it didn't seem to matter. The climb became a deep snow plod, so we unroped for the final wet snowy rock ridge. We reached the summit at 1030 finding it uncaired. This was the highest peak we had climbed in Greenland (1950 metres), nearly $6\frac{1}{2}$ thousand feet. Pete and I arrived slightly before Ian. We named the peak White Slab because that was all it was. Also after the climb on Cloggy with the similar name (No.19, Map 5, Plate 11).

Ian arrived a few minutes afterwards, rightly annoyed at being left behind. He had almost lost his way in the mist - a traumatic experience in a place like this! After quickly building a cairn we retraced our steps and reached the Mammal glacier at 1230: I was reunited with my camera. Some fresh tracks had also appeared since we had climbed the peak - probably wild sheep.

Meanwhile - Mick and Kev had spent the day descending the valley as planned (Map 5). They had nearly reached the end of the glacier when they discovered large human-sized footprints. Yeti? or Polar Bear? They didn't wait to find out but changed their route to the frozen lake below, Blubber peak (1230 metres). (N.B. These tracks were later positively identified as Polar Bear.)

After exploring the lower part of Blubber peak they saw us descend White Slab, so they traversed round to meet us on the Whale-back glacier - as arranged. We all returned to the Rio Grande exhausted but well pleased with the day's climbing.

The following morning (18th August), in foul weather we returned to Base Camp. Little did we know that, for most of us, this was to be the end of the climbing.

THE SCARA BRAE AFFAIR

BY

ALAN DOUGLAS

AUGUST 19th - AUGUST 27th 1972

THE SCARA BRAE AFFAIR - by ALAN DOUGLAS

AUGUST 19th - AUGUST 27th 1972

In nearly a month of climbing we had covered most of the area that was readily accessible from Kûgssuatsiaq. One of the objectives that still remained untouched was an attempt on Kûgssûp Qâqâ, but few of us felt exactly optimistic about any of the approaches that we had seen - perhaps the other side might offer an easier line that we could try with at least some hope of success. It was a useful excuse anyhow, to go sailing in Sermilik fjord, to establish a camp in the valley to the North East of Kûgssuatsiaq and to explore a new area.

As the boat would not be able to take five people plus rucsacs, food and tents, it was necessary to make two journeys. We moved the equipment down to the beach, pumped up the boat and loaded up at the waters edge. Meanwhile the waves were pouring over the back end and everyone was soaked before we could push out into deep water. Of course, by this time the outboard was also rather damp and refused to start. After much coaxing and fairly liberal priming it eventually came to life, the sea burst into flames around us and we shot off, narrowly missing a large iceberg. All was well however and we chugged slowly along the fjord with one of us steering and another fending off small bits of ice with an oar. An hour or so later we stopped to refill with petrol, during the process of which, the cap to the tank was lost into the depths of the fjord. Abuse was heaped on the offender and we set off once again.

Beyond the point (Ineq) the ice was thicker and our speed was reduced to a slow crawl as we followed the narrow leads and fended off the floes on either side. The end of the valley that we were heading for was so steep that we could only find one spot at which to land. Pulling in towards the rocks, we dropped Andrew and Graham with the equipment. They would carry a load each and find a campsite whilst Peter and I headed back to pick up Harry.

This was accomplished without further mishap and three to four hours later the five of us plus equipment had been safely landed. As we lifted the boat onto the rocks and secured it to a piton, the other two reappeared. The slope above us was a mixture of scree, precipitous vegetation and bare rock; the valley itself was steep and boulder filled. With heavy packs it was easily two hours before we reached the campsite some 600 metres above. Though still not exactly flat there was at least some grass, and beside the stream was a convenient hollow lined with flat stone slabs which would serve as a kitchen, the camp thus being named "Scara Brae".

In the morning the first outside announced that it was raining, the clag was down to the tents and we needn't bother getting up. About two hours later it was still raining but everyone was getting hungry and decided between themselves that it was my turn to cook breakfast. Knowing only too well the dangers of attempting to cook

a meal for five inside a Mountain tent, it was easier for one person to get wet whilst the others stayed in their sleeping bags and dined in comfort.

As always we had brought enough books between us to stock a medium-sized library and we settled down for a day of reading and log book writing - not unduly disappointed. In the afternoon the rain turned to sleet which continued intermittently well into the next day - more festering. This was interrupted by the need to rescue the remaining food, and after delaying for as long as possible, Peter, Harry and I set off down to the fjord. Below the camp it was relatively clear and the rain and sleet held off long enough for us to make the return trip.

Days three and four were wet and cloudy again. Above us Kūgssūp Qáqá, hidden in the gloom, was covered with fresh snow and looked more impenetrable than ever. We continued with our literary endeavours and developed sore hips from lying down for so long. Any hope that we would ever even see the valley was beginning to disappear.

Our original plan had been that, if it was worth staying on, three of us would remain in the valley for ten days whilst the others would return to Base Camp after five days to be replaced by Ian and Peter. By day four we were almost convinced that we should all return, but that seemed to be accepting defeat too easily and after much deliberation Graham and I decided to wait for a few days longer.

In the morning it was still cloudy but the rain had more or less stopped, and Andrew, Peter and Harry set off down to the fjord. I was glad that we had elected to stay - it was peaceful away from the bustle of Base Camp and without even the boat at hand our isolation seemed more tangible than at any other time. Later it cleared sufficiently for us to see the mountains around us - all heavily covered with snow and we left the tents for some much needed exercise. The glacier shown on the maps had retreated for about 2 km leaving piles of boulder moraine. The walls of the valley were extremely steep, the rocks broken and in places seamed by enormous dykes. From the headwall between the Giants and Kūgssūp Qáqá a hanging remnant of the glacier avalanched periodically. On the following day we carried further on, climbing the glacier towards the col, but were stopped by an area of crevassing covered with fresh snow. If one of us fell the other would not be able to pull him out alone and rescue was far away.

At this stage we were beginning to run low on food as Peter and Ian should have arrived on the previous day. If they failed to arrive by morning we would have to take what we could carry and walk back to Base Camp along the coast. Watching the fjord for a sign of movement a small black speck appeared in the distance - it seemed hardly to move at all yet gradually drew nearer - but why so slow, why no wake from the outboard motor? We headed down to the shore to help carry the loads and to see what was wrong, and as we scrambled over the rocks they came into view - engineless and rowing! Having tried to set out the day before in a high wind, waves had flooded the engine

which had then refused to function. Eventually they had given up in disgust and waited until that morning to try again - still no use, so they had ended up rowing all the way.

The next day was clear again and the four of us set out for the glacier col at the head of the valley. As we gained height the fresh snow became deeper and sections of it avalanched from the slopes above. On reaching the col we could at last see the peaks and glaciers to the north and east; White Slab and 2150 metre peak - the highest in the whole area. At this point we had to decide on the route that we would attempt. A suggestion to cross the glacier and try 2150 metre peak was argued at length as this was probably the only chance that we would have. It did not look to be a difficult ascent but the distances involved were considerable, the snow conditions bad and the weather seemed too good to last for very long - neither the time nor the place for a bivouac. Eventually we agreed to try the ridge immediately above us, and still roped together started to climb. As the slope became steeper we were more and more bogged down in soft loose snow and floundered up to our thighs making little real progress. By mutual consent the attempt was duly abandoned and we retreated. During the descent the sky became grey and threatening again - our chances of climbing anything worthwhile seemed increasingly remote. We waited for another day in the vain hope of an improvement, but none came.

In the morning we packed up and carried the loads down to the fjord. Even with the tide behind us it would take a long time to row back and once past the steepest section we dropped Peter and Ian ashore to lighten the load. Surprisingly the journey took little over two hours and Graham and I arrived at Base Camp long before the other two (August 27th).

The expedition managed one more peak. On August 29th the weather was clear at Base Camp and so Graham and Ian climbed Inip Qáqá (No.20). They found a huge cairn on the summit concluding that their's was not the first ascent. An excellent view of Kūgssūp Qáqá was again obtained. It was now plastered in snow after the bad weather of the past ten days. So that was it, we were defeated by the weather. We had made the mistake of waiting too long before we attempted the mountain. That's life and Kūgssūp Qáqá and the Giants still await ascents. It probably won't be long before someone accepts this challenge.

IN RETROSPECT

IN RETROSPECT

Although some major peaks eluded us, we succeeded in climbing twenty mountains, ten of which were first ascents. This fitted with our intentions to climb and explore as many peaks as possible in as many different areas and not to siege particular routes on particular mountains. We returned safely in Harry's boat on September the 2nd to Nanortalik. It was here that a further surprise happened. Mick Davis and Graham Hudson decided to remain in Greenland at Nanortalik. The rest of the expedition members were jealous of this, but had commitments calling at home. Graham and Mick have settled into the community very well and hope to explore more mountains of South Greenland when the chance arises. The rest of us arrived back in Scotland on September 14th after a brief holiday in Iceland.

Looking back on our achievements and failures, Kūgssuatsiaq is well worth a re-visit. Abundant opportunities exist for climbing new peaks by easy and difficult ridges, or by hard snow and ice routes, or by very difficult and magnificent rock-faces, the scope and variety being enormous. Notable peaks being: The King, Citadel, Castle and Knight (Plate 8, Map 4), Monta Rosa (Plate 9, Map 4), Kūgssūp Qáqá and the Giants (Plate 12, Map 5). The latter have not been climbed and are without doubt the most impressive peaks in the area.

South Greenland in general, abounds with unclimbed mountains having had very little exploration. This fact is surprising as access is now much easier and the weather is often good. This contradicts previous reports. On consultation with local Greenlanders and Danes, we found that the weather we experienced was typical and that the Irish in 1968 and 1971 were just very unlucky.

It is thus well worth the effort to go and climb and explore in South Greenland, as much remains for those who have the time and the money.

INTERIM REPORT
OF
ECOLOGICAL WORK

JULY 26th - AUGUST 30th 1972

INTRODUCTION

The Ecological programme carried out in South Greenland was a logical follow-on from the work carried out in Arctic Norway in 1970. This expedition has had two subsequent reports. "The Leicester Polytechnic Students' Øksfjord Expedition" 1970 - Edited by A.N. Barbier and "A Study of an Arctic Ecosystem" by Andrew Barbier. The former was a general report on all aspects of the expedition, the latter a closer study of the Ecological results obtained. Both were published privately and copies may be borrowed from the Polytechnic library and are also available at the Scott Polar Research Institute, Cambridge.

The Scientific objectives of the expedition can be divided into two categories: quantitative work, involving the study of the effects of glaciation on the Ecology of the valley; and qualitative work, involving the collection of specimens for the British and Leicester Museums; and the G.B.U. (Grønlands Botaniske Undersøgelser).

In all, 45 days were spent in the field. Thus, allowing for time to set up and break the Base Camp. The work was carried out (as explained previously) on the basis of six periods of six days each period. The expedition was split into two groups of five, one group climbing and the other group carrying out scientific work, in any one week. The composition of the groups varied from week to week.

The Quantitative work involved the setting up of a transect along the west side of the valley; running from Base Camp at 150 metres to a small glacier at about 1,000 metres, (as shown on Map 4). This consisted of 28 stations; of which 7, including Base Camp, were designated sampling areas. The rest being used for surveying purposes only (refer transect survey and Plates 14-21).

In each period of six days, 48 hours (continuous) were spent taking readings on the transect. For this, the Base Camp party split into two pairs, each doing 12 hour shifts. Readings were taken at each transect sampling station every 4 hours, so each pair had to go up and down the transect (nearly 3,000 feet) three times per shift. On each 4 hour 'run', microclimate readings were taken at each station, together with pitfall trapping and sweep netting of insects. This being carried out in wind, rain or snow. A unique set of Ecological readings resulted; of the relationship between animal activity and plant population, to a comprehensive set of meteorological readings taken at various altitudes on an Arctic Mountain slope. We were informed by the G.B.U. that to their knowledge no Quantitative Ecology had been carried out throughout the whole of Greenland! This section of our work we hope will be an interesting contribution to Greenland science.

The remaining 4 non-transect days of each 6-day period were spent analysing the transect data accumulated and carrying out the other scientific projects: the collections for the Museums and G.B.U., nematode analysis, surveying the transect (using theodolite and ranging rods), soil analysis, and carrying out a plant survey of the transect. In addition, a full set of readings were taken at Base Camp every two hours during the day throughout the expedition.

This work would not have been possible without the support of the School of Biology, Leicester Polytechnic. The School lent us a complete set of scientific instruments needed for our work. Especially, we must thank Dr. Martin Halliday, who acted as Scientific Sponsor. He not only wrote many valuable recommendations of our scientific competence, but also he gave us instruction on the flora of Greenland using his personal slides. Mr. Peter Holland, Head of the Ecology Department, gave us much valuable advice and assistance, and Dr. Barry Heighton built some new equipment for us to use in Greenland.

We are also thankful to the Royal Geographical Society (who loaned a theodolite and other surveying equipment), The British Museum (who loaned plant presses and paper) and Longworth Scientific Instruments Ltd. (who loaned mammal traps).

This report is only the Interim Scientific Report. Further Research will be carried out and published in a complete Scientific Report as soon as possible.



PLATE 15

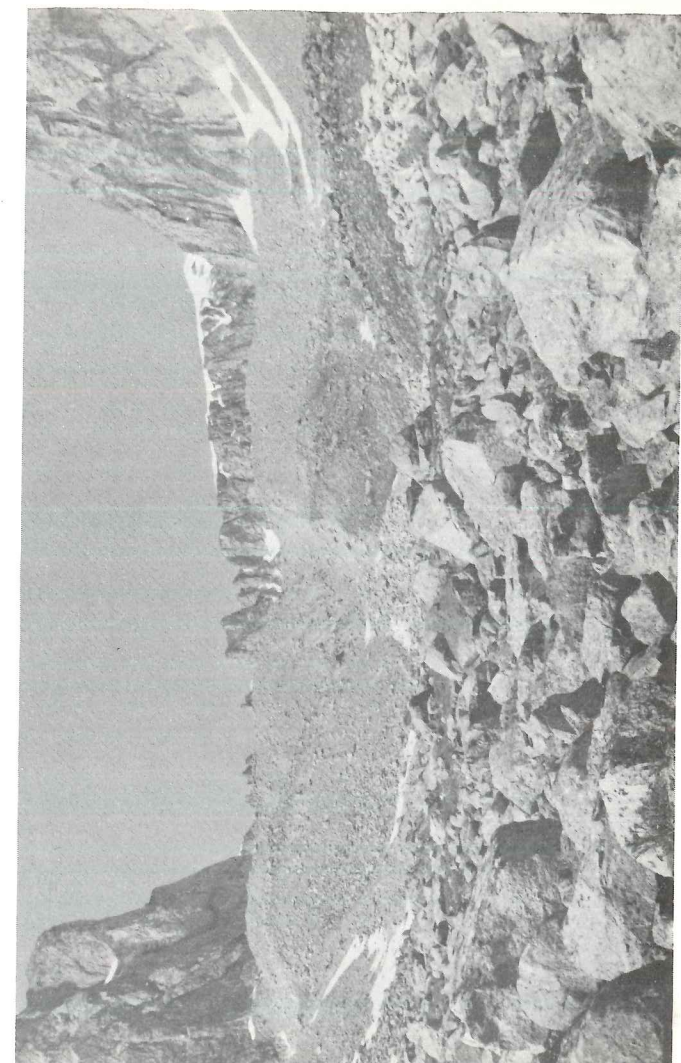


PLATE 17



PLATE 14



PLATE 16



PLATE 18

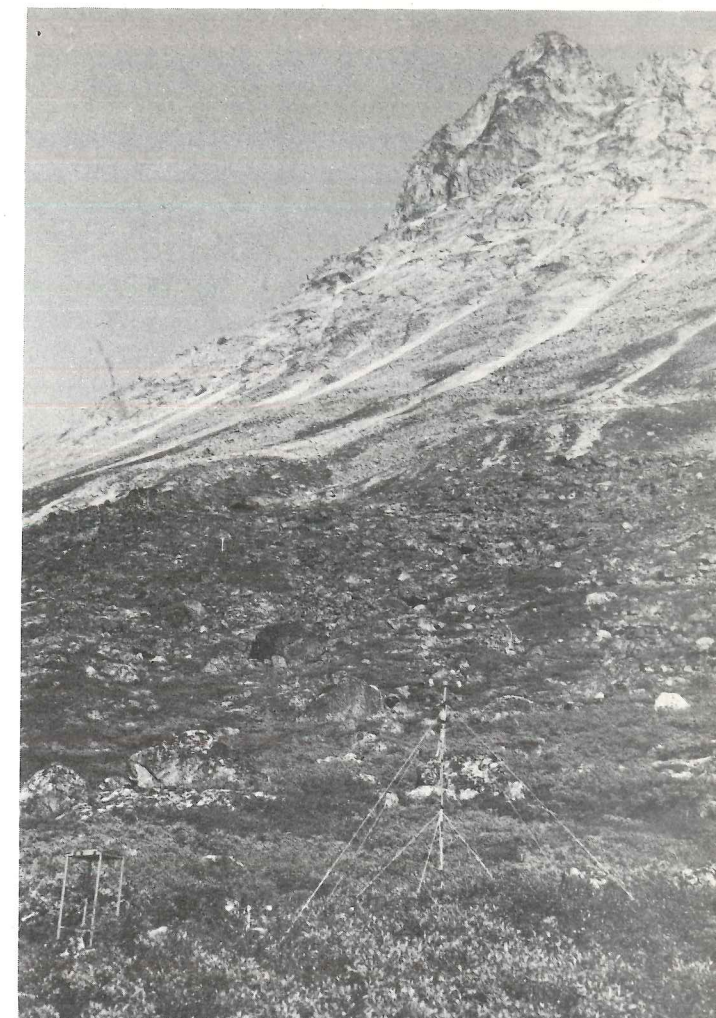


PLATE 19



PLATE 20



PLATE 21

BASE CAMP

BY

KEVIN BARRATT

Editor's Note - Although all members of the expedition worked hard on the scientific project, Kevin Barratt and Adolf King must be singled out. In the six week stay in Kūgssuatsiaq they only spent one week each on the mountain exploration. This meant five weeks spent in and around Base Camp! Apart from being in charge of keeping the scientific work going on the transect, Kevin supervised the Plant Survey, the Nematode analysis and collection of Collembola. Adolf took sole charge of the Soil Analysis in his capacity as a Research Chemist. On behalf of the rest of us I thank them both. Here is Kevin's account of life at Base Camp.....

The most arduous feature of Base Camp life was the 48 hours of each week spent taking readings on the transect. This, involving a 3,000 feet climb up and down the transect per 12-hour shift, was hard work. Between stations, on the way up, one might often question the point of it all, but a barley sugar and a drink of water at the next station would soon dispel such thoughts.

The day shifts of the transect went virtually without a hitch - each run did at least afford an opportunity to get away from the hordes of Base Camp mosquitoes. The night shifts, however, presented more of a problem. It was found that a full 2100-0100 hours 'run' was impossible because darkness made progress across the morainic debris covering most of the transect so slow, that the run could not be completed in 4 hours. A shortened run to Station 3 was therefore made for this run throughout the expedition. Also, during the last two weeks especially, heavy rain during the day followed by freezing at night made walking across the scree and boulder slopes hazardous, so some of the night runs had to be abandoned altogether.

Here is an account written by Andrew, of the first ascent of the transect by night - between the hours 0500 - 0900 accomplished by Graham and Andrew on July 29th. (refer Plates 14 - 21 and Transect Survey).

"0515 leave Station 1 - then up the steep bit to 2 - then to 3, by crossing the small boulder field. Station 3 as usual provides a good catch because of the lush vegetation. Up the steep boulder slope to the Last Post (our last sight of Base Camp) - then across the huge boulder field to the second parachute marker - sweaty and hard work in the poor light and swirling mist - plod on across the first, second and third icefields - past two more markers and many more boulders - small, loose, and in any shape that is inconvenient. At last it's Station 4 - catch breath, relieve oneself, have a drink of water, admire the view (What view? Its misty!), eat a barley sugar and then up the huge lateral moraine to Station 5. Here the weather is still bad and we've got the steep terminal moraine of the glacier to come - up, up, up. Station 6 and more readings. Up again, nearly there - slip on the scree - at last the cold glacier and Station 7. We don't say much, it's everyman to his own thoughts on this thing. Now the descent - no hope of a record breaking twenty-five minutes. Tired, aching, little control, we slide and skid down the scree - boots are filling with stones. Heaven as we reach the snow.

Now the by-pass, all the way down to the fourth icefield on snow. It doesn't take long, and soon we are tripping, crashing and hopping across the huge boulders again. At last! The Last Post - and we see Base Camp. Are they up yet? Down the grass as fast as possible. Base Camp at 0815. Not bad - a three hour return trip. Breakfast nearly ready. We're both exhausted - but still manage to eat - soon we are in bed."

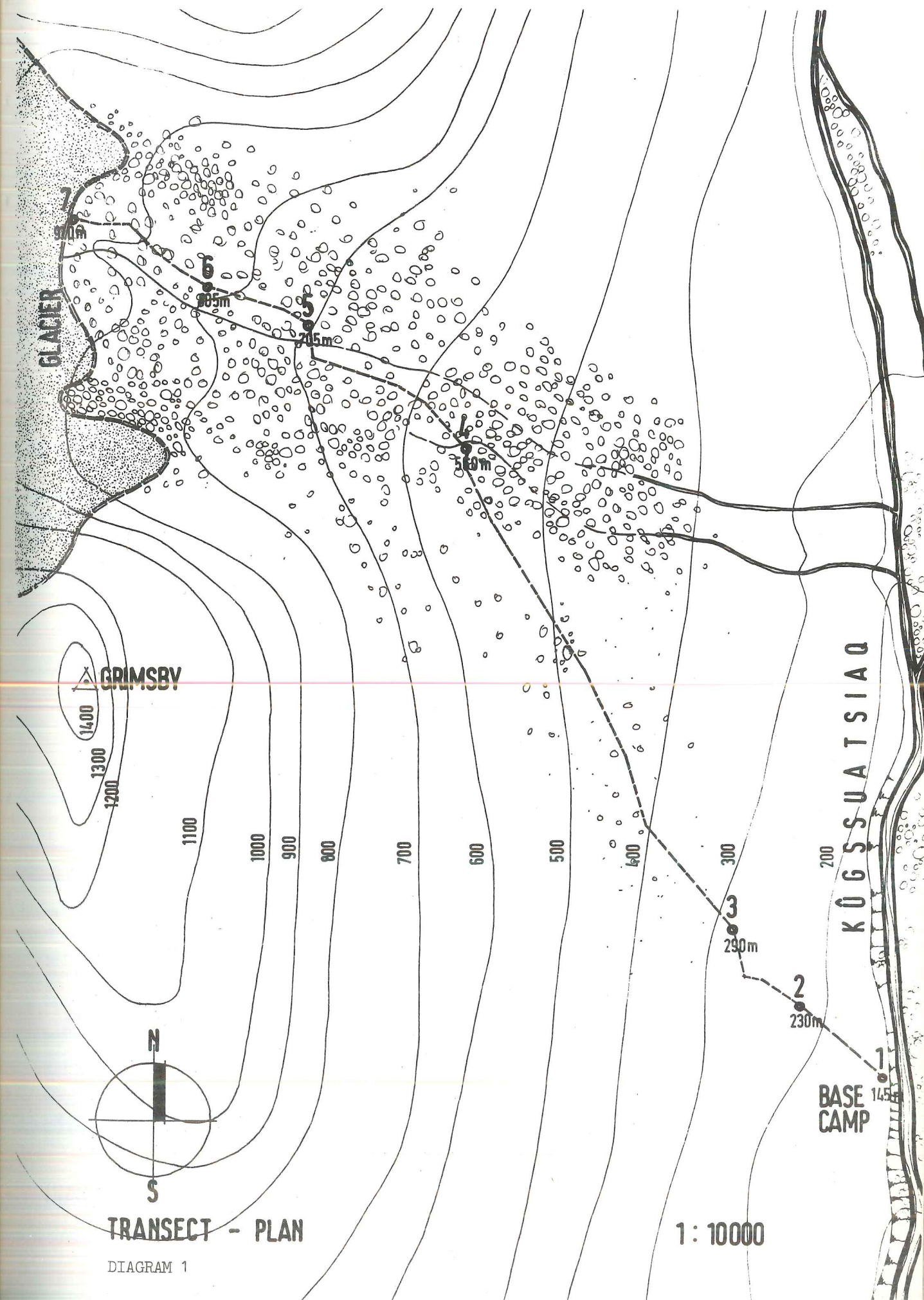
This transect was one in which it was essential to have mountaineering experience. For some it became a race, a chance to show prowess. I preferred to go at a steady pace both up and down the transect - after all we had four hours in which to do it! For the record, the fastest complete transect run was done by day in 2 hours 5 minutes for the return trip. The fastest descent was done in 25 minutes.

The mosquitoes at Base Camp made all aspects of life uncomfortable. They plagued us from dawn till dusk each day. This meant that we could not take advantage of the good weather of the first 4 weeks. Work was carried out inside the tents as much as possible. Even here, we seemed to be continually swatting mosquitoes, and mosquito massacres were often carried out, usually at lunch time, when everyone in the tent stopped working and killed as many mosquitoes as possible.

However, a spell at Base Camp did have its advantages. For instance, the Base Camp party enjoyed a greater variety of food than the climbing party, who were restricted by weight considerations. And, once the transect bashing was over for a week, the remaining 4 days could be taken at a somewhat easier pace. Though there was still plenty of scientific work to do - collecting plants, analysing the transect data, making nematode counts, etc. - we were not confined to a rigid timetable, except to see that the Base Camp readings were taken every two hours during the day. This meant that time could be taken to read, go fishing, or simply have a bath in the stream.

Neither did the time at Base Camp pass entirely without incident. During the first week, one of the two large tents used for storage was ripped almost in half and completely flattened by one of the freak gusts of wind that occasionally came tearing up the valley. The other large tent would have suffered the same fate had there not been three people there to hold it down. However, it did not entirely escape, for a couple of weeks later a slight accident with a paraffin stove resulted in a large hole in its side. Adolf, too, provided a small diversion when, having walked up the valley and crossed the stream, he found he could not cross back again. Heavy rain during the day had turned the stream into a fast-flowing river. After much discussion about the best method to use, he was eventually dragged across, up to his neck in the water. It did at least provide some excitement in what had been up until then a wet, miserable day.

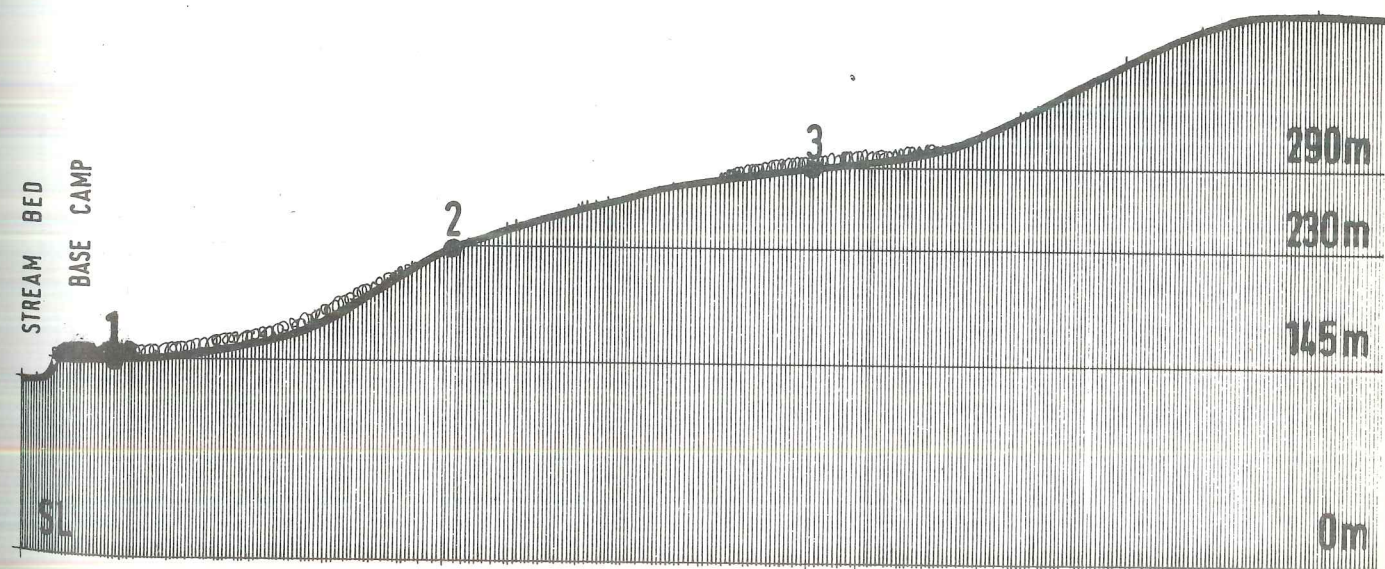
THE SOIL ANALYSIS
BY
ADOLF KING



TRANSECT - PLAN

DIAGRAM 1

1:10000



TRANSECT - VERTICAL SECTION

DIAGRAM 2

1 : 5000

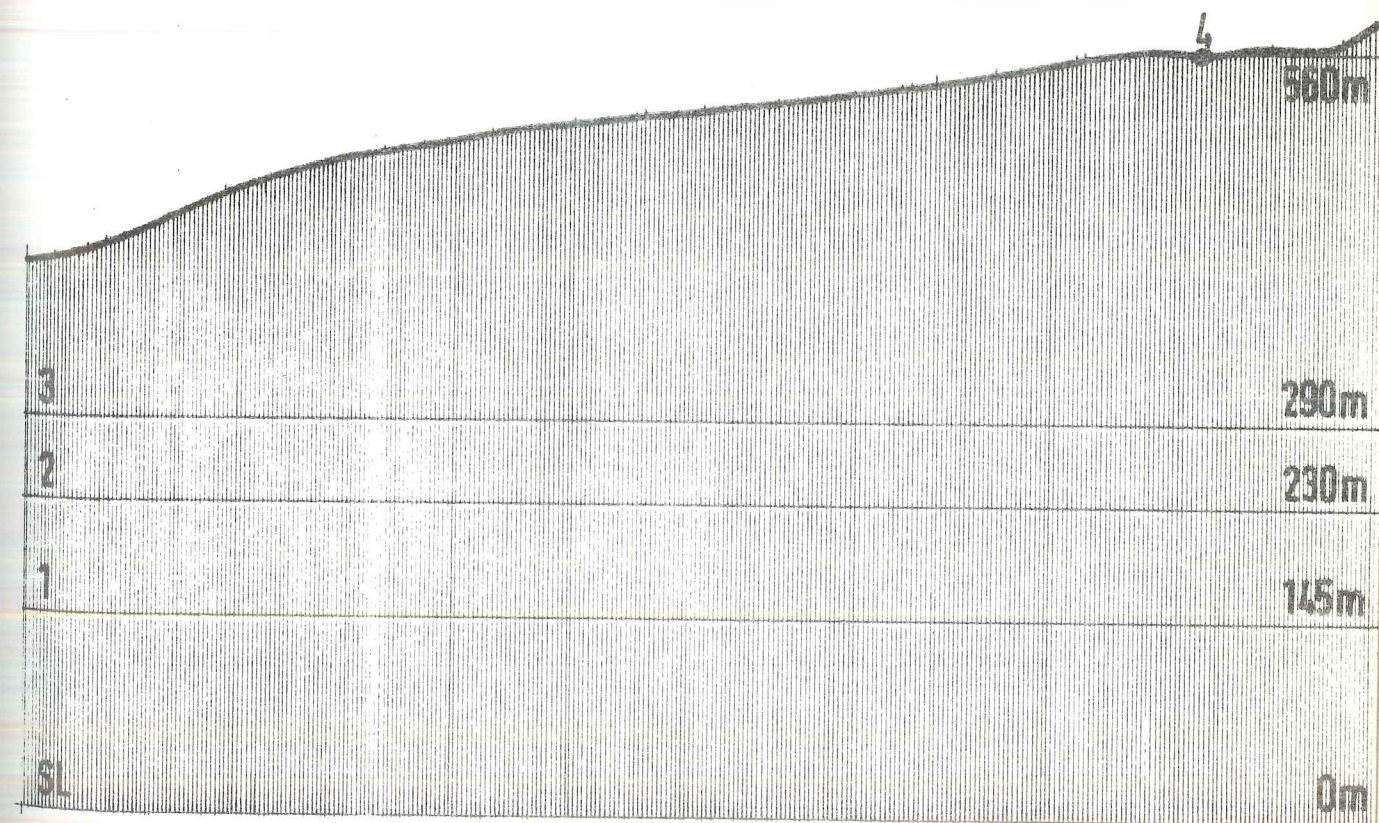


DIAGRAM 3

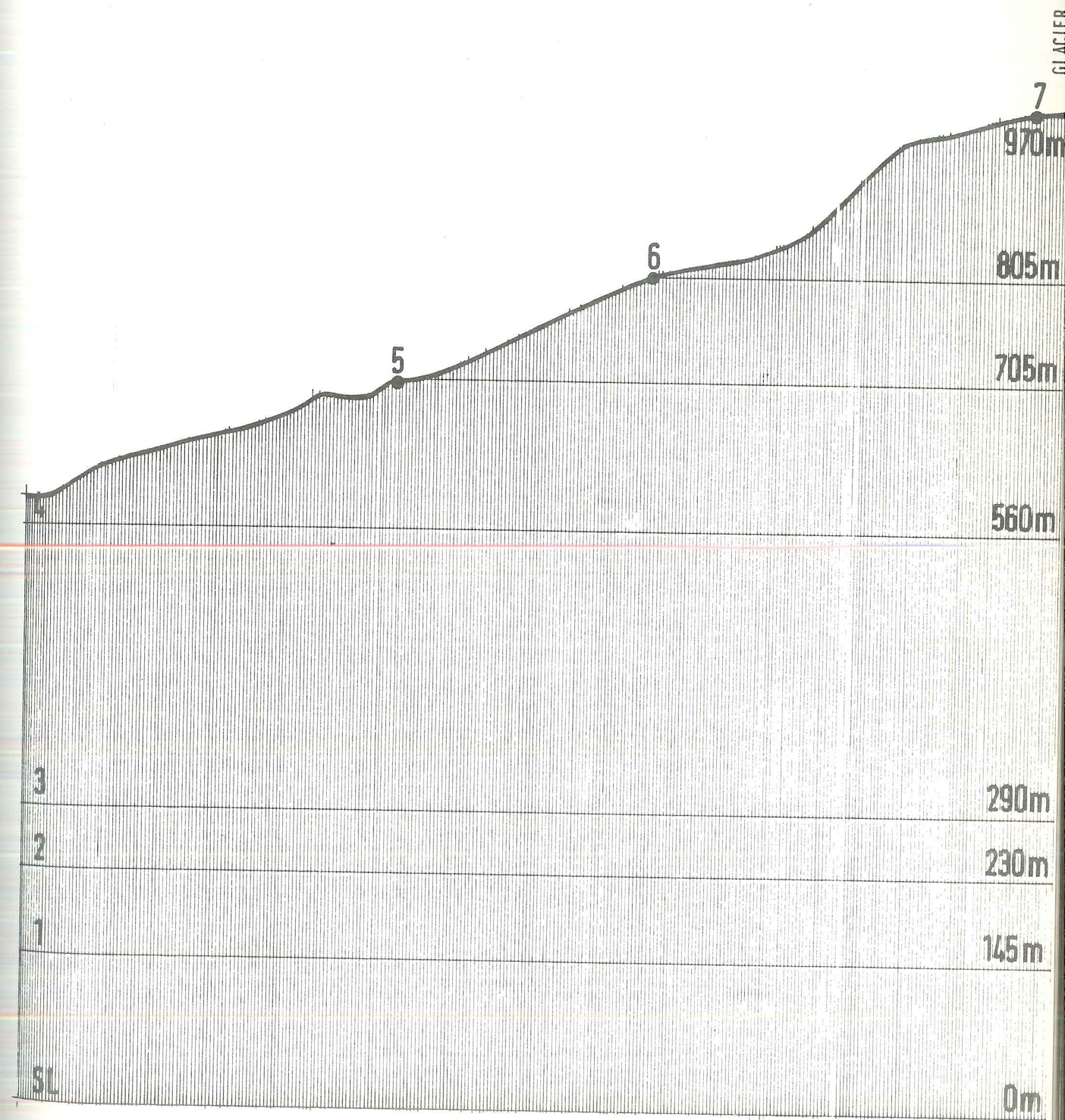


DIAGRAM 4

SITE: TRANSECT AT KUGSSUATSIAQ VALLEY, SOUTH GREENLAND.

Introduction

The soil sampling was restricted to the transect route. Sampling was done during the first (30.7.72) and the last weeks (26.8.72) of the transect runs.

In his report on "A study of an Arctic ecosystem", A. Barbier argues that a "good nutrient soil formation is the 'rate determining step' in an Arctic ecosystem development". It is with this statement in mind that soil sampling was undertaken. The soil analysis must be looked at in the context of the transect as an integral part of it, not as a detached set of figures.

Soil sampling was carried out at each of the "sampling" stations and at five other intervening stations along the transect route. The pH values and per cent available water were determined in the field.

Sampling Method

The soil was snatched sampled from at least three sites around the station. Two (2) samples were taken; one labelled 'a' from a depth of 0-5 cm and the other 'b' from a depth 10-15 cm. The samples of a given depth and from a particular station were mixed together, uniformly spread onto clean sheets of polythene, and using a spatula as many stones as possible were removed before quartering. Diagonally opposite quarters were discarded and the process repeated - discarding alternative sets of quarters - until approximately eight hundred (800) grams of soil remained. About five hundred (500) grams were removed and stoned in polyethylene bags for further analysis on return to England.

Using approximately one hundred (100) grams of sample, a saturated soil paste was made up as suggested by P.R. Hesse, Ph.D., "A textbook of Soil Chemical Analysis"; John Murray (pub.) Ltd., p.75; 6.3.1. The paste was allowed to stand for one hour and the pH reading was read using a portable pH meter, EU88 Metrohm Herisau. One reading only was taken on the first few samples. It was discovered later that the reading drifted slightly on standing. The arithmetic mean of two readings - the second taken about ten minutes after the first - was recorded, the results obtained are tabulated on page 62.

Available Water Determination

Ryvita tin covers were used as containers into which fifty grams (50) portions of soil were accurately weighed and evenly spread out. The weight of sample and container was noted. They were then placed in the sun to dry. Sheets of clear polythene plastic were used as "windbreaks". A definite change of colour in the soil sample was used as a guide in determining when all the available water had evaporated,

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e.g. In the case of rich brown soils the colour change was from rich brown to 'creamy' brown. Sample and container were then weighed and the process repeated until a constant weight (to within 0.5g) was obtained.

Conclusions

The soil was decidedly acid. This was not surprising as the parent rock was granite and siliceous in nature. The highest acidities were recorded at Base Camp and Station 2. In general the Stations below 500 metres showed soils which were more acidic than those above 500 metres. Also, the top soil was more acidic than the sub-soil. This increase in acidity corresponds to the fact that below 500 metres the plant cover was denser and that the roots of these plants did not burrow deep into the soil.

The next important observation was the overall decrease in acidity between the first and last week of sampling. No firm comment can be made until the soils are further analysed. However, the periods of heavy rains in the interval between sampling probably helps to explain this decrease in acidity. This may have been brought about either by dilution or by a build up of the acidic salts, or for both reasons.

The Available Water

From the graphs A, B, A' B' and their combinations, it can easily be seen that there was an increase in available water, at both levels of sampling over the period under consideration. (Graphs between pages 62 & 63)

In the top soil there is a well-marked trend of decrease in available water with increase in height. Stations 3 and 4 are notable exceptions to the general trend. At both these stations there were free-flowing streams - hence the soil was continually fed with water. This availability of water reflects the plant population (refer Plant Survey).

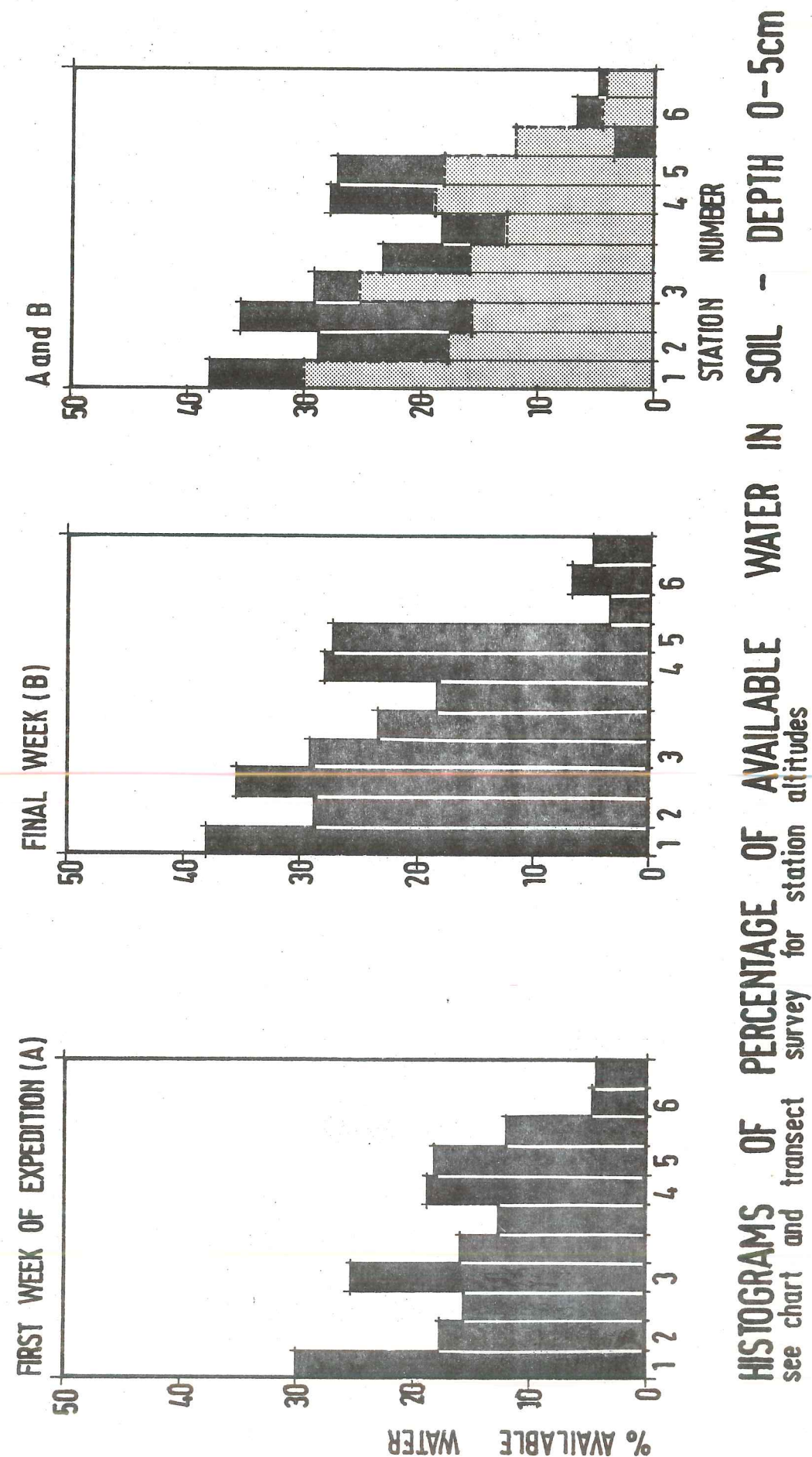
Whereas this trend holds true for the top soil, no such trend is discernable for the sub-soil. Relative to the top soil it would seem that increase in height does not play an important role on the amount of available water in the sub-soil.

It must be stressed that until further analysis of the soil has been carried out, one cannot give definite reasons or suggestions about some of the phenomenon observed.

My thanks to the Chemistry Department - Mr. Jenkins and Dr. Pollock in particular, for help in obtaining the loan of a pH meter from the department, also technical advice.

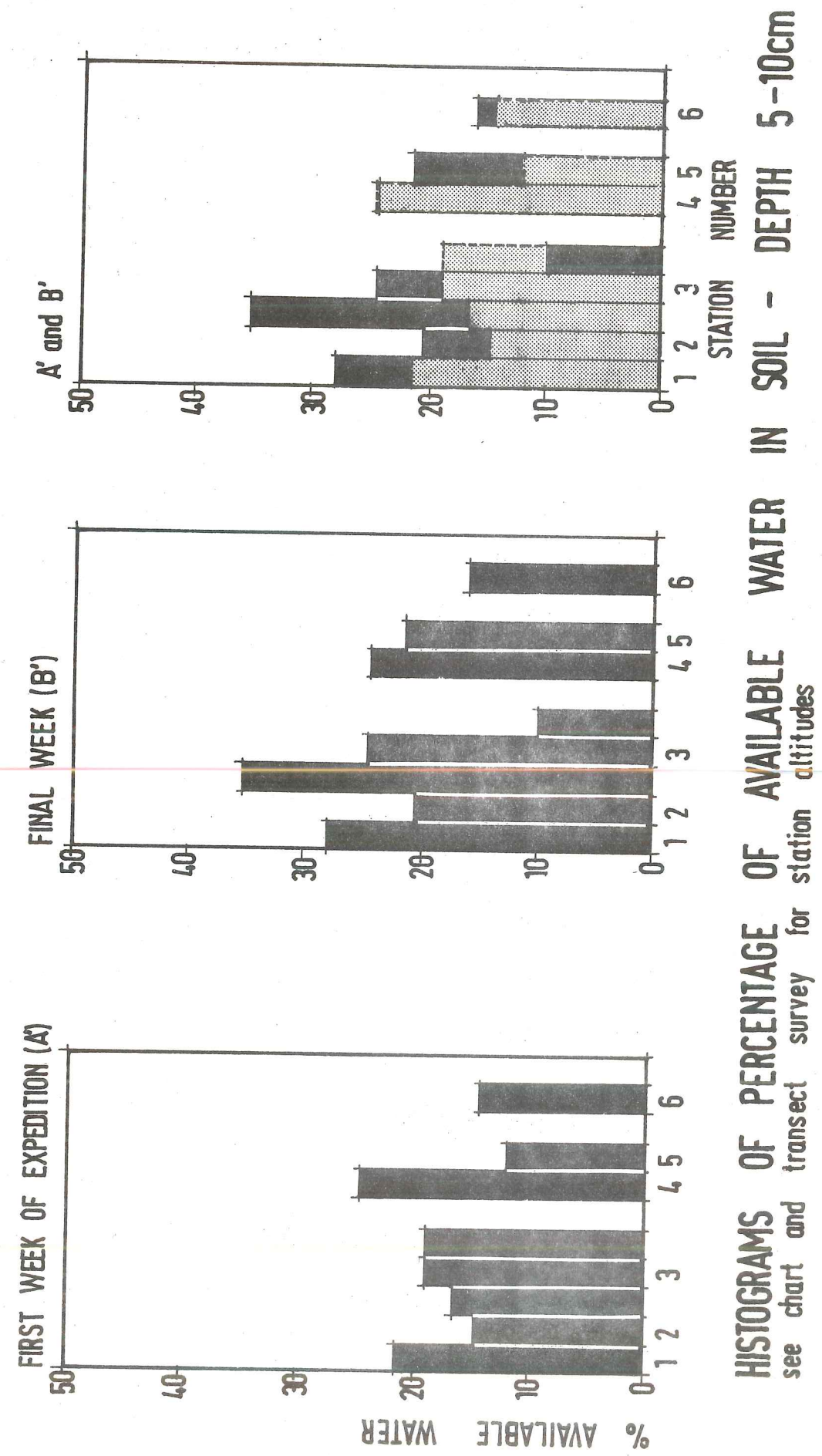
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GRAPH 1.

GRAPH 2.



RESULTS OF SOIL ANALYSIS

STATION NO.	SAMPLE NO.	FIRST WEEK		SAMPLE NO.	LAST WEEK		HEIGHT IN METRES
		Ph	% AVAILABLE WATER		Ph	% AVAILABLE WATER	
1	1	4.9	30.0	21	5.3	38.0	145
	2	5.3	21.6	22	5.6	28.1	
2	3	4.6	17.8	23	6.0	28.8	230
	4	5.2	14.8	24	6.5	20.6	
	5	5.6	16.0	25	6.2	35.6	260
	6	6.0	16.5	26	6.4	34.8	
3	7	5.4	25.4	27	6.0	29.2	290
	8	5.5	19.0	28	5.7	24.4	
L.P.	9	6.3	16.0	29	6.1	23.6	400
	10	5.8	19.0	30	6.0	10.2	
4	11	5.8	12.8	31	6.0*	18.2	540
	12	6.3	18.8	32	5.5*	27.8	560
	13	6.3	24.8	33	6.0*	24.6	
5	14	6.3	18.4	34	5.5*	27.2	705
	15	6.4	12.0	35	6.0*	21.6	
6	16	5.6	7.2	36	5.5*	3.4	725
	17	6.3	4.2	37	6.0*	6.8	805
	18	5.9	14.4	38	6.0*	16.6	
7	19	5.9	4.0	39	6.0*	5.1	850
	20	5.9	SNOWED OVER	40	SNOWED OVER	SNOWED OVER	970

L.P. - LAST POST

* - pH measured with pH paper

THE METEOROLOGICAL REPORT

BY

KEVIN BARRATT

THE METEOROLOGICAL REPORT - by KEVIN BARRATT

Measurements of the various weather parameters described below were taken every 4 hours during transect runs. In addition, full microclimate readings were taken at Base Camp every 2 hours during the day for the whole of the time spent in the field.

An overall meteorological situation for the area will be included in the final report. This will be obtained from the nearest weather station to the valley.

Wind Speed (only at Base Camp)

Wind speed at 2 metres and 30 cms. was recorded using sensitive, portable cup anemometers designed by Mr. P. Holland and Dr. B. Heighton of the Biology Department. These were constructed and calibrated by K. Barratt.

Each anemometer consisted of four hemispherical cups on a light weight rotor. In operation a small rotating bar-magnet attached to the rotor briefly closed the circuit of a stationary post-office counter, causing a count to be registered once per revolution of the rotor. Wind speed was measured by counting the number of revolutions in a one minute interval and taking the average of 3 counts, then referring to a calibration curve to convert to m.p.h.

Operating 0.5 - 40 p.m.h.; accuracy $\pm 10\%$

Air and Soil Temperatures

Two separate pieces of apparatus were used for measuring air and soil temperatures. The first, a thermistor harness constructed by Dr. B. Heighton with the help of K. Barratt, was erected at Base Camp. It consisted of a thermistor pole, which was left standing for the duration of the expedition. This pole had thermistors attached at heights of 2m, 1m, 50cm, 25cm, and 1m below ground. A portable battery unit constructed by Dr. B. Heighton was employed, in which each of the 12 thermistors could in turn be switched into one arm of a Wheatstone Bridge circuit. The scale reading on a 0-50 mini amp ammeter were then converted to temperatures by reference to calibration curves. The thermistors were of the type made by Yellow Springs Instruments, Ohio, U.S.A. and they were of the direct reading type, i.e. each thermistor had the same calibration curve.

The second piece of apparatus used was a portable thermistor probe. This was half a metre long and each thermistor was taped on to the probe and the wires taped and finishing in a socket which connected to an ammeter box. The thermistors used were of the same type as in the harness. By a similar method as before readings were obtained from the ammeter. Readings were taken at 2m, 1m (holding in the air), 25cm, 10cm, 5cm, 1cm, and ground level. This thermistor was used at all stations except 1 and received fairly robust treatment. It proved a very good instrument and without it we could not have recorded readings on the mountain.

Maximum and Minimum Temperatures

These thermometers were fixed at Base Camp at a height of 1 metre. Readings were recorded at 0900 and 2100 daily.

Rainfall and Humidity

Rainfall was measured in inches, using an 8" rainfall gauge (Casella, London). Daily recordings were made.

Humidity readings were taken at each of the stations on the transect. A whirling hygrometer was used, readings being taken at 1 metre each time.

Light Values

This was recorded in candles/sq.ft. and was measured at all stations, using a Weston Master V exposure meter. Sky and ground readings were taken by measuring the light reflected off a white surface, the metre being held one foot from the surface in each case.

Sunshine

- means no sunshine
- o means weak hazy sunshine
- + means full sunshine.

Cloud Cover

Cloud cover at each station was recorded in eighths. Cloud type was also recorded and the following represent the readings recorded in the tables:-

Ci, Cirrus; ASt, Altostratus; ACu, Altocumulus; CuSt, Stratocumulus; Cu, Cumulus; NiSt, Nimbostratus; CuNi, Cumulo - nimbus; StCu, Stratocumulus.

Each set of readings for a particular station at any one time was written on specially prepared data sheets. During the six weeks spent on the scientific work, over 700 sheets were completed. The mammoth task of processing and tabulating this mass of data was carried out by Mick Davis, our statistics expert.

Conclusions

The maximum wind speed recorded at Base Camp was 15.4 m.p.h. However, it must be remembered that this figure is an average of three one-minute readings. The wind was generally gusty, and at times reached a far higher speed than this. The prevailing wind came from the south-east.

The weather in general was good, and some high temperatures were recorded. The maximum temperature recorded at 1 metre was 22.6°C. Those at 5cm and 1cm above ground were 33.1°C and 38.1°C respectively. The maximum recorded temperature at -1cm was 39.4°C. A large range

of temperatures was experienced at these heights, their minimum being -2.5, -0.9, -0.7, and -0.6°C for the 1 metre, 5cm, 1cm, and -1cm, respectively. Predictably, the range of temperatures experienced at -1 metre was small, the maximum being 9.1°C, and the minimum 5.2°C.

The rainfall over the six weeks in the field was 4.8". A good idea of the drastic change in conditions which occurred is given by the fact that 3.9" of this fell in the last two weeks.

A thorough treatment of the meteorological data will be carried out in the final report, when graphs have been drawn and comparisons made.

METEOROLOGICAL DATA

26th JULY - 30th AUGUST 1972

METEOROLOGICAL DATA RECORDED AT BASE CAMP (STATION 1)

26th JULY - 30th AUGUST 1972

STATION (1)		26th JULY							27th JULY				
TIME (HRS.)		09.00	11.00	13.00	15.00	17.00	19.00	21.00	01.00	05.00	09.00	11.00	13.00
(2M		15.2	14.5	15.5	15.0	8.9	11.8	10.0	7.9	8.0	10.2	9.0	9.6
(1M		15.1	15.0	15.7	15.2	12.2	12.0	10.0	7.9	8.0	10.2	9.8	12.5
(50cm		16.5	16.1	17.5	16.5	13.5	12.3	9.2	7.8	8.0	13.4	13.6	17.5
(25cm		16.8	16.6	18.8	17.0	14.7	12.1	8.7	7.8	8.0	14.5	16.5	18.4
(10cm		17.2	18.0	20.6	18.4	15.8	12.3	9.0	7.8	8.4	15.5	18.9	34.
TEMP (5cm		17.2	18.1	20.3	18.1	15.5	12.3	8.7	7.6	8.2	16.1	19.0	36.
OC (1cm		17.2	18.5	20.6	18.3	15.7	12.1	8.7	7.6	8.2	14.5	19.9	38.4
(-1cm		14.7	18.4	19.0	18.1	16.5	13.7	9.5	8.7	8.7	16.1	20.8	39.4
(-5cm		8.0	10.3	11.2	8.9	8.9	12.1	11.5	10.0	9.2	9.2	11.0	12.8
(-25cm		7.8	7.6	7.7	7.8	8.5	9.3	8.6	8.0	8.6	7.6	8.2	8.2
(-50cm		6.4	6.4	6.7	6.7	7.0	6.7	6.7	6.8	7.0	6.7	7.0	6.8
(-1M		5.2	5.3	5.3	5.3	5.3	5.6	5.6	5.6	5.6	5.6	5.6	7.2
MAX. TEMP.		18.5	-	-	-	-	-	-	-	-	11	-	-
MIN. TEMP.		2.5	-	-	-	-	-	-	-	-	5.5	-	-
HUMIDITY %		57.	NR	49.5	NR	79	NR	81	100	81	94	NR	NR
PRECIPITATION		-	-	-	-	-	-	-	Rain	Rain	Mist	-	-
RAINFALL		.01	-	-	-	-	-	0	-	-	.02	-	-
WIND 2M		-	14.9	4.2	2.3	3.6	-	-	-	-	-	3.7	6.2
SPEED 30cm		-	1.4	.4	-	-	-	-	-	-	-	1.4	.9
WIND GROUND		-	S	S	SW	SW	-	-	-	-	-	S	SE
DIRECT SKY		-	S	-	-	-	-	-	-	-	-	-	NW
LIGHT SKY		14	-	14.5	-	12	-	8	-	11	15	-	16
LIGHT GROUND		12	-	12.5	-	11.5	-	7	-	6	13	-	14
SUNSHINE		0	-	0	0	0	-	-	-	-	+	+	+
CLOUD 1/8		6	5	8	8	8	7	7	8	8	5	2	1
CLOUD TYPE		Cu	Cu	ASt	ASt	ASt	ASt	ASt	NiSt	St	St	St.Cu	St.Cu

STATION (1)		27th JULY						28th JULY					
TIME (HRS.)		15.00	17.00	19.00	21.00	23.00	24.00	01.00	05.00	09.00	11.00	13.00	15.00
(2M		10.5	6.8	4.5	3.4	3.0	2.7	3.4	4.0	15.8	17.4	15.0	14.2
(1M		16.8	7.0	4.2	3.0	2.7	2.7	3.4	4.0	15.8	17.4	15.0	14.2
(50cm		18.4	6.8	3.6	2.4	2.4	2.4	3.0	3.5	20.8	20.1	19.0	18.0
(25cm		17.4	6.7	3.2	1.5	2.4	1.8	1.5	3.2	35.6	22.2	21.1	18.5
(10cm		15.7	7.3	3.2	0.9	2.4	1.5	1.3	3.4	34.	25.3	25.0	20.0
TEMP (5cm		17.4	7.3	3.2	0.6	2.4	1.5	1.2	3.4	33.1	24.5	25.0	19.3
OC (1cm		16.8	7.3	3.4	0.9	2.4	1.5	1.2	3.4	32.5	25.3	33.6	19.3
(-1cm		16.1	15.1	8.6	4.6	4.3	3.6	2.1	4.7	13.6	21.4	30.3	28.6
(-5cm		25.1	14.5	11.2	10.5	9.7	9.2	9.0	7.8	8.6	9.8	12.2	14.7
(-25cm		14.5	8.0	9.0	8.4	9.0	9.0	8.8	8.5	8.2	7.8	7.8	7.6
(-50cm		8.4	6.8	7.2	7.0	7.0	7.3	7.0	7.2	7.0	8.5	7.0	6.7
(-1M		6.0	5.7	6.0	5.6	5.6	6.0	5.8	6.0	5.8	8.7	6.0	6.0
MAX. TEMP.		-	-	-	22.5	-	-	-	-	18.4	-	-	-
MIN. TEMP.		-	-	-	0.8	-	-	-	-	0.0	-	-	-
HUMIDITY %		NR	NR	NR	100	NR	NR	92	93	74	73	73	69
PRECIPITATION		-	-	-	-	Dew	Mist	Dew	-	-	-	-	-
RAINFALL		-	-	-	0	-	-	-	-	0	-	-	-
WIND 2M		5.0	2.6	-	-	-	0.6	-	-	.7	6.4	4.8	-
SPEED 30cm		1.2	-	-	-	-	-	-	-	-	1.6	.7	-
WIND GROUND		S	SW	-	-	-	SE	-	-	SE	S	SW	-
DIRECT SKY		-	-	-	-	-	-	-	-	-	-	-	-
LIGHT SKY		-	12	-	6	-	-	-	-	-	-	-	-
LIGHT GROUND		-	10	-	5.5	-	-	-	11.5	15	-	-	12.5
SUNSHINE		+	-	-	-	-	-	-	10	14	-	-	11.5
CLOUD 1/8		0	0	0	0	8	3	0	0	+	+	+	-
CLOUD TYPE		-	-	-	-	St	St.Ci	St	St	-	Ci.Cu	-	St.Cu

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)		28th JULY				29th JULY							30 JULY
TIME (HRS.)		17.00	19.00	21.00	23.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00
TEMP °C	(2M	9.8	9.0	7.6	7.5	10.8	12.0	12.0	11.8	8.5	6.7	4.0	12.00
	(1M	9.7	9.0	7.0	6.7	11.4	12.5	15.0	13.5	9.0	6.4	3.9	12.7
	(50cm	9.8	8.6	5.2	5.8	16.1	16.6	18.5	18.3	8.7	5.6	2.3	17.7
	(25cm	10.0	8.0	3.7	4.7	18.6	19.9	19.7	17.4	9.0	4.6	1.2	21.7
	(10cm	10.5	8.0	3.5	3.9	19.3	22.8	22.5	19.0	9.5	4.6	-.9	20.8
	(5cm	10.2	7.7	3.4	3.0	18.6	22.2	22.8	18.3	9.0	4.5	-.9	20.1
	(1cm	10.5	7.8	3.5	3.0	17.4	23.6	31.6	18.0	9.5	4.6	-.7	19.5
	(-1cm	16.6	11.8	6.5	4.2	15.5	23.6	31.6	27.2	18.8	9.2	4.3	16.8
	(-5cm	14.7	13.4	8.6	10.2	8.5	9.7	11.9	13.9	14.2	11.0	10.6	8.2
	(-25cm	7.8	8.7	9.1	8.4	8.4	8.2	8.2	8.2	8.5	8.7	8.4	8.2
(-50cm	6.7	7.2	7.2	7.0	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	
(-1M	6.0	6.0	5.8	6.0	6.2	6.2	6.0	6.1	6.2	6.2	6.2	6.2	
MAX. TEMP.		-	-	20.5	-	11	-	-	-	-	-	14.5	12
MIN. TEMP.		-	-	4.5	-	-0.5	-	-	-	-	-	1.0	-1.3
HUMIDITY %		81	95	92	100	73	81	83	83	75	87	93	86
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
RAINFALL		-	-	0	-	0	-	-	-	-	-	0	0
WIND	2M	-	-	-	-	3.4	4.4	3.4	2.7	-	-	-	3.3
SPEED	30cm	-	-	-	-	1.1	1.2	1.0	0.8	-	-	-	.9
WIND	GROUND	-	-	-	-	N	SE	SE	S	-	-	-	SE
DIRECT	SKY	-	-	-	-	-	-	-	-	-	-	-	-
LIGHT	SKY	12.5	11	5.5	-	15	16	15.5	15.5	13	11.5	6.5	15.5
LIGHT	GROUND	12	10	4.5	-	13	14.5	15	13.5	10	9.5	5.5	12
SUNSHINE		-	-	-	-	+	+	+	+	-	-	-	+
CLOUD	1/8	1	2	1	0	0	0	0	0	0	0	0	0
CLOUD TYPE		Cu	Cu	Cu									

STATION (1)		30th JULY						31st JULY					
TIME (HRS.)		11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00
TEMP °C	(2M	16.8	14.5	14.2	10.0	9.2	8.7	12.5	14.5	13.2	12.0	9.1	8.5
	(1M	14.7	16.6	16.3	10.3	8.6	8.5	12.5	14.5	15.0	14.3	9.2	8.4
	(50cm	17.2	19.8	20.5	10.5	8.5	7.6	16.6	18.4	18.3	18.8	9.0	7.3
	(25cm	19.3	22.2	19.6	10.3	7.6	6.3	20.3	21.3	20.5	17.8	8.7	6.4
	(10cm	19.8	24.1	20.8	10.5	7.5	6.2	21.4	24.	23.3	19.0	9.4	6.2
	(5cm	19.8	23.9	20.4	10.6	7.0	6.2	19.8	23.1	23.4	18.3	9.0	6.1
	(1cm	20.5	28.4	20.0	10.8	7.0	8.2	19.4	24.1	32.	18.3	9.1	6.2
	(-1cm	24.4	34.5	28.9	18.8	11.0	8.2	20.4	25.3	35.1	28.9	15.2	10.0
	(-5cm	9.2	11.8	13.6	14.2	12.8	11.0	9.2	10.5	10.9	14.2	14.2	12.9
	(-25cm	7.8	7.8	8.0	8.5	8.7	9.0	8.5	8.2	8.2	8.5	8.8	9.0
	(-50cm	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.5	7.6	7.6	7.5
	(-1M	6.1	6.2	6.2	6.2	6.3	6.2	6.4	6.2	6.3	6.3	6.4	6.3
MAX. TEMP.		-	-	-	-	-	20.8	15.4	-	-	-	-	-
MIN. TEMP.		-	-	-	-	-	4.7	2.2	-	-	-	-	-
HUMIDITY %		74	84	79	94	76	87	88	94	80	74	73	81
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
RAIN FALL		-	-	-	-	-	0	0	-	-	-	-	-
WIND	2M	-	3.4	4.5	-	-	-	3.7	4.7	4.2	3.4	0	0
	30cm	-	0.4	0.8	-	-	-	.4	1.6	1	0	0	0
WIND GROUND		-	S	S	-	-	-	SW	S	SE	SW	-	-
DIRECT SKY		-	-	-	NW	-	NW	-	-	-	-	-	-
LIGHT SKY		15.5	16	15.5	13.5	11.5	4	15.5	16	16	16	11.5	11.5
LIGHT GROUND		15	14	14.5	11	10	2	15	14.5	14	14	10	10
SUNSHINE		+	+	+	-	-	-	+	+	+	+	-	-
CLOUD 1/8		0	0	0	3	0	6	0	0	0	0	0	0
CLOUD TYPE		-	-	-	St. Cu	-	St. Cu	-	-	-	-	-	-

STATION (1)		31st JULY	1st AUGUST							2nd AUGUST			
TIME (HRS.)		21.00	08.45	11.00	13.00	15.00	17.00	19.00	21.00	01.00	05.00	09.00	11.00
TEMP °C	(2M	5.4	17.4	21.6	19.2	19.6	15.0	15.8	15.0	15.2	18.8	20.4	20.4
	(1M	4.9	20.0	20.8	22.6	21.4	14.7	14.6	13.9	14.4	18.8	20.6	20.8
	(50cm	4.5	22.5	24.2	25.6	25.6	13.9	13.2	12.8	13.6	18.4	21.0	21.6
	(25cm	4.0	21.8	27.0	28.4	24.2	12.8	11.4	11.4	12.8	17.6	20.8	22.6
	(10cm	3.4	25.4	29.4	29.2	25.8	13.2	11.0	10.2	11.8	17.0	21.6	23.4
	(5cm	3.0	21.4	28.4	30.3	24.0	12.5	10.8	9.2	10.8	16.2	21.6	23.4
	(1cm	3.0	21.8	28.6	30.0	23.0	12.8	10.6	9.2	10.2	15.8	21.6	23.4
	(-1cm	6.0	17.0	28.4		34.2	19.3	12.8	10.0	9.6	13.0	19.2	22.8
	(-5cm	11.4	8.8	10.4	13.4	14.4	15.5	13.8	12.2	10.8	10.0	10.4	11.0
	(-25cm	9.1	8.6	8.0	8.4	8.4	8.7	9.2	9.0	9.0	8.6	9.4	9.0
	(-50cm	7.6	7.8	7.4	7.6	7.4	7.3	7.6	7.6	7.6	7.6	7.8	7.8
	(-1M	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.6	6.6	6.4
MAX. TEMP		15.5	20.0	-	-	-	-	-	23.5	-	-	21.0	-
MIN. TEMP.		2	-1.5	-	-	-	-	-	1.5	-	-	11.5	-
HUMIDITY %		94	64	-	56	-	-	-	52	45	41	51	-
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
RAINFALL		0	0	-	-	-	-	-	-	-	-	0	-
WIND	2M	-	-	-	1.6	-	-	-	-	-	-	-	-
	30cm	-	-	-	-	-	-	-	4.2	4.4	8.6	8.4	-
WIND GROUND		-	-	-	SW	SW	-	-	1.0	2.6	3.9	3.5	-
DIRECT SKY		-	-	-	-	-	-	-	S	S	W	N	-
LIGHT SKY		6	14	-	15.5	-	11.5	-	-	E	SE	SE	-
LIGHT GROUND		5.5	13.5	-	13.0	-	11	-	-	-	11.5	13.5	-
SUNSHINE		-	+	+	+	+	-	-	-	-	9.5	12.5	-
CLOUD 1/8		0	0	0	0	0	0	0	0	1	6	8	8
CLOUD TYPE		-	-	-	-	-	-	-	-	ACu	Cu	ASt	St.Cu

STATION (1)		2nd AUGUST					3rd AUGUST						
TIME (HRS.)		13.00	15.00	17.00	19.00	21.00	00.30	05.00	09.00	11.00	13.00	15.00	17.00
TEMP °C	(2M	19.6	19.8	19.0	17.7	17.2	17.4	17.2	9.2	15.5	16.8	18.3	14.2
	(1M	19.6	19.8	18.8	17.4	17.0	17.2	16.8	9.2	15.0	16.8	18.3	14.2
	(50cm	19.6	19.8	18.5	17.2	16.6	16.6	16.3	9.8	14.5	16.6	18.0	14.2
	(25cm	19.6	19.8	18.5	16.8	16.1	16.1	15.8	10.5	13.4	16.5	17.7	14.2
	(10cm	19.3	20.0	18.3	16.6	15.5	15.2	15.2	10.5	12.8	16.1	17.4	14.2
	(5cm	19.0	20.0	18.1	16.1	15.0	14.7	14.7	9.6	12.3	15.5	17.2	14.5
	(1cm	19.0	20.0	18.0	15.8	14.7	14.5	14.5	9.6	11.0	14.5	16.6	14.5
	(-1cm	17.7	19.3	17.4	15.2	13.7	12.8	12.5	11.0	11.8	13.4	15.0	14.5
	(-5cm	12.8	12.2	10.8	12.0	10.2	11.0	10.5	10.2	9.8	10.2	10.5	10.8
	(-25cm	9.0	9.2	9.2	9.2	9.2	9.0	9.0	9.2	9.0	9.2	9.0	9.2
	(-50cm	7.8	7.8	7.7	7.8	7.8	7.8	7.8	8.0	7.8	8.2	7.8	7.8
	(-1M	6.4	6.4	7.2	6.4	6.7	6.7	6.7	6.7	6.4	6.8	6.7	6.7
MAX. TEMP.		-	-	-	-	21.5	-	-	17.5	-	-	-	-
MIN. TEMP.		-	-	-	-	12	-	-	6	-	-	-	-
HUMIDITY %		44	-	44	-	40	43	38	-	42	47	29	48
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
RAINFALL		-	-	-	-	0	-	-	.02	-	-	-	-
WIND	2M	8.2	4.2	10.4	6.4	11.2	5.9	4.6	5.0	5.2	5.7	3.6	-
	30cm	4.4	-	5.0	1.8	4.4	1.4	-	1.4	1	-	2.0	-
WIND GROUND		SW	SE	SE	SW	N	S	S	SW	NW	SW	SW	-
DIRECT SKY		SE	-	NE	-	E	SE	E	-	-	E	SE	-
LIGHT SKY		13	-	-	-	-	-	10.5	-	13	14	13.5	13
LIGHT GROUND		12.5	-	-	-	-	-	10	-	12	13	11.5	11.5
SUNSHINE		-	-	-	-	-	-	-	-	-	-	-	-
CLOUD 1/8		8	8	8	8	8	8	8	8	8	7	8	8
CLOUD TYPE		Cu	Cu	Cu	Cu	ASt	ASt	St	Cu	Cu	ASt	St	St

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1) TIME (HRS.)		3rd AUGUST		4th AUGUST						5th AUGUST			
		19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00	13.00
TEMP °C	(2M	7.8	6.4	12.5	10.2	17.4	13.6	9.2	8.2	6.4	13.4	13.6	13.5
	(1M	7.7	6.2	12.7	12.5	19.6	16.1	9.2	7.8	6.2	13.4	13.9	13.5
	(50cm	7.0	4.9	15.0	14.5	20.5	21.0	9.0	7.0	4.6	16.8	18.3	19.6
	(25cm	6.4	3.6	16.0	15.7	22.9	20.2	8.7	6.1	3.4	16.8	20.2	20.5
	(10cm	6.4	3.0	16.6	16.8	21.3	21.0	9.0	5.6	3.0	19.0	22.7	21.8
	(5cm	6.2	2.7	16.6	16.8	21.6	21.6	8.7	5.3	2.7	17.2	22.5	24.
	(1cm	6.2	2.7	16.7	17.2	24.3	20.0	9.0	5.3	2.7	16.8	22.7	24.3
	(-1cm	8.5	4.0	15.8	19.9	36.1	-	9.0	4.3	-	-	-	-
	(-5cm	10.6	9.8	8.5	9.6	10.2	15.0	15.5	12.2	10.5	7.6	6.5	14.6
	(-25cm	9.2	9.2	8.4	8.2	8.2	8.5	9.0	9.2	9.2	8.5	8.5	8.2
	(-50cm	8.0	8.2	7.7	7.8	7.6	7.6	7.8	7.7	7.8	7.8	7.8	7.8
	(-1M	6.7	6.7	7.0	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.2
MAX. TEMP.		-	17.5	19.0	-	-	-	-	-	19.5	12.5	-	-
MIN. TEMP.		-	3	1.5	-	-	-	-	-	3.5	1.5	-	-
HUMIDITY %		94	87	76	73	70	71	76	75	93	87	83	74
PRECIPITATION		-	-	-	-	-	-	-	-	-	Dew	-	-
RAINFALL		-	0	0	-	-	-	-	-	0	0	-	-
WIND	2M	-	-	-	4.6	-	4.6	-	-	-	2.6	4.2	3.2
SPEED	30cm	-	-	-	0	-	0	-	-	-	0	0	0
WIND	GROUND	-	-	-	S	-	SW	-	-	-	S	SW	S
DIRECT	SKY	-	-	SW	SW	-	-	-	-	-	-	-	-
LIGHT	SKY	10.5	-	14	14	16	15.5	11.5	10.5	-	15.5	15.5	15.5
LIGHT	GROUND	8	-	11	13.5	13	13	9.5	10	-	12	15	12.5
SUNSHINE		-	-	0	0	+	+	-	-	-	+	+	+
CLOUD	1/8	2	1	6	3	1	1	0	0	0	0	0	0
CLOUD TYPE		Ci	St	Ci	Ci	Ci	Cu	-	-	-	-	-	-
		Cu		St.Cu	St								

STATION (1)		5th AUGUST				6th AUGUST						7th AUGUST	
TIME (HRS.)		15.00	17.00	19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00
TEMP °C	(2M	13.6	8.6	6.7	6.2	7.0	9.0	10.2	11.8	7.6	6.4	4.9	7.8
	(1M	14.5	9.1	6.4	6.1	7.7	9.2	10.5	12.8	7.3	5.3	4.3	8.2
	(50cm	19.3	8.8	5.6	4.2	9.0	10.5	13.2	17.4	7.0	6.2	3.4	9.7
	(25cm	18.3	8.2	4.6	2.7	10.0	11.4	14.7	16.6	6.7	4.2	2.4	11.0
	(10cm	18.3	8.2	4.6	2.4	10.5	12.5	16.1	16.6	7.0	3.9	1.8	12.2
	(5cm	17.3	8.0	4.3	2.3	10.5	12.5	16.3	16.1	6.7	3.6	1.5	12.2
	(1cm	16.2	8.2	4.6	2.3	10.6	12.8	16.6	15.5	7.0	4.0	1.5	12.5
	(-1cm	20.6	8.6	3.6	.6	13.9	17.7	21.8		13.4	10.0	5.4	9.2
	(-5cm	16.2	15.2	12.5	10.5	8.7	9.2	10.2	12.2	12.8	10.8	9.2	7.6
	(-25cm	8.6	9.0	9.2	9.2	8.5	8.5	8.5	8.5	8.7	9.0	9.0	7.9
	(-50cm	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.6
(-1M	6.7	6.8	6.7	6.8	6.8	6.8	6.7	6.7	6.7	7.0	7.0	6.7	
MAX. TEMP.		-	-	-	15.5	8.0	-	-	-	-	-	13.5	8.0
MIN. TEMP		-	-	-	2.5	.5	-	-	-	-	-	2.	0.0
HUMIDITY %		80	82	87	75	87	94	76	87	86	68	87	87
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	Mist
RAINFALL		-	-	-	0	0	-	-	-	-	-	0	0
WIND	2M	2.8	-	-	-	3.8	-	2	4.4	-	-	-	3
	30cm	-	-	-	-	0	-	0	0	-	-	-	0
WIND GROUND		SE	-	-	-	S	-	SW	SE	-	-	-	SW
DIRECT SKY		-	-	-	-	-	-	-	-	-	-	-	-
LIGHT SKY		15	11.5	10	-	13	13.5	14.5	14.5	11.5	10.5	-	14
LIGHT GROUND		13	10	9	-	12	13	13	14	10	10	-	13
SUNSHINE		+	-	-	-	-	-	-	+	-	-	-	-
CLOUD 1/8		0	0	0	0	8	8	8	1	0	1	0	8
CLOUD TYPE						St	St	St	St		Ci		St

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)		7th AUGUST							8th AUGUST				
TIME (HRS.)		11.00	13.00	15.00	17.00	19.00	21.00	23.00	01.00	05.00	09.00	11.00	13.00
TEMP °C	(2M	11.9	8.5	9.8	7.3	6.4	6.0	5.8	6.2	7.3	13.9	12.5	10.8
	(1M	11.8	9.0	11.8	7.3	6.4	6.0	6.0	6.2	7.1	14.7	12.6	11.8
	(50cm	15.0	10.9	16.6	7.5	6.4	5.8	6.0	6.0	7.1	19.3	15.7	13.9
	(25cm	16.7	11.5	15.8	7.8	6.7	6.0	5.8	6.0	6.4	19.3	17.2	15.5
	(10cm	19.3	14.3	16.8	8.5	7.0	6.2	6.0	6.0	6.3	20.9	18.5	16.8
	(5cm	19.0	14.7	15.8	8.2	7.0	6.2	6.0	6.0	6.1	18.9	18.5	17.4
	(1cm	19.7	15.1	15.2	8.2	7.1	6.2	6.0	6.0	6.0	19.8	19.0	18.1
	(-1cm	14.1	14.5	17.7	16.1	10.8	9.5	8.7	8.2	5.6	11.8	14.8	18.0
	(-5cm	7.5	11.0	12.8	13.4	11.0	10.2	9.5	9.0	7.1	8.7	10.5	13.2
	(-25cm	8.0	7.8	8.2	8.5	8.6	8.7	8.7	8.7	8.5	8.2	8.2	8.2
	(-50cm	7.8	7.5	7.6	7.5	8.5	7.6	7.6	7.6	7.6	7.6	7.8	7.6
	(-1M	6.9	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
MAX. TEMP.		-	-	-	-	-	14	-	-	-	15.3	-	-
MIN. TEMP.		-	-	-	-	-	4	-	-	-	.8	-	-
HUMIDITY %		-	87	-	87	-	86	92	100	92	81	-	81
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
RAINFALL		-	-	-	-	-	0	-	-	-	0	-	-
WIND	2M	6.2	4.2	2.4	-	-	-	-	-	-	4.6	2	3.6
	30cm	1.5	.8	0	-	-	-	-	-	-	1	-	.5
WIND GROUND		SW	SW	SE	-	-	-	-	-	-	SW	SW	SW
DIRECT SKY		SW	SW	-	-	-	-	-	-	SE	-	-	-
LIGHT SKY		15.5	14.5	16	12.5	10	4.5	-	-	11	15	15	14.5
LIGHT GROUND		14	13	14	11	9.5	2	-	-	10	13	13.5	13.5
SUNSHINE		+	-	+	-	-	-	-	-	-	+	0	0
CLOUD 1/8		4	8	2	0	8	8	8	8	5	5	7	7
CLOUD TYPE		St	St	St	-	St	St	St	St	St	Ci.St CuSt ACu	St.Cu CuSt ACu	St Cu ACu

STATION (1)		8th AUGUST					9th AUGUST						
TIME (HRS)		15.00	17.00	19.00	21.00	23.00	01.00	05.00	09.30	11.00	13.00	15.00	17.00
TEMP °C	(2M	11.4	10.5	9.0	6.0	5.6	5.6	5.6	16.3	14.7	15.5	15.2	10.8
	(1M	12.0	10.8	9.0	5.6	4.9	5.5	4.9	16.1	14.9	16.6	17.2	10.5
	(50cm	13.6	12.0	9.0	4.0	3.6	2.9	3.6	19.6	16.8	19.8	20.5	10.2
	(25cm	14.7	12.8	9.0	3.0	2.7	1.5	3.0	21.7	17.4	22.0	19.0	9.6
	(10cm	15.8	13.4	9.3	2.7	2.2	0.9	2.9	23.0	18.0	23.0	20.0	9.6
	(5cm	15.8	13.4	9.3	2.7	1.9	0.5	2.6	20.6	18.0	23.6	18.5	9.2
	(1cm	16.1	13.6	9.6	3.0	1.9	0.6	2.1	20.5	19.3	29.8	18.5	9.2
	(-1cm	17.2	15.2	12.8	9.6	7.8	6.2	4.9	9.6	12.9	18.8	20.0	16.6
	(-5cm	13.6	13.6	12.5	11.0	9.5	8.0	6.4	9.6	9.2	13.4	16.1	15.2
	(-25cm	8.5	8.7	9.0	9.1	9.2	9.0	8.7	8.2	8.2	8.2	8.5	9.0
	(-50cm	7.6	7.6	7.6	7.7	7.7	7.7	7.8	7.7	9.2	7.7	7.8	7.8
	(-1M	6.7	6.7	6.7	6.9	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
MAX. TEMP.		-	-	-	15.5	-	-	-	19.7	-	-	-	-
MIN. TEMP.		-	-	-	3	-	-	-	.5	-	-	-	-
HUMIDITY %		-	76	-	93	100	100	85	-	73	66	65	71
PRECIPITATION		-	-	-	-	-	Dew	Dew	-	-	-	-	-
RAINFALL		-	-	-	0	-	-	-	0	-	-	-	-
WIND	2M	-	-	-	-	-	-	-	7	3.1	3.6	-	-
	30cm	-	-	-	-	-	-	-	1.6	-	-	-	-
WIND GROUND		-	-	-	-	-	-	-	S	NE	SW	-	-
DIRECT SKY		-	-	-	N	-	-	-	-	-	-	-	-
LIGHT SKY		-	13.5	11	-	-	-	-	-	-	-	-	-
LIGHT GROUND		-	13	8	-	-	-	10.5	-	15.5	15.5	15.5	12.5
SUNSHINE		-	-	-	-	-	-	10	-	13.0	13.5	13.5	10
CLOUD 1/8		8	7	4	3	0	0	1	2	2	2	1	4
CLOUD TYPE		Cu St.Cu	ACu St.Cu	Cu Ci	ACu St.Cu	-	-	Ci	Ci	Ci	Ci	Ci	Ci

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)		9th AUGUST		10th AUGUST						11th AUGUST			
TIME (HRS.)		19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	11.00	13.00	15.00
TEMP °C	(2M	9.5	7.6	18.0	17.7	16.6	15.5	9.3	6.2	3.6	7.6	10.8	9.0
	(1M	9.2	7.1	17.7	17.4	17.2	17.2	9.5	6.1	3.3	7.8	11.8	9.2
	(50cm	8.8	6.2	20.8	19.0	19.6	20.8	10.2	5.8	2.7	10.5	15.5	12.2
	(25cm	8.5	5.6	20.5	21.2	21.0	20.0	10.6	6.0	2.1	11.8	18.3	13.2
	(10cm	8.5	5.0	23.1	23.0	22.0	20.5	11.4	6.2	1.8	13.2	19.8	14.3
	(5cm	8.0	4.6	21.0	22.8	23.0	19.8	11.0	6.0	1.5	13.2	20.5	13.9
	(1cm	8.2	4.6	20.1	22.8	25.5	20.0	11.4	6.2	1.8	13.6	23.0	14.2
	(-1cm	12.8	10.0	10.3	13.9	19.0	20.0	16.8	13.2	9.6	11.4	16.8	18.0
	(-5cm	13.2	11.4	9.1	10.5	14.5	16.3	15.7	13.6	11.4	9.2	12.2	14.7
	(-25cm	9.0	9.2	8.6	8.5	8.7	8.7	9.2	9.5	10.0	8.7	8.7	8.7
	(-50cm	7.6	7.7	7.8	8.0	7.8	7.8	7.8	8.0	8.2	8.0	8.0	8.0
(-1M	6.7	6.9	6.9	6.7	6.9	7.0	7.0	7.0	7.0	7.0	7.0	7.0	
MAX. TEMP.		-	20.5	18.5	-	-	-	-	-	18.5	7	-	-
MIN. TEMP.		-	4.5	4.5	-	-	-	-	-	1	-1	-	-
HUMIDITY %		94	94	63	-	58	86	82	94	100	94	82	87
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
RAINFALL		-	0	0	-	-	-	-	-	0	0	-	-
WIND	2M	-	-	-	3.6	1.9	4.5	-	-	-	-	4.0	4.4
SPEED	30cm	-	-	-	-	-	-	-	-	-	2.8	1.0	-
WIND	GROUND	-	-	SW	S	SW	SW	-	-	-	SW	SW	SW
DIRECT	SKY	NW	-	-	-	-	-	-	-	-	-	-	-
LIGHT	SKY	12	4	14.5	15	15.5	15	13.5	11.5	-	14.5	16	15
LIGHT	GROUND	11	3.5	12.0	14.5	13.5	13	11	10	-	13	14.5	12.5
SUNSHINE		-	-	+	+	+	0	-	-	-	-	+	0
CLOUD	1/8	6	0	2	1	4	6	7	4	0	8	3	6
CLOUD TYPE		Ci	-	Ci	Ci	Ci	Ci	Ci	Ci	-	St	Ci	Ci
	As					CiCu	CiSt	CiCu			CiSt	CiCu	CiSt

STATION (1)		11th AUGUST			12th AUGUST						13th AUGUST		
TIME (HRS.)		17.00	19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00
TEMP °C	(2M	7.3	6.0	5.4	8.5	8.2	6.2	8.0	5.4	5.3	4.6	11.8	10.2
	(1M	7.8	6.2	5.3	8.5	8.2	6.4	8.4	5.3	4.7	4.3	12.0	10.5
	(50cm	9.0	6.4	5.3	7.6	7.6	6.6	9.0	5.8	4.9	4.2	15.5	13.4
	(25cm	9.5	7.0	5.3	7.3	7.6	6.6	9.6	6.2	5.3	4.3	14.7	14.5
	(10cm	10.2	7.0	5.4	7.3	7.6	6.7	10.2	6.7	6.0	4.6	17.2	15.8
	(5cm	10.2	7.3	5.6	7.3	7.6	7.0	10.5	8.2	7.3	6.0	14.5	16.6
	(1cm	10.5	7.4	5.6	7.3	7.6	8.2	12.2	9.0	8.2	7.0	15.0	15.8
	(-1cm	15.0	12.1	9.8	8.2	9.0	9.0	11.0	11.8	10.5	9.0	10.2	14.2
	(-5cm	13.9	12.2	10.8	8.5	8.8	8.7	9.2	9.8	9.2	9.0	7.6	9.2
	(-25cm	9.0	9.2	9.2	8.7	8.7	8.7	8.7	8.7	8.7	8.7	8.2	7.8
(-50cm	8.0	8.2	8.0	8.0	8.0	8.0	8.2	8.2	8.2	8.2	7.8	7.8	
(-1M	7.2	7.2	7.0	7.0	7.0	7.0	7.0	7.2	7.2	7.0	7.0	7.0	
MAX. TEMP		-	-	10.3	12	-	-	-	-	-	8	11.5	-
MIN. TEMP.		-	-	3.2	3	-	-	-	-	-	2	1.0	-
HUMIDITY %		94	94	94	100	100	100	94	100	100	100	75	-
PRECIPITATION		-	-	-	Rain	Rain	Rain	-	Rain	Rain	Rain	Dew	-
RAINFALL		-	-	0	.12	-	-	-	-	-	.37	.01	-
WIND 2M		-	-	-	4.2	-	-	-	-	-	-	3	3.8
SPEED 30cm		-	-	-	.6	-	-	-	-	-	-	0	.8
WIND GROUND		-	-	-	SW	-	-	-	-	-	-	S	S
DIRECT SKY		-	-	-	-	-	-	-	-	-	-	NW	-
LIGHT SKY		13	12	2	12	12	12.5	14	11.5	11	-	15	-
LIGHT GROUND		11	10	0	9.5	9.5	9.5	12	10	8.5	-	14	-
SUNSHINE		-	-	-	-	-	-	0	-	-	-	+	0
CLOUD 1/8		8	8	8	8	8	8	8	8	8	8	3	8
CLOUD TYPE		St.	AsSt	As	St	St	St	St	St	St	St	St	As
		NiSt	NiSt	ClSt								Cl.Cu	
		As											

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)		13th AUGUST						14th AUGUST					
TIME (HRS.)		13.00	15.00	17.00	19.00	21.00	23.00	01.00	05.00	09.00	11.00	13.00	15.00
TEMP °C	(2M	9.6	9.2	7.6	5.6	4.3	4.5	3.0	2.1	6.2	4.9	8.7	8.5
	(1M	11.0	10.5	8.2	5.8	3.6	4.2	3.0	2.0	6.4	5.6	9.8	9.5
	(50cm	14.5	12.8	8.7	5.8	2.4	3.4	1.5	1.8	9.0	7.8	16.1	14.1
	(25cm	15.5	13.4	9.0	6.0	1.7	2.7	0.6	1.7	8.5	9.2	15.5	13.7
	(10cm	17.2	13.7	9.2	6.2	1.5	2.7	0.3	2.1	12.5	10.2	17.2	13.9
	(5cm	18.8	13.5	10.5	7.7	3.4	4.6	2.1	3.6	16.5	11.8	18.8	13.4
	(1cm	18.8	12.7	10.2	9.1	6.0	6.4	3.9	5.6	19.5	13.6	18.8	14.7
	(-1cm	18.3	17.4	15.7	10.9	9.6	9.0	7.6	7.8	10.5	13.2	16.6	18.5
	(-5cm	12.5	13.6	13.3	11.0	9.2	8.7	7.6	6.6	7.6	9.5	11.8	14.2
	(-25cm	8.2	8.4	8.7	9.0	9.1	9.1	9.0	8.6	8.2	8.2	8.2	8.2
	(-50cm	7.6	7.7	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.8	7.7	7.7
	(-1M	7.0	7.0	7.2	7.0	7.0	7.2	7.0	7.0	7.0	7.0	7.0	7.0
MAX. TEMP.		-	-	-	-	13.5	-	-	-	7.5	-	-	-
MIN. TEMP.		-	-	-	-	0.0	-	-	-	-0.5	-	-	-
HUMIDITY %		63	-	80	-	63	84	78	92	87	-	94	-
PRECIPITATION		-	-	-	-	-	Dew	Dew	-	-	-	-	-
RAINFALL		-	-	-	-	0	-	-	-	0	-	-	-
WIND 2M		4.5	2.8	1.4	-	-	-	-	-	-	-	-	-
SPEED 30cm		.5	0	0	-	-	-	-	-	3.4	2.1	3.8	4.3
WIND GROUND		S	S	S	-	-	-	-	-	.8	0	1	1
DIRECT		-	-	-	-	-	-	-	-	S	SE	S	S
SKY		SW	S	SW	SW	SE	-	-	-	-	-	SW	-
LIGHT SKY		15.5	-	13	-	-	-	-	10	15.5	-	14.5	-
LIGHT GROUND		12.5	-	12	-	-	-	-	9	12.5	-	12	-
SUNSHINE		0	+	-	-	-	-	-	-	0	-	+	+
CLOUD 1/8		4	6	8	6	2	2	4	8	8	8	4	0
CLOUD TYPE		ACu	Cu	St.Cu	St.Cu	St	St	St.Cu	St	St	St	St	St

STATION (1)		14th AUGUST					15th AUGUST						
TIME (HRS.)		17.00	19.00	21.00	23.00	01.00	05.30	09.00	11.00	13.00	15.00	17.00	19.00
TEMP °C	(2M	4.6	3.5	2.0	2.9	2.4	2.3	4.6	6.2	6.7	8.2	5.4	3.5
	(1M	4.6	3.2	3.0	2.1	1.8	2.3	4.9	6.2	7.6	9.2	5.3	3.0
	(50cm	4.6	2.1	1.3	1.2	1.2	2.3	6.7	9.0	9.8	12.8	5.6	2.3
	(25cm	4.9	1.2	0.2	0.2	0.6	2.4	7.6	10.2	11.4	13.2	6.1	1.7
	(10cm	5.6	0.9	-0.1	-0.2	0.6	2.6	8.7	11.0	12.8	13.9	6.4	1.8
	(5cm	7.0	0.9	-0.8	-0.8	-0.1	2.6	8.7	11.0	13.3	13.6	6.3	1.7
	(1cm	9.2	4.9	3.0	-0.2	1.2	2.6	8.7	11.0	13.6	13.6	6.6	2.0
	(-1cm	15.8	9.8	7.8	4.9	5.2	4.0	8.2	9.2	12.0	14.5	12.3	8.7
	(-5cm	13.5	9.8	8.2	7.0	6.1	4.9	6.4	7.8	9.2	11.8	11.8	10.0
	(-25cm	8.5	8.8	9.0	9.0	8.6	7.8	7.6	7.6	7.5	7.6	7.8	8.2
	(-50cm	7.7	7.8	7.8	7.8	7.8	7.7	7.6	7.6	7.6	7.3	7.5	7.6
	(-1M	7.0	7.2	7.2	7.2	7.0	6.8	7.0	7.0	7.0	7.0	7.0	7.0
MAX. TEMP.		-	-	11.5	-	-	-	4.5	-	-	-	-	-
MIN. TEMP.		-	-	-0.5	-	-	-	-2.5	-	-	-	-	-
HUMIDITY %		93	-	83	92	92	100	100	96	93	87	94	92
PRECIPITATION		-	-	Frost	Frost	Frost	Frost	Dew	-	-	-	-	-
RAINFALL		-	-	0	-	-	-	0	-	-	-	-	-
WIND 2M		1	-	-	-	-	-	-	-	-	-	-	-
SPEED 30cm		0	-	-	-	-	-	-	2.2	4.6	3.2	-	-
WIND GROUND		S	-	-	-	-	-	-	.6	1.2	.6	-	-
DIRECT		-	-	-	-	-	-	-	S	SE	S	-	-
SKY		-	-	-	-	-	-	-	-	-	-	-	-
LIGHT SKY		12	-	-	-	-	10	13	14	14	15	12.5	11
LIGHT GROUND		9.5	-	-	-	-	8.5	12	12.5	13.5	13.5	12	9
SUNSHINE		-	-	-	-	-	-	-	-	0	0	-	-
CLOUD 1/8		0	0	0	0	0	8	0	0	8	4	2	1
CLOUD TYPE		-	-	-	-	-	St	-	-	St	St	St	St

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)		15th AUGUST	16th AUGUST							17th AUGUST			
TIME (HRS.)		21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00	13.00	15.00
TEMP °C	(2M	2.4	5.3	6.4	6.6	6.4	5.3	4.0	3.4	7.6	10.3	10.0	12.0
	(1M	2.4	5.3	6.7	7.0	7.2	5.3	4.0	3.4	8.2	10.9	11.0	12.5
	(50cm	1.8	6.7	7.8	8.2	8.7	6.0	4.0	3.4	11.0	15.0	13.6	15.8
	(25cm	1.3	7.8	8.7	8.5	9.0	6.4	4.3	3.4	8.6	16.8	14.6	16.0
	(10cm	0.9	8.7	9.2	8.8	9.2	7.0	4.6	3.6	8.2	17.7	15.2	16.3
	(5cm	0.9	8.7	9.2	8.8	10.0	7.3	4.6	3.6	8.7	17.3	15.2	16.0
	(1cm	1.2	9.0	9.8	9.8	9.8	7.8	4.9	4.0	9.5	15.4	14.2	15.0
	(-1cm	6.2	7.8	9.4	10.3	11.4	10.5	9.0	7.8	6.4	11.2	14.2	16.3
	(-5cm	7.8	7.0	8.2	8.9	9.7	9.8	9.2	8.2	6.4	8.5	11.4	13.6
	(-25cm	8.2	7.6	7.5	7.5	7.6	7.6	8.0	7.8	7.6	7.3	7.5	7.6
	(-50cm	7.6	7.3	7.5	7.8	7.3	7.3	7.5	7.6	7.6	7.3	7.2	7.2
	(-1M	7.0	6.7	6.8	7.0	7.0	7.0	7.0	7.0	7.0	6.8	6.7	6.7
MAX. TEMP.		9.75	6	-	-	-	-	-	7.5	9	-	-	-
MIN. TEMP.		-75	-5	-	-	-	-	-	1.5	0.5	-	-	-
HUMIDITY %		100	100	100	100	100	96	100	96	94	87	87	76
PRECIPITATION		Frost	Rain	Rain	Rain	Rain	-	-	-	Dew	-	-	-
RAINFALL		0	.095	-	-	-	-	-	.04	0	-	-	-
WIND 2M		-	1.5	2	-	-	2.1	1	-	2.1	6.2	1.2	2.2
SPEED 30cm		-	0	0	-	-	0	0	-	1.1	2.2	.5	.4
WIND GROUND		-	S	N	-	-	S	SE	-	S	S	S	S
DIRECT SKY		-	-	-	-	-	NW	-	-	NW	NE	-	-
LIGHT SKY		-	13.5	13.5	14	15	13	10	-	15	15	14.5	14
LIGHT GROUND		-	10.5	11.5	13	10.5	11.5	9	-	13	14.5	13.5	13
SUNSHINE		-	-	-	-	0	-	-	-	+	+	0	0
CLOUD 1/8		7	8	8	8	8	7	8	8	3	2	7	8
CLOUD TYPE		St	St	NiSt	NiSt	NiSt	St	St	St	St	Ci	AST	St
											Cu	Ci	Ci

STATION (1)		17th AUGUST			18th AUGUST						19th AUGUST		
TIME (HRS.)		17.00	19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00
TEMP °C	(2M	11.4	7.6	5.6	4.3	4.6	8.5	8.6	4.6	3.6	4.3	10.2	10.2
	(1M	10.9	7.6	5.4	4.3	4.6	9.1	9.6	4.9	3.6	4.3	10.3	9.8
	(50cm	12.0	7.6	4.9	4.6	4.9	10.6	13.4	4.9	3.4	3.6	13.9	13.6
	(25cm	12.5	7.6	4.6	4.9	5.3	11.4	11.0	4.6	3.4	3.4	12.8	15.8
	(10cm	12.5	7.7	4.6	5.3	6.0	11.6	9.6	4.2	3.0	3.0	13.6	17.2
	(5cm	12.2	7.5	4.6	5.3	6.0	11.0	9.2	4.3	3.0	2.4	12.8	16.3
	(1cm	12.0	7.5	4.9	5.6	6.2	11.6	9.8	4.0	2.7	1.8	10.8	15.0
	(-1cm	14.5	11.4	9.2	7.0	7.5	10.2	12.0	9.8	7.8	6.2	6.0	9.2
	(-5cm	13.3	11.8	10.2	7.3	7.6	8.5	10.2	9.6	8.8	7.5	5.3	7.6
	(-25cm	7.8	8.5	8.7	7.8	7.8	7.8	7.6	7.8	8.2	8.2	7.0	7.0
	(-50cm	7.2	7.3	7.3	9.2	7.5	7.3	7.3	7.3	7.3	7.5	7.0	7.0
	(-1M	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
MAX. TEMP.		-	-	17	5	-	-	-	-	-	11	8.7	-
MIN. TEMP.		-	-	3.5	1	-	-	-	-	-	2	-1.5	-
HUMIDITY %		76	68	94	100	100	100	75	71	85	62	85	-
PRECIPITATION		-	-	-	Rain	Rain	Rain	-	Rain	-	-	-	-
RAINFALL		-	-	0	.12	-	-	-	-	-	.05	0	-
WIND 2M		-	4.2	-	-	-	-	7.4	9.7	9.6	11.8	-	5.1
SPEED 30cm		-	1.1	-	-	-	-	2.8	5.6	2.4	3.6	-	1.4
WIND GROUND		-	S	-	-	-	-	S	SW	S	S	-	SW
DIRECT SKY		-	-	-	-	-	-	W	NW	NW	NW	-	-
LIGHT SKY		13	10	-	11.5	12	15.5	16	11	9.5	-	15	-
LIGHT GROUND		12.5	8.5	-	9.5	11.5	15	12.5	10	8.0	-	13	-
SUNSHINE		-	-	-	-	-	0	+	-	-	-	+	+
CLOUD 1/8		8	8	8	8	8	7	4	7	6	8	6	3
CLOUD TYPE		St	ACu	Ci	NiSt	NiSt	Cu.St	Cu	Cu	Cu	ACu	Ci	Ci
			AST	ACu			NiSt		NiSt	St			
				AST									

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)		19th AUGUST						20th AUGUST					
TIME (HRS.)		13.00	15.00	17.00	19.00	21.00	23.00	01.00	05.00	07.00	09.00	11.00	13.00
TEMP °C	(2M	9.8	7.6	5.6	4.5	4.3	4.3	3.9	3.4	4.0	6.2	6.7	8.2
	(1M	10.3	7.6	5.6	4.5	4.3	4.0	3.6	3.4	4.0	6.2	6.6	8.2
	(50cm	12.2	9.0	6.2	4.5	3.5	2.3	3.4	3.4	4.3	6.2	6.7	8.7
	(25cm	13.4	10.2	6.7	4.6	3.0	2.3	3.6	3.6	4.6	6.3	6.8	9.0
	(10cm	12.9	10.8	7.6	4.9	3.0	2.3	4.0	4.0	4.6	6.4	7.0	9.4
	(5cm	13.5	10.6	7.5	4.9	3.0	4.0	4.0	4.3	4.6	6.4	6.8	9.2
	(1cm	13.2	10.5	7.7	4.9	3.4	4.2	4.2	4.3	4.7	6.4	6.7	9.2
	(-1cm	13.4	13.6	11.0	9.1	7.3	6.7	6.6	6.2	6.2	6.2	6.8	7.8
	(-5cm	10.5	11.6	10.5	9.5	8.4	7.6	7.3	6.6	6.4	6.4	6.7	7.3
	(-25cm	6.8	7.2	7.3	7.7	7.3	7.8	7.8	7.6	7.5	7.3	7.3	7.2
	(-50cm	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.8	7.0
	(-1M	6.6	6.6	6.6	6.6	6.6	6.4	6.6	6.6	6.4	6.6	6.4	6.4
MAX. TEMP.		-	-	-	-	12	-	-	-	-	5.5	-	-
MIN. TEMP.		-	-	-	-	1.5	-	-	-	-	1.0	-	-
HUMIDITY %		85	-	100	-	78	100	100	100	100	100	100	100
PRECIPITATION		-	-	-	-	-	Rain	-	Rain	Rain	Rain	Rain	Rain
RAINFALL		-	-	-	-	0	-	-	-	-	0.3	-	-
WIND	2M	-	-	-	-	-	-	-	-	-	-	-	-
	30cm	-	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND		-	-	-	-	-	-	-	-	-	-	-	-
DIRECT SKY		NE	-	-	SW	-	-	-	-	-	-	-	-
LIGHT SKY		15	-	13	-	-	-	-	5.5	11	10.5	10.5	12.5
LIGHT GROUND		12.5	-	10.5	-	-	-	-	5	9.5	9.0	9	11.5
SUNSHINE		0	0	-	-	-	-	-	-	-	-	-	-
CLOUD 1/8		6	8	8	7	8	8	8	8	8	8	8	8
CLOUD TYPE		Cu ASt	ASt	ASt St	ASt St.Ci	ASt St	NbSt	St	NbSt	NbSt	NbSt	NbSt	NbSt

STATION (1)		20th AUGUST					21st AUGUST						
TIME (HRS.)		15.00	17.00	19.00	21.00	23.00	01.00	05.00	07.00	09.00	11.00	13.00	15.00
TEMP °C	(2M	8.0	7.8	7.3	7.0	6.2	3.4	2.7	2.1	2.3	6.1	8.5	10.0
	(1M	8.0	7.8	7.0	6.4	6.1	3.4	2.7	2.1	2.3	5.1	8.4	12.2
	(50cm	8.2	8.0	7.2	6.2	6.1	3.4	2.5	2.0	2.5	5.4	10.2	12.0
	(25cm	8.4	8.2	7.3	6.2	6.2	3.4	2.7	2.7	2.9	7.7	10.8	10.2
	(10cm	8.7	8.5	7.3	6.2	6.4	3.6	2.7	3.4	3.4	9.1	11.0	9.8
	(5cm	8.7	8.5	7.3	6.0	6.7	4.0	2.7	3.6	3.4	8.8	11.0	9.1
	(1cm	8.7	8.5	7.3	6.1	6.7	4.2	2.7	4.2	3.6	9.2	12.2	11.0
	(-1cm	8.5	8.5	7.8	7.3	7.0	5.4	4.6	5.6	6.2	7.0	10.8	14.7
	(-5cm	8.0	8.2	8.0	7.6	7.2	5.8	5.3	5.3	6.5	8.2	9.2	12.7
	(-25cm	7.3	7.3	7.3	7.5	7.6	6.2	6.3	6.4	7.8	8.7	8.8	8.5
	(-50cm	7.0	7.0	7.0	7.0	7.3	6.0	6.0	6.4	7.5	9.4	10.0	9.5
	(-1M	6.6	6.6	6.7	6.6	6.6	5.3	5.6	6.1	7.3	9.0	8.7	9.1
MAX. TEMP.		-	-	-	8	-	-	-	-	8	-	-	-
MIN. TEMP.		-	-	-	1	-	-	-	-	0.0	-	-	-
HUMIDITY %		100	100	100	100	100	100	100	100	100	100	100	87
PRECIPITATION		Rain	Rain	-	-	Dew	Rain	Rain	Rain	Rain	Rain	-	-
RAINFALL		-	-	-	1.04	-	-	-	-	.32	-	-	-
WIND	2M	-	-	-	-	-	-	-	-	-	7.8	-	-
	30cm	-	-	-	-	-	-	-	-	-	3.4	-	-
WIND GROUND		-	-	-	-	-	-	-	-	-	S	-	-
DIRECT SKY		-	-	-	E	-	-	-	-	-	-	W	-
LIGHT SKY		11.5	11	9.5	-	-	-	7	9	11.5	13.5	14.5	15.5
LIGHT GROUND		11	9.5	8	-	-	-	5	7.5	9	12.5	12.5	14.0
SUNSHINE		-	-	-	-	-	-	-	-	-	-	0	0
CLOUD 1/8		8	8	8	3	8	8	8	8	8	8	6	4
CLOUD TYPE		NbSt	St	St	Cu.St	St	St	St	St	St	St	St.Cu	CuNb

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)		21st AUGUST			22nd AUGUST						23rd AUGUST		
TIME (HRS.)		17.00	19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00
TEMP °C	(2M	5.6	3.4	1.7	4.6	6.2	7.8	7.6	8.2	8.0	6.2	7.2	7.0
	(1M	7.5	3.4	2.0	4.6	6.2	6.8	6.3	6.8	7.6	6.2	7.6	7.6
	(50cm	4.7	1.5	2.7	4.6	6.4	6.8	7.0	7.0	6.4	6.4	9.0	8.7
	(25cm	4.9	0.8	0.2	4.9	6.4	6.8	7.6	7.8	7.8	7.2	9.6	9.2
	(10cm	5.1	0.6	0.2	5.3	6.6	6.8	7.8	8.2	8.2	7.6	10.8	9.8
	(5cm	5.3	0.6	0.2	5.3	6.7	6.8	6.7	6.8	7.0	7.0	10.8	9.8
	(1cm	6.7	2.7	1.7	5.3	6.7	8.5	8.7	8.8	9.2	8.2	12.0	11.4
	(-1cm	12.0	9.0	7.0	5.6	6.3	8.4	9.0	9.2	9.0	9.0	9.8	12.0
	(-5cm	11.8	9.5	8.2	5.4	5.8	8.4	8.5	9.2	9.0	8.2	7.7	9.0
	(-25cm	8.4	8.4	8.0	6.7	6.6	7.2	8.2	9.0	9.2	8.2	8.7	8.7
	(-50cm	8.2	7.6	7.0	6.8	6.8	8.0	8.7	9.0	9.0	9.0	9.0	9.2
	(-1M	7.8	7.3	7.0	6.8	6.7	7.7	9.0	9.0	8.5	8.7	8.8	9.0
MAX. TEMP.		-	-	11.25	4.5	-	-	-	-	-	6.5	8	-
MIN. TEMP.		-	-	-1.75	-2.0	-	-	-	-	-	2.5	-1	-
HUMIDITY %		100	92	84	100	100	100	100	100	100	100	100	85
PRECIPITATION		-	-	Frost	Rain	Rain	Rain	Rain	Rain	Rain	Rain	Rain	-
RAINFALL		-	-	.07	.56	-	-	-	-	-	.80	.08	-
WIND	2M	4.0	-	-	-	-	-	-	-	-	-	-	-
SPEED	30cm	1.4	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND		N	-	-	-	-	-	-	-	-	-	-	-
DIRECT SKY		-	-	-	-	-	-	-	-	-	-	-	-
LIGHT SKY		12	9.5	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND		11	9	-	-	-	-	-	-	-	-	-	-
SUNSHINE		0	-	-	-	-	-	-	-	-	-	0	-
CLOUD 1/8		3	2	1	8	8	8	8	8	8	8	7	7
CLOUD TYPE		Cu	Ci.St	St	St	St	NbSt	NbSt	NbSt	NbSt	St	Cu	Cu.St
			Ci.St									St	CuNb

STATION (1)		23rd AUGUST					24th AUGUST						
TIME (HRS.)		13.00	15.00	17.00	19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00
TEMP °C	(2M	7.2	6.7	7.0	6.4	5.3	7.2	6.8	9.6	7.0	5.3	5.1	4.6
	(1M	7.2	7.2	7.6	6.7	4.9	7.6	7.3	11.0	7.8	6.0	4.3	3.4
	(50cm	8.2	7.2	7.6	6.0	4.3	8.5	8.0	13.4	9.0	6.0	4.2	3.0
	(25cm	9.2	8.0	8.4	6.7	4.9	10.0	9.2	16.3	9.2	6.2	4.0	2.9
	(10cm	9.6	8.2	8.2	6.8	5.6	9.6	9.5	15.0	9.5	6.4	4.3	3.0
	(5cm	9.2	8.2	8.2	7.0	5.6	9.8	10.	15.0	9.6	6.7	4.5	3.0
	(1cm	10.1	9.2	9.4	8.5	7.0	11.8	11.0	16.3	10.5	7.5	5.3	4.6
	(-1cm	10.8	11.6	10.3	9.7	8.7	9.6	12.0	13.6	12.8	11.4	7.8	7.6
	(-5cm	9.6	10.2	9.7	9.0	9.0	7.7	9.2	9.6	11.0	10.5	9.8	8.7
	(-25cm	9.0	9.0	8.6	9.0	9.0	7.6	7.6	7.6	7.6	7.6	7.8	8.0
	(-50cm	9.2	9.1	9.0	8.7	8.7	7.5	7.6	7.8	7.7	7.3	7.5	7.6
	(-1M	9.1	9.0	9.0	8.7	8.5	7.5	7.3	7.6	7.3	7.0	7.2	7.2
MAX. TEMP.		-	-	-	-	8.0	8.0	-	-	-	-	-	14
MIN. TEMP.		-	-	-	-	.75	-2.0	-	-	-	-	-	1
HUMIDITY %		100	100	87	100	100	93	100	100	87	85	85	93
PRECIPITATION		Rain	Rain	-	-	Rain	-	Rain	Rain	-	-	-	-
RAINFALL		-	-	-	-	.04	.005	-	-	-	-	-	.035
WIND	2M	-	4.0	4.2	-	-	3.1	-	-	1.7	3.6	-	-
	30cm	-	0	.9	-	-	.8	-	-	0	.9	-	-
WIND GROUND		-	N	N	-	-	SW	-	-	SW	S	-	-
DIRECT SKY		-	N	-	-	-	-	-	-	-	SW	-	-
LIGHT SKY		-	-	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND		-	-	-	-	-	-	-	-	-	-	-	-
SUNSHINE		-	-	-	-	-	-	-	+	0	-	-	-
CLOUD 1/8		8	8	7	8	8	8	8	7	7	4	7	8
CLOUD TYPE		St	St	St	St	St	St	St	St	Cu	Cu	St	St
			Cu	Cu						Cu	St	Cu	Cu

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1) TIME (HRS.)		25th AUGUST							26th AUGUST				
		09.00	11.00	13.00	15.00	17.00	19.00	21.00	01.00	03.00	05.00	07.00	09.00
TEMP °C	(2M	9.8	9.6	8.6	8.2	7.0	5.6	4.3	3.4	2.1	2.1	2.7	10.8
	(1M	8.4	9.0	8.8	7.8	6.6	5.1	3.5	2.1	0.7	1.3	2.1	10.2
	(50cm	10.8	12.0	10.5	9.2	7.0	5.1	3.2	1.0	-0.4	0.2	1.5	13.6
	(25cm	10.5	13.2	11.8	9.8	7.7	5.3	3.4	0.6	-0.2	0.0	1.3	11.0
	(10cm	11.4	13.4	13.2	10.5	8.5	5.4	3.4	0.7	-0.2	0.2	1.2	11.0
	(5cm	11.0	13.2	12.8	10.5	8.4	5.4	3.5	0.6	-0.1	-1.1	1.0	10.8
	(1cm	10.8	12.9	12.5	10.2	8.5	6.0	3.6	0.7	0.2	0.3	1.0	9.2
	(-1cm	7.7	10.0	12.8	12.0	10.5	9.4	8.2	4.9	4.0	3.4	3.2	4.0
	(-5cm	7.0	8.6	10.0	10.9	10.5	10.0	9.0	6.7	6.1	4.9	4.3	4.0
	(-25cm	7.6	7.7	6.8	7.3	7.6	8.0	8.2	7.8	7.7	7.5	7.2	6.7
(-50cm	7.8	7.8	7.0	7.0	7.3	7.3	7.3	7.3	7.3	7.2	7.3	7.0	
(-1M	7.3	7.6	6.7	7.0	7.0	7.0	7.0	6.8	7.0	6.8	6.7	6.4	
MAX. TEMP.		7.75	-	-	-	-	-	13.5	-	-	-	-	7.5
MIN. TEMP.		-1.5	-	-	-	-	-	1	-	-	-	-	-2
HUMIDITY %		92	-	94	-	85	-	100	100	100	92	100	90
PRECIPITATION		-	-	-	-	-	Rain	-	Frost	Frost	Frost	Frost	-
RAINFALL		0	-	-	-	-	-	.02	-	-	-	-	0
WIND 2M		-	-	3.7	1.2	1.7	-	-	-	-	-	-	1.4
SPEED 30cm		-	-	1.4	.6	0	-	-	-	-	-	-	0
WIND GROUND		-	-	S	S	S	-	-	-	-	-	-	SW
DIRECT SKY		N	E	-	NW	NW	-	-	-	NW	W	W	-
LIGHT SKY		-	14	14	-	-	9	-	-	-	-	-	15
LIGHT GROUND		-	13	12	-	-	7.5	-	-	-	-	-	12
SUNSHINE		+	+	o	-	-	-	-	-	-	-	o	+
CLOUD 1/8		3	6	7	7	8	8	8	2	3	2	2	1
CLOUD TYPE		Ci.St	Cu	Cu	St.Ci	St	St	St	St	St	St	St.Ci	Ci
		ASt	St	St	Cu	ASt	Cu				Ci	ASt	Cu.St

STATION (1) TIME (HRS.)		26th AUGUST							27th AUGUST				
		11.00	13.00	15.00	17.00	19.00	21.00	23.00	01.00	03.00	05.00	07.00	09.00
TEMP °C	(2M	10.2	9.0	9.0	8.4	7.6	8.2	7.2	8.4	7.7	7.3	8.5	8.5
	(1M	9.2	9.6	9.2	8.5	7.6	7.8	7.0	8.2	7.6	7.3	8.5	8.4
	(50cm	12.9	11.8	9.5	8.2	7.3	7.5	6.8	7.8	7.3	7.0	8.6	8.2
	(25cm	15.5	13.2	9.5	8.2	7.0	7.3	6.7	7.6	7.0	6.4	8.6	7.8
	(10cm	15.8	13.9	9.2	7.8	6.4	6.8	6.4	7.0	6.3	6.0	8.5	7.8
	(5cm	15.0	13.9	9.2	7.6	6.0	6.4	6.0	6.4	5.8	5.3	8.2	7.7
	(1cm	14.5	13.7	9.0	7.3	5.6	6.0	5.6	6.2	5.3	4.7	7.8	7.5
	(-1cm	9.0	12.7	10.5	8.6	6.7	5.6	5.6	5.3	4.9	4.6	5.1	6.8
	(-5cm	6.8	9.2	9.6	8.8	7.6	6.2	6.2	6.0	5.6	5.3	5.3	6.6
	(-25cm	6.6	6.4	6.6	6.8	7.0	6.2	7.0	7.0	6.8	6.7	6.6	6.6
	(-50cm	7.0	6.4	6.6	6.6	6.6	5.6	6.6	6.7	6.6	6.7	6.6	6.4
	(-1M	6.7	6.4	6.3	6.4	6.3	6.4	6.2	6.4	6.3	6.3	6.3	6.3
MAX. TEMP.		-	-	-	-	-	11.5	-	-	-	-	-	11.5
MIN. TEMP.		-	-	-	-	-	4.5	-	-	-	-	-	4.5
HUMIDITY %		94	68	68	60	53	52	73	48	47	42	50	55
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
RAINFALL		-	-	-	-	-	0	-	-	-	-	-	0
WIND 2M		3.7	3.6	13.3	6.0	5.2	11.5	12.6	12.6	14.3	13.0	6.4	9.8
SPEED 30cm		1	.6	3.6	2.6	1.6	2.2	5.4	5.9	4.5	3.6	.6	5.1
WIND GROUND		SW	S	S	NE	SW	SE	NE	W	W	W	S	NW
DIRECT SKY		E	-	-	-	-	-	-	SE	SE	SE	SE	SE
LIGHT SKY		-	14	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND		-	12	-	-	-	-	-	-	-	-	-	-
SUNSHINE		+	o	o	-	-	-	-	-	-	-	-	-
CLOUD 1/8		5	8	8	8	8	8	8	8	6	6	7	8
CLOUD TYPE		Ci	Cu	ASt	St	St	St	St	St	St	St.Cu	Cu	St
		St			NbSt	NbSt	ASt		ASt	Cu	Ci.St	St	Cu
											ACu	ACu	

METEOROLOGICAL DATA - BASE CAMP (cont'd)

STATION (1)	TIME (HRS.)	27th AUGUST						28th AUGUST					
		11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00	13.00	15.00	17.00	19.00
TEMP °C	(2M	8.7	9.0	10.0	9.2	8.7	7.8	12.5	11.9	7.6	5.3	3.9	6.2
	(1M	8.5	8.7	9.2	9.2	8.6	7.6	11.4	11.2	8.2	5.3	3.9	3.0
	(50cm	8.5	8.5	12.0	9.4	8.2	6.8	14.5	13.7	9.8	5.6	4.3	2.9
	(25cm	8.4	8.2	12.5	9.4	7.8	6.2	14.8	15.5	11.6	6.2	4.9	3.0
	(10cm	8.2	7.8	13.2	9.5	7.3	5.6	13.3	16.5	12.8	6.7	5.6	3.5
	(5cm	7.8	7.6	12.9	9.5	7.0	4.9	14.7	16.2	12.9	6.7	5.6	3.6
	(1cm	7.6	7.0	12.8	9.5	6.7	4.7	15.0	16.6	13.3	7.0	6.1	4.0
	(-1cm	6.4	6.2	7.6	8.8	7.2	6.0	13.6	9.2	9.8	9.0	8.2	7.2
	(-5cm	6.4	6.2	6.4	7.8	7.5	6.4	5.3	7.0	8.5	8.5	8.2	7.6
	(-25cm	6.4	6.7	6.4	6.6	6.7	6.6	4.7	6.2	6.2	6.4	6.6	6.7
	(-50cm	6.4	6.7	6.4	6.4	6.4	6.3	6.2	6.2	6.2	6.2	6.2	6.2
	(-1M	6.2	6.4	6.4	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
MAX. TEMP		-	-	-	-	-	11.8	12.5	-	-	-	-	-
MIN. TEMP		-	-	-	-	-	4.5	1.2	-	-	-	-	-
HUMIDITY %		43	61	54	45	52	72	63	62	87	85	100	100
PRECIPITATION												Rain	Rain
RAINFALL							0	0					
WIND 2M		12.3	15.4	10.1	8.8	7.5	3.7	-	-	1.7	5.2	-	-
SPEED 30cm		3.6	5.8	2.0	0.6	1.1	0	-	-	0	1.6	-	-
WIND GROUND		NE	NW	NW	S	S	S	-	-	SW	SW	-	-
DIRECT SKY		-	-	SE	-	SE	SE	-	NW	-	-	-	N
LIGHT SKY		-	-	-	-	-	-	15	-	-	-	-	-
LIGHT GROUND		-	-	-	-	-	-	12	-	-	-	-	-
SUNSHINE		-	-	0	-	-	-	+	0	0	-	-	-
CLOUD 1/8		8	8	8	7	8	8	3	7	8	8	8	8
CLOUD TYPE		ASt	St	ASt	St	St	ASt	St.Cu	ASt	St	St	St	St
		St	NbSt	NbSt	CuNb		St.Cu	Ci.Cu	St.Cu	ASt			

STATION (1)		28th												
		AUGUST		29th AUGUST							30th AUGUST			
TIME (HRS.)		21.00	09.00	11.00	13.00	15.00	17.00	19.00	21.00	09.00	11.00	13.00	15.00	
TEMP °C	(2M	2.4	9.7	9.6	9.0	9.2	9.0	9.2	11.4	10.3	9.8	10.0	9.8	
	(1M	2.6	9.0	9.0	10.5	9.2	9.0	9.1	11.0	10.0	9.2	9.5	9.8	
	(50cm	2.4	12.3	12.3	13.9	10.8	9.5	8.6	10.5	9.0	9.4	8.7	9.8	
	(25cm	2.4	10.0	15.1	16.8	11.9	10.0	8.0	10.2	7.8	8.7	9.0	9.6	
	(10cm	2.7	12.0	15.0	15.2	12.1	9.7	7.7	9.2	7.6	8.7	9.0	9.6	
	(5cm	2.7	11.8	14.7	16.8	12.9	9.6	7.6	9.2	7.6	8.7	9.2	9.6	
	(1cm	2.9	10.2	13.2	15.0	12.9	9.6	7.6	9.0	7.6	9.0	9.2	9.8	
	(-1cm	6.2	3.2	8.6	14.2	13.6	10.9	9.2	8.2	7.6	8.5	9.0	9.6	
	(-5cm	6.7	3.6	6.7	9.2	11.2	10.2	9.4	8.5	7.3	7.7	8.5	9.0	
	(-25cm	6.7	6.2	6.2	6.2	6.2	6.4	6.8	7.0	7.0	7.0	7.0	7.0	
	(-50cm	6.3	6.2	6.3	6.2	6.2	6.2	6.2	6.2	6.4	6.4	6.4	6.4	
	(-1M	6.2	6.2	6.2	6.1	6.1	6.0	6.2	6.2	6.2	6.2	6.1	6.1	
MAX. TEMP.		14.5	7	-	-	-	-	-	13.0	11.75	-	-	-	
MIN. TEMP.		0.0	-2.25	-	-	-	-	-	4.0	5	-	-	-	
HUMIDITY %		100	92	84	81	87	63	75	38	76	79	100	76	
PRECIPITATION		Rain	-	-	-	-	-	-	-	-	-	Rain	-	
RAINFALL		.03	.01	-	-	-	-	-	0	.22	-	-	.22	
WIND 2M		-	-	3.2	4.5	-	-	-	4.2	5.3	5.9	5.1	-	
SPEED 30cm		-	-	.6	0	-	-	-	1.2	1.0	1.2	.6	-	
WIND GROUND		-	-	SE	SW	-	-	-	NE	SE	SE	SE	-	
DIRECT SKY		-	-	-	-	-	-	-	-	-	-	-	-	
LIGHT SKY		-	-	-	-	-	-	-	-	-	-	-	-	
LIGHT GROUND		-	-	-	-	-	-	-	-	-	-	-	-	
SUNSHINE		-	+	+	+	0	-	-	-	-	-	-	-	
CLOUD 1/8		8	1	2	2	8	8	8	8	8	8	8	8	
CLOUD TYPE		St	St	St	Ci	ASt	ASt	ASt	ASt	St	ASt	ASt	St	
				Ci							St	St	NbSt	

STATION (2)		26th JULY				27th JULY						28th JULY	
TIME (HRS.)		09.00	13.15	17.15	21.30	01.15	05.15	09.15	13.15	17.45	21.30	01.15	05.15
AIR	(25cm	16.3	19.0	14.7	9.7	9.2	8.6	11.4	16.3	7.8	3.4	3.4	4.9
	(10cm	16.8	20.0	14.2	9.8	9.0	8.2	12.8	16.1	7.6	3.0	3.0	4.9
	(5cm	17.7	21.6	13.9	9.6	9.2	8.2	14.2	18.3	7.8	3.0	3.4	5.6
	(1cm	19.0	20.0	13.9	9.2	9.0	8.2	14.7	20.8	7.6	3.0	3.6	5.3
	TEMP °C(GL	18.1	20.5	13.9	9.2	9.2	8.6	15.0	19.5	9.0	3.0	3.6	5.3
TEMP °C	(1M	17.7	19.5	14.2	9.2	9.0	7.8	10.8	13.9	7.8	3.0	3.6	4.3
	(2M	17.5	19.0	13.9	9.2	9.0	7.6	10.2	13.2	7.6	3.0	3.6	4.3
HUMIDITY %		5.7	49	83	88	88	100	87			100	94	100
PRECIPITATION			Rain	Rain	-	Rain	-	Mist	-	-	-	-	-
WIND GROUND		SW	-	-	-	-	-	SW	S	S	-	-	-
DIRECT SKY		-	-	-	-	NE	-	-	NW	NW	-	-	-
LIGHT SKY		14	14.5	13	2		11	15	16	12	2	0	11.5
LIGHT GROUND		12	12.5	12	0		8.5	13	14	10	0	0	8
SUNSHINE		0	-	-	-	-	-	0	+	-	-	-	-
CLOUD 1/8		6	8	8	8	8	8	6	2	0	2	7	8
CLOUD TYPE		Cu	ASt	ASt	ASt	St	St	St	StCu		St	St	St
		ACu	-	-	-	ASt		-		-	ACi	ASt	-
STATION (3)		09.15	13.30	17.30	21.45	01.30	05.30	09.30	13.45	18.00	22.00	01.30	05.30
AIR	(25cm	18.1	21.2	14.6	9.2	8.6	8.2	14.5	14.7	7.7	2.7	2.4	4.6
	(10cm	18.0	34.5	13.9	8.7	9.0	7.6	13.4	16.3	6.3	1.5	1.8	4.3
	(5cm	18.8	34.0	13.9	8.7	8.0	7.8	13.9	17.4	6.1	1.2	1.8	4.3
	(1cm	17.5	34.5	14.3	8.7	7.8	7.8	15.8	17.0	5.6	0.9	2.4	4.0
	TEMP °C(GL	17.5	34.0	14.5	8.7	8.2	8.2	16.2	18.1	6.7	1.8	3.0	4.6
TEMP °C	(1M	18.1	31.4	14.5	9.0	7.8	7.8	11.8	18.0	7.3	1.8	2.7	3.4
	(2M	18.3	31.2	14.3	9.0	8.2	7.8	11.4	18.0	7.0	1.8	2.7	3.0
HUMIDITY %		52	58	68	87	94	100	88			100		96
PRECIPITATION		-	-	Rain	-	Rain	-	-	-	-	-	-	-
WIND GROUND		-	-	-	-	-	-	S	S	-	-	-	-
DIRECT SKY		-	-	-	NE	-	-	-	NW	NW	-	-	-
LIGHT SKY		14	15	12.5	0	0	11.5	15	16	11.5	0	0	12
LIGHT GROUND		13	14	10.5	0	0	8	13.5	14	10	0	0	9.5
SUNSHINE		+	-	-	-	-	-	0	+	-	-	-	-
CLOUD 1/8		6	8	8	8	8	8	6	2	0	2	7	2
CLOUD TYPE		Cu.ACu	ASt	ASt	St	ASt	St	St	StCu	-	St	St	St
		StCu			ASt	St					Ci	ASt	
STATION (4)		10.30	14.30	18.30	22.45	02.30	06.15	10.30	15.00	19.00	02.15	06.15	
AIR	(25cm	15.6	16.1	13.2	8.6	8.6	7.6	13.9	9.6	8.2	3.0	11.0	
	(10cm	16.0	16.1	13.5	9.8	7.6	7.3	15.0	9.0	7.0	2.7	11.0	
	(5cm	16.1	16.1	12.2	9.2	7.6	7.8	14.7	10.0	7.2	2.7	12.8	
	(1cm	18.0	15.2	12.5	8.6	7.6	8.6	16.3	9.6	6.4	2.7	9.6	
	TEMP °C(GL	19.3	16.0	13.2	9.0	7.8	8.7	19.5	12.8	7.3	3.4	9.0	
TEMP °C	(1M	15.8	16.1	12.5	9.6	7.3	7.3	13.6	13.4	7.6	2.7	9.8	
	(2M	15.8	16.0	12.2	9.6	7.0	7.0	12.8	13.6	7.6	2.7	9.6	
HUMIDITY %		50	56	70	87	100	100	-	-	-	100	81	
PRECIPITATION		-	-	-	-	Dew	-	-	-	-	Mist	-	
WIND GROUND		SW	-	-	-	-	-	-	S	-	-	-	
DIRECT SKY		-	-	-	-	-	-	-	NW	NW	-	NE	
LIGHT SKY		15	14	13	0	0	0	16	13	11	0	14.5	
LIGHT GROUND		13.5	11.5	10	0	0	-	13.5	11.5	10	0	11.5	
SUNSHINE		0	-	-	-	-	-	-	0	-	-	+	
CLOUD 1/8		5	8	8	8	8	8	2	1	1	6	1	
CLOUD TYPE		ACu	StCu	ASt	ASt	ASt	St	St	StCu	Ci	St	St	
		StCu			St			Cu				Cu	

STATION (5)		26th JULY			27th JULY				28th JULY		
TIME (HRS.)		11.00	15.00	19.15	03.00	06.45	11.00	15.30	19.30	02.45	06.45
AIR	(25cm	20.8	15.5	12.2	7.6	9.0	20.	11.0	9.0	4.0	15.0
	(10cm	33.7	14.6	11.4	7.0	8.0	19.0	16.5	6.8	4.0	15.2
	(5cm	34.8	14.6	11.4	7.0	9.0	18.5	11.4	6.7	4.0	16.6
	(1cm	36.2	15.0	11.4	7.0	9.2	20.5	12.8	7.0	3.6	18.0
	TEMP °C(0cm	38.1	15.7	11.8	7.0	10.0	21.2	13.9	8.2	4.3	13.6
	(1M	18.3	14.6	12.0	7.0	8.7	20.0	13.9	8.2	4.6	13.9
	(2M	18.5	14.7	12.0	7.0	8.2	19.6	13.6	7.8	4.9	13.6
HUMIDITY %		53	55	75	100	100	-	-	-	100	76
PRECIPITATION		-	-	-	-	-	-	-	-	-	-
WIND GROUND		E	SE	-	-	NW	-	-	-	-	-
DIRECT SKY		SE	-	-	-	-	-	NW	NW	-	-
LIGHT SKY		16	14	10.5	2.5	13	16	13.5	11	4	14.5
LIGHT GROUND		14.5	11	10	0	9.5	13	11.5	10	0	11.5
SUNSHINE		+	-	-	-	-	+	+	-	-	+
CLOUD 1/8		5	8	8	8	8	2	1	1	0	0
CLOUD TYPE		ACu	ASt	ASt	St	St	St	StCu	Ci	-	-
		ASt			NiSt	Cu					
STATION (6)		11.15	15.15	19.30	03.15	07.00	11.15	15.45	19.45	03.00	07.00
AIR	(25cm	16.1	15.2	12.0	7.6	8.2	18.0	9.0	5.6	6.0	15.0
	(10cm	16.8	14.5	10.8	7.0	8.2	16.6	8.0	5.4	5.6	14.7
	(5cm	16.6	14.3	10.	6.7	8.7	15.8	8.9	5.6	5.6	15.2
	(1cm	18.8	14.5	10.2	7.0	8.7	16.8	9.1	5.6	5.6	15.2
	TEMP °C(0cm	19.1	15.2	10.5	7.3	10.2	19.5	9.8	6.1	5.3	15.5
	(1M	15.5	14.5	10.5	7.3	6.7	15.5	9.8	5.3	6.2	15.0
	(2M	15.	14.3	10.5	7.3	6.2	15.2	9.8	5.3	6.4	14.7
HUMIDITY %		52	68	94	100	100	-	-	-	100	81
PRECIPITATION		-	-	Rain	Dew	Mist	-	-	-	-	-
WIND GROUND		S	SE	-	-	-	SE	-	-	-	-
DIRECT SKY		SE	-	-	-	-	NW	NW	NW	-	-
LIGHT SKY		16	14	10.5	5.5	13.0	16	12	10.5	6	15
LIGHT GROUND		12.5	12.5	10	2.5	11	13	10	9.5	5	12
SUNSHINE		0	-	-	-	-	+	-	-	-	+
CLOUD 1/8		5	8	8	8	8	1	1	1	0	0
CLOUD TYPE		St	CiSt	ASt	St	St	St	StCu	Ci	-	-
		ACu	ASt		NiSt	Cu			St		
STATION 7		11.45	15.45	20.00	03.45	07.15	11.45	16.15	20.15	03.30	07.15
AIR	(25cm	17.5	14.5	9.6	4.9	8.2	13.6	9.6	5.3	7.0	17.4
	(10cm	16.6	13.9	9.0	6.0	8.6	13.4	8.0	5.3	6.2	18.8
	(5cm	16.1	14.1	8.6	4.6	7.6	13.6	8.4	5.6	6.4	20.0
	(1cm	16.1	14.5	8.6	4.3	7.3	13.6	8.4	5.3	5.6	18.8
	TEMP °C(0cm	18.1	14.8	9.2	6.0	8.7	17.7	9.2	6.1	6.2	19.0
	(1M	16.6	14.7	9.2	5.3	7.0	14.2	9.2	5.6	6.2	14.2
	(2M	16.1	14.5	9.6	5.3	6.4	13.9	9.0	5.3	6.4	14.5
HUMIDITY %		57	55	75	100	100	-	-	-	-	76
PRECIPITATION		-	-	-	Mist	-	-	-	-	-	-
WIND GROUND		S	SE	SE	NW	-	NW	NW	-	NW	-
DIRECT SKY		SE	-	-	-	-	NW	NW	NW	-	-
LIGHT SKY		16	14	10.5	7	14	16	13	11	8	15
LIGHT GROUND		12.5	11	10	6	11	12.5	11	9.5	6	13
SUNSHINE		+	-	-	-	-	+	0	-	-	+
CLOUD 1/8		4	8	8	8	8	1	1	1	0	1
CLOUD TYPE		St	CiSt	ASt	NiSt	St	St	StCu	Ci	-	Ci
		ACu	ASt			Cu			St		

STATION (2)		1st AUGUST				2nd AUGUST						3rd AUGUST	
TIME (HRS.)		09.00	13.30	17.15	22.00	01.00	05.45	09.30	13.30	17.30	21.45	01.00	05.30
AIR	(25cm	17.4	27.2	17.2	19.0	16.8	18.0	19.1	19.7	18.0	16.6	18.0	17.4
	(10cm	24.4	28.6	17.2	16.6	16.1	17.6	19.0	19.7	18.0	16.3	16.6	17.2
	(5cm	24.6	31.6	17.2	16.6	16.1	17.6	19.3	20.1	18.0	16.3	16.6	17.2
	(1cm	27.2	35.4	16.7	15.5	15.2	17.2	18.4	20.3	17.7	15.8	16.1	16.8
	TEMP °C	27.8	36.0	16.8	15.8	15.5	17.6	19.1	20.3	18.0	16.1	16.3	17.2
TEMP	(1M	26.6	31.6	17.2	19.0	NR	17.6	19.1	20.3	18.0	16.1	16.6	17.2
	(2M	26.4	27.8	17.2	19.0	NR	17.6	19.0	20.0	18.0	16.1	16.6	17.2
HUMIDITY %		64	57	96	36	33	34	74	33	44	46	43	41
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND		S	S	-	S	S	W	SW	SW	SE	W	SW	E
DIRECT SKY		-	-	-	-	E	SE	SE	E	-	E	SW	S
LIGHT SKY		15.5	15	12	-	-	12	14	13.5	12	-	-	11
LIGHT GROUND		14	13.5	11.5	-	-	10	12.5	12	11	-	-	10
SUNSHINE		+	+	-	-	-	-	0	-	-	-	-	-
CLOUD 1/8		0	0	0	0	2	6	8	8	8	7	7	8
CLOUD TYPE		-	-	-	-	ACu	Cl.Cu	ASt	ASt.Cu	St	Cl	Cl	St

STATION (3)		09.30	13.45	17.30	22.15	01.30	06.00	09.45	13.45	17.45	22.00	01.15	06.00
AIR	(25cm	23.6	27.2	13.7	14.2	13.6	17.4	19.3	20.3	17.2	16.3	15.5	15.2
	(10cm	23.0	31.4	13.9	14.5	13.9	17.2	19.6	20.1	16.7	15.8	15.2	15.2
	(5cm	22.0	34.2	13.9	13.6	13.6	17.0	20.0	20.5	16.8	15.8	15.2	15.2
	(1cm	24.6	27.4	13.4	12.2	12.8	16.2	20.1	20.5	16.5	15.0	14.7	14.7
	TEMP °C	25.2	25.6	14.6	12.2	12.5	16.4	20.8	20.8	16.6	15.5	15.0	14.7
TEMP	(1M	24.6	24.8	NR	NR	NR	16.4	20.5	20.6	16.6	15.5	15.0	14.7
	(2M	24.6	24.6	NR	NR	NR	16.6	19.3	20.4	16.7	15.8	15.0	14.7
HUMIDITY %		64	58	90	46	38	40	62	42	40	45	49	39
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND		S	S	-	S	S	SW	SW	W	SE	NW	S	SE
DIRECT SKY		-	-	-	-	E	SE	SE	E	-	E	SE	E
LIGHT SKY		14.5	15.5	11.5	-	-	12	13.5	12	12.5	-	-	11
LIGHT GROUND		13.5	12.5	10.5	-	-	10	13	11.5	11.5	-	-	10
SUNSHINE		-	+	-	-	-	-	0	0	-	-	-	-
CLOUD 1/8		0	0	0	0	5	5	8	8	8	7	7	8
CLOUD TYPE		-	-	-	-	ACu	Cl	ASt	ASt	St	Cu	Cu	Cu

STATION (4)		1st AUGUST				2nd AUGUST				3rd AUGUST			
TIME (HRS.)		10.30	14.30	18.15	02.30	06.45	10.45	14.30	18.45	07.00			
AIR	(25cm	25.2	26.4	11.0	15.0	15.6	19.1	15.4	14.1	14.2	-	-	-
	(10cm	26.4	28.0	13.7	14.7	14.6	19.0	15.2	13.7	13.6	-	-	-
	(5cm	26.6	28.0	13.6	14.7	14.6	19.5	15.7	13.5	13.6	-	-	-
	(1cm	36.4	24.4	13.2	13.9	13.6	18.8	15.4	10.8	13.2	-	-	-
	TEMP °C	28.6	22.8	14.3	13.6	13.4	19.0	16.2	10.6	13.4	-	-	-
TEMP	(1M	27.6	NR	NR	NR	13.4	18.9	16.2	10.5	13.4	-	-	-
	(2M	28.8	NR	NR	NR	13.6	18.9	16.2	10.2	13.4	-	-	-
HUMIDITY %		54	70	42	36	41	45	43	39	49	-	-	-
PRECIPITATION		-	-	-	-	-	-	-	-	Rain	-	-	-
WIND GROUND		-	S	NW	SE	S	-	SE	SE	SE	-	-	-
DIRECT SKY		-	-	-	E	SE	S	E	-	E	-	-	-
LIGHT SKY		15.5	14	11	-	12	14	12.5	10.5	11	-	-	-
LIGHT GROUND		14.5	12	10	-	10	13	11.5	9	10.5	-	-	-
SUNSHINE		+	+	-	-	-	0	-	-	-	-	-	-
CLOUD 1/8		0	0	0	6	6	8	8	8	8	-	-	-
CLOUD TYPE		-	-	-	St	Cl	ASt	ASt	St	St	-	-	-

STATION (5)	1st AUGUST			2nd AUGUST					3rd AUGUST	
	11.00	15.15	18.45	03.00	07.15	11.15	15.00	19.00	07.30	
(25cm	25.2	25.4	16.6	14.7	15.2	19.3	16.2	13.6	13.4	-
(10cm	25.4	29.2	16.5	14.7	15.0	19.0	15.5	13.4	12.5	-
(5cm	25.2	31.4	16.5	15.0	15.0	19.6	16.0	13.6	12.5	-
AIR (1cm	25.6	42.0	16.1	14.7	14.8	18.5	16.0	13.2	12.2	-
TEMP °C (GL	23.2	37.2	16.2	14.7	15.0	19.1	15.8	13.4	12.0	-
(1M	NR	29.6	NR	14.8	15.0	18.8	15.8	13.6	12.0	-
(2M	NR	31.6	NR	15.0	15.0	18.8	15.5	13.6	12.0	-
HUMIDITY %	54	-	39	25	36	58	40	49	58	-
PRECIPITATION	-	-	-	-	-	-	-	-	Rain	-
WIND GROUND	S	S	NW	SE	SW	SW	SE	SE	-	-
DIRECT SKY	-	-	-	E	SW	SE	E	-	E	-
LIGHT SKY	14.5	13	11	-	13.5	14	13	9.5	11	-
LIGHT GROUND	13	12.5	10.5	-	11	13.5	12	9	10	-
SUNSHINE	+	+	-	-	o	o	-	-	-	-
CLOUD 1/8	0	0	0	5	6	8	-	8	8	-
CLOUD TYPE	-	-	-	St	St Ci	ASt	CiSt. Cu ASt	St	St	-
STATION (6)	11.15	15.30	19.00	03.30	07.30	11.30	15.30	19.30	07.45	
(25cm	30	21.6	15.2	14.5	15.0	17.4	15.0	13.6	12	-
(10cm	27.6	19.2	15.1	14.2	15.0	16.8	15.0	13.6	11.4	-
(5cm	31.6	20.0	15.1	14.2	15.0	16.8	14.7	14.1	11.8	-
AIR (1cm	35.4	19.8	14.6	13.9	14.8	16.6	14.6	13.7	10.8	-
TEMP °C (GL	23.6	21.4	14.7	13.6	15.0	16.1	15.0	14.5	10.5	-
(1M	NR	20.0	NR	13.9	15.0	16.3	15.0	14.3	10.5	-
(2M	NR	19.2	NR	13.9	15.0	16.2	15.0	13.9	10.5	-
HUMIDITY %	64	-	45	38	42	54	65	47	61	-
PRECIPITATION	-	-	-	-	-	-	-	-	Rain	-
WIND GROUND	S	NW	NW	SW	S	-	SE	NE	SE	-
DIRECT SKY	-	-	-	E	SE	-	E	E	E	-
LIGHT SKY	14.5	14.5	11	-	13	14	12	9	11.5	-
LIGHT GROUND	12.5	13	10	-	11	12.5	11	7.5	10	-
SUNSHINE	+	+	-	-	o	-	-	-	-	-
CLOUD 1/8	0	0	0	5	6	8	8	8	8	-
CLOUD TYPE	-	-	-	St	St Ci	ASt Cu	ASt CiSt Cu	St Cu	St	-
STATION 7	11.45	16.00	19.30	04.00	08.00	11.45	15.45	20.00	08.15	
(25cm	19.4	12.6	9.8	12.0	13.4	18.3	12.3	10.9	20.3	-
(10cm	19.6	12.4	9.8	12.0	13.6	18.5	12.1	11.2	20.0	-
(5cm	21	13.0	9.7	12.0	13.6	17.4	12.2	10.8	20.0	-
AIR (1cm	20.8	12.0	8.9	10.8	13.2	16.6	11.6	10.2	19.8	-
TEMP °C (GL	14.6	11.2	8.6	10.5	12.2	16.3	10.0	10.3	19.3	-
(1M	NR	NR	NR	10.5	12.6	15.8	9.8	10.2	19.3	-
(2M	NR	NR	NR	10.8	12.8	15.7	9.8	10.2	19.3	-
HUMIDITY %	66	-	54	35	40	58	48	60	69	-
PRECIPITATION	-	-	-	-	-	-	-	-	Rain	-
WIND GROUND	S	NW	-	S	SE	SE	SE	E	SE	-
DIRECT SKY	-	-	-	E	SE	SE	SE	NE	SE	-
LIGHT SKY	15.5	12	10	-	14	13.5	12	8	12	-
LIGHT GROUND	13	11	9.5	-	13	12.5	11.5	7.5	11	-
SUNSHINE	+	-	-	-	o	-	-	-	-	-
CLOUD 1/8	0	0	0	7	6	8	8	8	8	-
CLOUD TYPE	-	-	-	St Ci	St Cu.Ci	ASt Cu	ASt CiSt	St StCu	St Cu	-

STATION (2)	7th AUGUST				8th AUGUST						9th AUGUST	
	09.45	13.15	17.15	21.15	01.15	05.30	09.15	13.30	17.15	21.30	02.00	08.00
(25cm	11.0	11.2	7.3	6.7	7.1	7.3	14.7	14.5	11.9	6.0	4.9	5.3
(10cm	11.4	11.2	6.9	6.4	7.6	7.6	15.5	16.6	12.2	5.3	4.6	4.9
(5cm	12.8	11.9	7.0	6.4	7.3	7.8	16.3	16.3	12.8	4.9	4.6	5.3
AIR (1cm	13.6	12.9	6.9	6.4	6.9	7.6	16.1	17.7	13.4	4.6	4.6	4.6
TEMP °C (GL	12.8	12.3	7.0	6.5	7.0	7.5	18.3	18.0	12.5	4.2	4.2	4.2
(1M	10.6	11.0	7.0	6.7	7.0	7.5	15.8	12.0	10.5	4.3	3.8	4.2
(2M	9.0	10.8	6.4	6.7	6.7	7.5	15.8	12.2	10.2	4.3	3.6	4.3
HUMIDITY %	94	87	87	67	87	74	77	81	75	84	100	85
PRECIPITATION	Mist	-	-	-	-	-	-	-	-	-	Dew	Dew
WIND GROUND	SW	SW	SW	-	-	-	SW	SW	SW	-	NE	-
DIRECT SKY	-	-	-	-	-	SW	-	-	-	-	-	-
LIGHT SKY	14.5	14	12	-	-	12	16	14	13	-	-	11.5
LIGHT GROUND	13	12	11	-	-	10	13	12	12	-	-	10
SUNSHINE	-	-	-	-	-	-	0	0	-	-	-	-
CLOUD 1/8	8	8	2	8	8	6	5	7	7	1	0	0
CLOUD TYPE	St	St	St	St	St	St	St.Ci	St	ACu	St	-	-
						ACu	Cu	ACu	St	ACu		

STATION (3)	09.30	13.30	17.30	21.30	01.30	05.45	09.30	13.45	17.30	21.30	06.15	
(25cm	14.2	13.4	6.7	6.4	6.4	9.0	16.3	16.6	10.5	9.0	7.3	-
(10cm	14.2	13.7	6.4	6.2	6.4	7.8	17.3	16.4	10.6	9.0	6.2	-
(5cm	15.2	14.2	6.3	6.2	6.1	8.0	18.5	16.6	10.8	5.8	6.2	-
AIR (1cm	15.9	13.1	6.0	6.0	6.0	7.6	18.9	16.2	11.4	4.9	4.6	-
TEMP °C (GL	14.5	14.7	6.3	6.2	6.1	7.8	17.7	16.5	10.8	4.7	4.6	-
(1M	14.2	10.8	6.7	6.2	6.1	7.7	15.8	12.2	10.5	4.7	4.6	-
(2M	14.2	10.8	6.5	6.0	6.1	7.6	15.2	12.5	10.3	4.7	4.6	-
HUMIDITY %	87	100	100	100	92	87	88	76	81	84	93	-
PRECIPITATION	Mist	-	-	-	-	-	-	-	-	-	Dew	-
WIND GROUND	SW	SW	SW	-	-	-	-	SW	-	-	-	-
DIRECT SKY	-	-	-	-	-	SW	-	-	-	-	-	-
LIGHT SKY	15.5	15	12	-	-	12.5	15	15	13	-	12	-
LIGHT GROUND	13	12	11	-	-	10.5	12.5	12.5	11	-	10	-
SUNSHINE	0	-	-	-	-	-	0	-	-	-	-	-
CLOUD 1/8	8	8	2	8	8	7	6	7	7	1	0	-
CLOUD TYPE	St	St	St	St	St	St	Cu.St	St	ACu	St	-	-
			Cu			ACu	NiSt	ACu	St.Cu			

STATION (4)	7th AUGUST			8th AUGUST					9th AUGUST			
	10.30	14.00	18.00	02.30	06.30	10.30	14.30	18.15	07.30			
(25cm	14.7	11.0	5.3	6.3	13.6	13.4	10.8	9.3	18.0	-	-	-
(10cm	15.0	10.2	5.6	5.5	11.8	12.8	12.0	9.2	17.7	-	-	-
(5cm	13.9	10.3	5.3	4.6	12.0	13.7	13.2	9.2	18.4	-	-	-
AIR (1cm	13.9	10.2	5.6	3.5	11.9	14.2	13.6	9.2	18.0	-	-	-
TEMP °C (GL	16.1	12.1	6.2	4.7	10.5	16.1	15.0	9.2	16.1	-	-	-
(1M	14.5	10.8	5.3	4.7	10.5	12.2	10.2	8.2	15.2	-	-	-
(2M	14.2	10.8	5.3	4.6	10.5	12.0	10.5	8.1	15.0	-	-	-
HUMIDITY %	87	85	100	100	81	-	87	80	94	-	-	-
PRECIPITATION	-	-	-	Dew	-	-	-	-	-	-	-	-
WIND GROUND	SE	-	-	-	-	-	SW	-	-	-	-	-
DIRECT SKY	-	-	-	-	SW	-	-	-	-	-	-	-
LIGHT SKY	16	14.5	11.5	-	14.5	15	14	12	16	-	-	-
LIGHT GROUND	12	12	10	-	13.5	12	12.5	10	14	-	-	-
SUNSHINE	+	0	-	-	+	-	-	-	+	-	-	-
CLOUD 1/8	0	4	8	1	4	7	7	6	1	-	-	-
CLOUD TYPE	-	St	St	St	St	Cu	St	ACu	Ci	-	-	-
					ACu	St	Cu	St.Cu	CuSt			

STATION (5) TIME (HRS.)	7th AUGUST			8th AUGUST					9th AUGUST			
	11.00	14.30	18.30	03.00	07.00	11.15	15.00	18.45	08.15			
(25cm	17.4	12.0	6.2	5.3	13.9	13.6	11.8	9.2	16.8	-	-	-
(10cm	18.0	12.2	6.2	4.3	16.1	13.9	11.4	9.1	21.0	-	-	-
(5cm	18.0	11.8	6.2	4.3	16.8	15.2	12.2	9.2	20.8	-	-	-
AIR (1cm	17.7	11.4	5.9	3.4	17.7	18.3	15.2	9.3	21.0	-	-	-
TEMP °C (GL	18.5	14.1	6.7	4.3	17.2	17.7	15.8	9.0	18.5	-	-	-
(1M	17.2	8.5	6.2	4.5	17.3	13.4	10.8	8.2	18.4	-	-	-
(2M	17.2	8.1	5.9	4.6	17.2	13.2	10.5	8.2	18.1	-	-	-
HUMIDITY %	71	85	100	100	94	-	69	86	81	-	-	-
PRECIPITATION	-	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND	-	SW	SW	SE	-	-	SW	-	-	-	-	-
DIRECT SKY	-	-	-	-	SW	-	-	NW	-	-	-	-
LIGHT SKY	16	14.5	11	-	15.5	15	14	12	16	-	-	-
LIGHT GROUND	12	13	10	-	12.5	12.5	11	10	14	-	-	-
SUNSHINE	+	0	-	-	+	-	-	-	+	-	-	-
CLOUD 1/8	0	6	8	1	6	6	7	5	1	-	-	-
CLOUD TYPE	-	St	St	St	St ACu	Cu.St ASt	St Cu	ACu CuSt	Cu	-	-	-
STATION (6)	11.15	14.45	18.45	03.15	07.15	11.30	15.15	19.00	08.45			
(25cm	16.8	11.6	5.6	5.3	15.7	17.7	11.4	8.0	20.1	-	-	-
(10cm	16.8	11.9	5.9	5.3	17.7	16.8	11.0	8.2	21.3	-	-	-
(5cm	15.5	12.2	5.5	5.0	18.0	16.6	11.8	8.5	24.0	-	-	-
AIR (1cm	17.7	14.1	5.0	5.3	18.4	16.6	12.2	8.6	24.1	-	-	-
TEMP °C (GL	23.0	15.0	5.8	5.0	20.8	18.5	13.2	8.5	25.7	-	-	-
(1M	15.5	10.9	5.6	4.9	19.3	16.1	8.2	6.9	24.8	-	-	-
(2M	15.2	10.2	5.0	4.9	19.0	16.1	8.2	6.8	24.3	-	-	-
HUMIDITY %	67	80	100	85	70	-	87	87	78	-	-	-
PRECIPITATION	-	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND	SE	SW	SW	N	-	-	SW	SW	-	-	-	-
DIRECT SKY	-	-	-	-	W	W	-	NE	-	-	-	-
LIGHT SKY	16	14.5	11	5.5	15.5	16	13.5	11.5	16	-	-	-
LIGHT GROUND	12.5	12.5	9.5	4.5	12.5	13	12	10	14	-	-	-
SUNSHINE	+	0	-	-	+	0	-	-	+	-	-	-
CLOUD 1/8	0	7	8	1	5	6	8	7	1	-	-	-
CLOUD TYPE	-	St	St	St	St ACu	Cu.St ASt	St.Cu	St.Ci ACu Cu	Ci	-	-	-
STATION (7)	11.45	15.00	19.15	03.45	07.30	12.00	15.45	19.15	09.30			
(25cm	12.8	10.8	4.0	2.1	11.4	15.5	12.5	7.5	16.6	-	-	-
(10cm	12.5	9.2	4.0	2.6	15.5	13.4	12.0	7.0	16.1	-	-	-
(5cm	12.5	9.1	3.8	2.6	15.5	14.5	12.5	7.4	18.5	-	-	-
AIR (1cm	12.8	10.9	3.4	1.9	14.2	15.2	13.6	7.8	20.0	-	-	-
TEMP °C (GL	16.1	13.7	4.5	2.9	15.2	16.8	13.9	7.8	19.3	-	-	-
(1M	13.4	9.0	4.0	2.7	14.7	13.6	11.4	6.2	18.8	-	-	-
(2M	13.4	8.7	4.0	2.6	14.7	13.2	11.0	5.6	18.8	-	-	-
HUMIDITY %	66	85	100	100	100	-	87	92	89	-	-	-
PRECIPITATION	-	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND	-	SW	-	NW	S	-	SW	NW	-	-	-	-
DIRECT SKY	-	-	-	-	SW	-	-	NE	-	-	-	-
LIGHT SKY	15	13	10.5	6	14	15	13.5	11	14.5	-	-	-
LIGHT GROUND	13	12	10	5.5	13	13.5	12.5	10	14	-	-	-
SUNSHINE	+	-	-	-	0	-	-	-	0	-	-	-
CLOUD 1/8	0	4	4	2	6	5	7	6	1	-	-	-
CLOUD TYPE	-	St	St	NiSt	St Cu	ASt Cu	St Cu	St.Cu ACu	Ci	-	-	-

STATION (2)	13th AUGUST				14th AUGUST						15th AUGUST	
	09.30	13.45	17.30	21.15	01.30	05.30	09.45	13.30	17.30	21.45	01.30	06.15
(25cm	9.6	13.4	9.2	4.5	3.4	3.0	10.2	14.7	4.9	0.9	1.2	-
(10cm	12.8	14.2	9.2	4.5	2.7	3.4	12.9	16.8	5.6	1.0	1.5	2.4
(5cm	14.2	14.7	9.6	4.7	2.7	3.6	13.4	17.4	5.6	1.8	2.6	2.7
AIR (1cm	15.2	14.7	9.6	4.7	2.6	4.6	12.7	18.3	5.6	1.3	2.4	-
TEMP °C (GL	15.0	14.2	9.8	4.6	2.6	4.5	13.4	18.3	5.3	0.9	2.4	3.0
(1M	11.0	10.5	8.0	4.6	2.4	3.9	9.7	7.8	5.3	0.9	2.3	2.6
(2M	11.0	10.5	8.0	-	2.3	2.9	9.0	8.2	4.9	0.8	2.1	2.1
HUMIDITY %	81	74	87	85	100	100	86	88	93	93	93	100
PRECIPITATION	-	-	-	-	-	Dew	-	-	-	-	Dew	Frost
WIND GROUND	S	S	S	-	S	S	S	S	S	S	S	-
DIRECT SKY	NW	W	SW	-	-	-	SW	SW	-	-	-	-
LIGHT SKY	15	14	12.5	-	-	10.5	15	14.5	11.5	-	-	10.5
LIGHT GROUND	14	13	11.5	-	-	9	13.5	13	9.5	-	-	10
SUNSHINE	+	o	-	-	-	-	o	+	-	-	-	-
CLOUD 1/8	2	7	8	3	3	8	8	2	0	0	0	8
CLOUD TYPE	Cu	ACu	St	Cu	St	St	St	St	-	-	-	St
	St.Ci		ASt	St.Ci	Cu							
STATION (3)	10.00	14.00	17.45	21.30	01.45	05.45	10.00	14.00	17.45	22.00	01.45	06.30
(25cm	14.5	11.4	7.6	3.9	2.1	3.4	10.6	11.4	3.6	0.9	-	-
(10cm	15.8	12.5	8.0	2.9	1.8	4.5	10.2	12.5	3.6	1.0	2.6	2.3
(5cm	17.2	13.4	8.6	2.6	1.8	5.6	9.6	13.6	4.0	0.9	3.0	2.9
AIR (1cm	20.3	13.4	8.0	1.8	1.5	6.2	9.8	16.6	3.6	-2.2	2.3	-
TEMP °C (GL	18.0	13.4	9.0	1.7	1.5	6.0	9.6	17.2	3.6	-1.1	1.8	2.7
(1M	12.8	12.0	8.4	1.7	1.5	6.0	8.6	11.0	3.6	0.0	1.7	2.6
(2M	11.8	10.8	8.0	-	1.3	5.8	8.2	10.8	4.0	-	1.7	2.3
HUMIDITY %	87	74	94	100	85	93	100	94	93	93	93	100
PRECIPITATION	-	-	-	-	-	Dew	-	-	Dew	Frost	Frost	Frost
WIND GROUND	S	S	S	-	-	SE	S	S	-	S	SE	SE
DIRECT SKY	NW	SW	SW	-	-	-	-	SW	-	-	-	-
LIGHT SKY	15	14	12.5	-	-	10.5	15	15	11.5	-	-	11
LIGHT GROUND	14	12	11	-	-	9.5	13	13	10	-	-	10
SUNSHINE	+	-	-	-	-	-	o	+	-	-	-	-
CLOUD 1/8	2	6	8	4	3	8	8	1	0	0	0	8
CLOUD TYPE	Cl.Cu	ACu	St	Cu	St	St	St	St	-	-	-	St
	St		ASt	Cl.St	Cu							
STATION (4)	10.30	14.45	18.15	02.45	06.30	10.45	14.45	18.15	03.00			
(25cm	15.0	11.8	8.2	2.9	5.2	13.9	10.8	5.3	3.6	-	-	-
(10cm	16.6	13.2	8.5	2.7	4.9	14.1	10.5	5.3	2.4	-	-	-
(5cm	18.0	14.2	8.7	2.9	4.3	13.6	10.5	4.9	2.6	-	-	-
AIR (1cm	19.3	13.9	9.0	3.4	4.0	14.2	9.6	4.6	-	-	-	-
TEMP °C (GL	16.6	14.2	9.0	3.4	4.0	15.2	11.4	4.6	1.8	-	-	-
(1M	12.8	12.0	7.0	3.0	3.2	11.0	7.6	4.9	1.8	-	-	-
(2M	12.2	11.4	7.0	2.9	3.0	10.9	7.0	4.7	1.5	-	-	-
HUMIDITY %	78	81	85	77	100	92	87	84	92	-	-	-
PRECIPITATION	-	-	-	Dew	Dew	-	-	-	Frost	-	-	-
WIND GROUND	S	S	SE	-	-	SE	S	-	-	-	-	-
DIRECT SKY	W	SW	SW	-	SE	SW	SW	-	-	-	-	-
LIGHT SKY	15.5	14	12.5	-	12.5	16	14.5	11.5	-	-	-	-
LIGHT GROUND	14.5	12.5	11.5	-	12	12.5	11.5	9	-	-	-	-
SUNSHINE	o	o	-	-	o	+	+	-	-	-	-	-
CLOUD 1/8	5	6	7	8	2	1	0	0	0	-	-	-
CLOUD TYPE	Cl	ACu	St	St	St	St	-	-	-	-	-	-
	St		ASt		Cu							

STATION (5)	13th AUGUST			14th AUGUST					15th AUGUST			
	11.00	15.00	18.30	03.15	07.15	11.15	15.15	18.30	03.15			
TIME (HRS.)												
(25cm	12.8	12.5	7.6	2.6	10.6	16.1	14.5	6.0	NR	-	-	-
(10cm	14.5	12.8	7.3	2.0	11.9	15.7	10.8	5.8	2.7	-	-	-
(5cm	16.8	13.4	7.6	2.1	13.6	15.0	10.8	6.0	3.0	-	-	-
AIR (1cm	18.0	13.2	7.8	2.1	14.1	15.0	10.5	5.6	NR	-	-	-
TEMP °C (GL	17.7	12.8	7.8	2.0	10.6	15.8	10.2	5.8	2.7	-	-	-
(1M	11.4	11.4	7.3	2.0	9.8	14.2	7.6	5.6	2.4	-	-	-
(2M	11.0	10.2	7.3	1.7	9.2	12.5	7.0	5.2	2.1	-	-	-
HUMIDITY %	87	94	93	100	80	74	67	84	92	-	-	-
PRECIPITATION	-	-	-	Dew	-	-	-	-	Frost	-	-	-
WIND GROUND	SE	S	W	-	-	SE	S	SE	-	-	-	-
DIRECT SKY	W	SW	SW	-	E	SW	SW	-	-	-	-	-
LIGHT SKY	15	14	11.5	-	14	16	15	11.5	-	-	-	-
LIGHT GROUND	13	12.5	10	-	12	12.5	12	9.5	-	-	-	-
SUNSHINE	0	0	-	-	+	+	+	-	-	-	-	-
CLOUD 1/8	8	7	7	8	1	1	0	0	0	-	-	-
CLOUD TYPE	ASt	ACu	St ASt	St	St	St	-	-	-	-	-	-
STATION (6)	11.15	15.15	18.45	03.30	07.30	11.45	15.30	18.45	03.30			
(25cm	13.6	9.0	4.6	2.4	10.8	15.0	10.5	NR	NR	-	-	-
(10cm	13.6	9.8	5.6	2.0	10.9	12.5	10.5	4.2	1.5	-	-	-
(5cm	15.5	9.8	6.2	2.6	11.2	12.8	11.4	4.2	1.5	-	-	-
AIR (1cm	14.5	10.5	6.0	3.2	10.3	12.3	11.0	4.3	NR	-	-	-
TEMP °C (GL	15.8	10.5	6.7	2.1	10.2	13.3	11.8	4.6	0.9	-	-	-
(1M	11.4	8.5	5.6	2.0	9.1	11.8	6.4	4.3	0.6	-	-	-
HUMIDITY %	94	85	93	83	94	81	87	92	84	-	-	-
PRECIPITATION	-	-	-	Dew	-	-	-	-	Frost	-	-	-
WIND GROUND	SE	S	SE	-	-	SE	S	SE	-	-	-	-
DIRECT SKY	SW	SW	SW	-	-	-	SW	-	-	-	-	-
LIGHT SKY	15.5	14	11.5	-	14.5	16	14.5	11	-	-	-	-
LIGHT GROUND	13	12.5	10.5	-	12	13	12	10	-	-	-	-
SUNSHINE	0	0	-	-	+	+	+	-	-	-	-	-
CLOUD 1/8	8	7	7	8	1	0	0	0	0	-	-	-
CLOUD TYPE	ASt St	ACu -	St ASt	St -	St Cu	-	-	-	-	-	-	-
STATION (7)	11.45	15.45	19.00	03.45	08.00	12.00	16.00	19.15	04.00			
(25cm	10.5	7.8	4.0	0.6	7.8	12.8	6.2	NR	NR	-	-	-
(10cm	11.8	8.2	4.9	0.3	8.2	14.1	6.4	3.4	-2.0	-	-	-
(5cm	12.8	8.2	5.3	0.6	6.2	14.6	7.0	2.7	-2.5	-	-	-
AIR (1cm	12.8	8.2	5.3	0.2	4.9	15.2	7.0	2.4	NR	-	-	-
TEMP °C (GL	11.8	8.7	4.9	-0.1	4.0	14.7	7.6	2.0	-1.8	-	-	-
(1M	10.2	8.2	4.3	-0.1	4.0	14.2	7.3	1.8	-1.5	-	-	-
(2M	9.1	7.8	4.0	-0.4	3.9	13.9	6.7	1.5	-1.5	-	-	-
HUMIDITY %	86	63	76	91	82	75	93	96	100	-	-	-
PRECIPITATION	-	-	-	Dew	-	-	-	-	Frost	-	-	-
WIND GROUND	W	S	W	-	N	SE	S	W	-	-	-	-
DIRECT SKY	W	SW	SW	-	-	-	SW	-	-	-	-	-
LIGHT SKY	15	14	10.5	-	14.5	16	12	10.5	6.5	-	-	-
LIGHT GROUND	13.5	12	10	-	12	13	11.5	9.5	6	-	-	-
SUNSHINE	0	-	-	-	+	+	-	-	-	-	-	-
CLOUD 1/8	8	8	6	8	1	0	0	0	0	-	-	-
CLOUD TYPE	ASt	St Cu	St Cu ASt	St	St	-	-	-	-	-	-	-

STATION (2)		19th AUGUST				20th AUGUST						21st AUGUST	
TIME (HRS.)		09.00	13.15	17.15	21.15	02.00	05.15	09.30	13.30	17.15	21.00	01.15	
AIR TEMP °C	(10cm	11.0	15.8	7.6	4.9	4.9	5.3	6.4	8.2	7.6	6.4	5.3	-
	(5cm	11.0	14.7	7.6	4.6	5.1	5.6	6.6	8.8	8.0	7.0	6.3	-
	GL	10.0	12.0	7.3	4.3	4.9	5.3	6.3	8.5	7.3	6.4	5.3	-
	1M	9.8	11.4	7.3	4.6	5.3	5.3	6.2	7.6	7.3	6.4	4.9	-
	(2M	9.6	10.2	7.2	4.6	5.6	4.9	6.1	7.6	7.2	6.2	4.6	-
HUMIDITY %		71	63	85	69	100	100	100	100	100	94	100	-
PRECIPITATION		-	-	-	-	Rain	Rain	Rain	Rain	Rain	-	Rain	-
WIND GROUND		S	SW	-	-	-	-	-	-	S	-	-	-
DIRECT SKY		NE	-	-	-	-	-	-	-	-	-	-	-
LIGHT SKY		15	16	12	-	-	7.5	11	12	11	-	-	-
LIGHT GROUND		14.5	14	10	-	-	4.5	10.5	10	10.5	-	-	-
SUNSHINE		0	+	-	-	-	-	-	-	-	-	-	-
CLOUD 1/8		5	6	8	8	8	8	8	8	8	7	8	-
CLOUD TYPE		ASt	ACu	St	St	NiSt	NiSt	NiSt	St	NiSt	St	St	-
		St	Ci.Cu	ASt	ASt								

STATION (3)		09.15	13.30	17.15	21.30	02.15	05.30	09.45	13.45	17.30	21.15	01.30	
AIR TEMP °C	(10cm	11.9	21.0	7.6	4.6	4.6	NR	6.4	8.5	6.4	5.6	4.3	-
	(5cm	12.9	11.0	7.6	4.7	4.6	NR	6.2	9.0	6.4	6.2	4.5	-
	GL	11.8	11.6	6.8	4.0	4.0	NR	6.0	8.5	6.1	5.4	1.3	-
	1M	11.4	11.0	6.8	4.5	4.3	NR	6.0	8.7	6.0	5.6	4.3	-
	(2M	11.2	11.0	6.8	4.3	4.0	NR	5.4	8.7	5.6	5.4	4.2	-
HUMIDITY %		78	66	93	77	100	100	100	100	100	94	100	-
PRECIPITATION		-	-	-	-	Rain	Rain	Rain	Rain	Rain	-	Rain	-
WIND GROUND		S	SW	-	-	-	-	-	-	-	-	-	-
DIRECT SKY		NE	W	-	-	-	-	-	-	-	-	-	-
LIGHT SKY		15.5	15	12	-	-	8	11	11.5	10	-	-	-
LIGHT GROUND		14.5	13	10	-	-	7	10	11	9.5	-	-	-
SUNSHINE		0	0	-	-	-	-	-	-	-	-	-	-
CLOUD 1/8		4	6	8	8	8	8	8	8	8	7	8	-
CLOUD TYPE		Ci.St	Gi.ASt	St	St	NiSt	NiSt	NiSt	NiSt	NiSt	St	St	-
		ASt	ACu	ASt	ASt								

STATIONS 4-7 READINGS SATURDAY, 19th AUGUST

TIME (HRS.)	STATION 4			STATION 5			STATION 6			STATION 7		
	10.00	14.15	17.45	10.30	14.30	18.00	10.45	14.45	18.15	11.00	15.00	18.30
(10cm	10.8	9.0	6.7	10.3	9.2	6.7	10.5	6.7	6.3	8.8	7.8	6.0
AIR (5cm	11.4	9.5	6.4	10.8	8.7	6.7	12.0	7.6	6.7	10.0	7.8	5.3
TEMP °C (GL	11.6	9.8	6.7	11.8	10.1	6.6	11.8	7.8	6.2	10.0	6.4	4.9
(1M	10.3	9.2	6.7	12.0	10.0	6.2	12.2	7.8	5.3	9.8	6.2	4.6
(2M	9.2	8.8	6.4	11.0	9.8	6.1	12.0	7.6	4.9	9.5	6.2	4.6
HUMIDITY %	78	66	93	78	62	92	77	78	100	82	76	83
PRECIPITATION	-	-	-	-	-	-	-	-	Snow	-	-	-
WIND GROUND	S	SE	-	SW	-	-	SE	SE	-	SE	-	-
DIRECT SKY	NE	W	-	NE	W	-	NE	W	-	N	-	-
LIGHT SKY	15.5	15	11.5	15.5	14.5	11.5	14	14	11.5	15.5	14	11.5
LIGHT GROUND	13.5	13.5	10	12.5	13	10	12	13	10	13	12	10
SUNSHINE	+	o	-	+	o	-	o	o	-	+	-	-
CLOUD 1/8	4	6	8	4	5	8	3	7	8	3	8	8
CLOUD TYPE	ASt	ASt.	St	St	St.Ci	St	ASt	NiSt	St	ASt	NiSt	St
	St	Ci		ASt	ASt		St	St.Ci			St	ASt
		ACuCu						ASt.			ASt	
								CiSt				

STATION (2)		25th AUGUST				26th AUGUST							
TIME (HRS.)		09.15	13.00	17.15	21.30	01.15	05.15	07.00	09.30	11.30	13.30	15.30	17.15
AIR TEMP °C	(10cm	10.8	10.5	7.0	4.3	1.7	1.2	6.4	12.0	15.5	12.2	9.0	9.0
	(5cm	12.5	10.8	7.0	4.6	1.5	1.2	6.3	12.2	16.1	12.5	9.2	8.5
	GL	12.2	9.8	6.3	4.9	-	-0.1	4.6	11.4	13.4	10.8	8.4	7.7
	1M	11.8	10.2	6.2	4.0	1.8	1.2	5.6	9.6	12.5	10.5	8.2	7.6
	2M	11.8	9.6	6.0	4.0	2.0	1.3	5.4	9.6	12.2	10.3	8.0	7.3
HUMIDITY %		85	87	85	93	100	92	85	78	85	48	68	73
PRECIPITATION		-	-	-	-	Frost	Frost	-	-	-	-	-	-
WIND GROUND		S	SW	S	SW	-	-	-	SW	S	NW	S	SW
DIRECT SKY		N	-	-	-	NW	W	W	-	SE	-	W	-
LIGHT SKY		-	-	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND		-	-	-	-	-	-	-	-	-	-	-	-
SUNSHINE		o	+	-	-	-	-	+	o	+	o	-	-
CLOUD 1/8		5	7	8	8	3	4	2	3	5	8	8	8
CLOUD TYPE		St.ASt	Cu	St	St	St	Ci	Ci.St	St	St	Cu	St	St
		Cu.Ci	St	Cu	Cu		St	ASt	Ci.Cu	Ci	ASt		

STATION (2)		26th AUGUST			27th AUGUST							
TIME (HRS.)		19.15	21.50	23.15	01.15	03.15	05.15	07.15				
AIR TEMP °C	(10cm	6.7	6.4	6.2	7.3	6.7	7.0	8.0	-	-	-	-
	(5cm	6.7	6.7	6.8	7.3	6.7	7.0	8.2	-	-	-	-
	GL	6.2	5.8	5.3	6.4	5.4	6.0	7.2	-	-	-	-
	1M	6.0	5.6	6.2	7.0	6.7	7.0	7.8	-	-	-	-
	2M	5.6	5.4	6.4	7.0	7.0	7.0	7.7	-	-	-	-
HUMIDITY %		58	58	58	53	46	42	47	-	-	-	-
PRECIPITATION		-	-	-	-	-	-	-	-	-	-	-
WIND GROUND		NE	-	NE	N	S	NW	S	-	-	-	-
DIRECT SKY		-	-	NE	SE	SE	SE	SE	-	-	-	-
LIGHT SKY		-	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND		-	-	-	-	-	-	-	-	-	-	-
SUNSHINE		-	-	-	-	-	-	o	-	-	-	-
CLOUD 1/8		8	8	8	8	7	6	7	-	-	-	-
CLOUD TYPE		St	St	St	St	St	St.Cu	St.Cu	-	-	-	-
		NbSt		NbSt	AST	Cu	CiSt	CiSt				
							ACu	ACu				

STATION (3)		25th AUGUST				26th AUGUST							
TIME (HRS.)		09.30	13.30	17.30	21.45	01.45	05.30	06.45	09.45	11.45	13.45	15.45	17.30
AIR TEMP °C	(10cm	11.0	8.7	5.6	2.7	1.5	0.6	1.2	13.2	16.1	11.0	8.6	6.7
	(5cm	11.4	9.2	6.0	2.7	1.0	0.6	1.0	13.9	16.1	12.2	8.6	7.3
	GL	11.2	9.5	5.6	1.5	-0.1	-0.1	-0.1	13.6	15.1	11.2	7.6	5.8
	1M	10.8	9.0	5.3	2.7	1.5	0.9	1.2	12.8	15.2	11.0	7.6	5.6
	2M	10.8	8.7	4.9	2.7	1.5	1.0	1.2	12.5	14.7	11.0	7.4	5.6
HUMIDITY %		93	78	85	93	100	100	97	92	87	56	73	79
PRECIPITATION		-	-	-	-	Frost	Frost	Frost	-	-	-	-	-
WIND GROUND		SE	-	S	-	-	-	-	SW	S	SW	W	NE
DIRECT SKY		N	-	-	-	NW	W	W	-	SE	-	S	-
LIGHT SKY		-	-	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND		-	-	-	-	-	-	-	-	-	-	-	-
SUNSHINE		-	o	-	-	-	-	-	+	+	o	-	-
CLOUD 1/8		6	7	8	6	3	5	3	2	4	8	8	8
CLOUD TYPE		St.Cu	Cu	St	St.Cu	St	Ci	Ci	Ci.St	Ci.St	Cu	St	St
		ASt.	St	Cu	ACu		St	ASt	Cu	CiSt	ASt		
		Ci											

METEOROLOGICAL DATA

WEEK 6 (cont'd)

25th - 27th AUGUST

STATION (3)	26th AUGUST			27th AUGUST											
	19.30	22.15	23.30	01.30	03.30	05.30	07.30								
(10cm	6.2	5.8	5.3	6.2	6.2	6.6	8.5	-	-	-	-	-	-	-	-
AIR (5cm	6.3	5.6	5.3	6.2	6.2	6.4	9.0	-	-	-	-	-	-	-	-
TEMP °C (GL	5.3	4.6	4.0	4.6	4.9	4.7	7.6	-	-	-	-	-	-	-	-
(1M	5.1	5.1	5.4	6.4	6.2	6.4	8.6	-	-	-	-	-	-	-	-
(2M	5.1	4.7	5.8	6.4	6.2	6.4	8.5	-	-	-	-	-	-	-	-
HUMIDITY %	65	58	63	46	49	49	58	-	-	-	-	-	-	-	-
PRECIPITATION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
WIND GROUND	SE	-	SE	S	NW	W	S	-	-	-	-	-	-	-	-
DIRECT SKY	-	-	-	SE	SE	SE	SE	-	-	-	-	-	-	-	-
LIGHT SKY	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SUNSHINE	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-
CLOUD 1/8	8	8	8	8	6	6	7	-	-	-	-	-	-	-	-
CLOUD TYPE	St NbSt	St	St NbSt	St ASt	St Cu	St.Cu CiSt ACu	St.Cu CiSt ACu	-	-	-	-	-	-	-	-

STATIONS 4-7 READINGS FRIDAY, 25th AUGUST

STATION	STATION 4			STATION 5			STATION 6			STATION 7		
	10.30	14.15	18.00	10.45	14.45	18.30	11.00	15.00	18.45	11.30	15.30	
(10cm	11.2	6.2	3.6	10.5	5.8	2.4	10.5	4.3	1.5	9.2	0.9	-
AIR (5cm	11.8	7.0	4.0	11.2	6.0	2.4	11.0	4.6	1.7	9.8	0.9	-
TEMP °C (GL	11.0	6.6	3.6	11.2	5.3	2.1	11.0	5.1	1.3	8.6	0.2	-
(1M	10.9	5.6	3.4	10.9	4.9	1.8	10.3	4.3	1.0	8.5	-0.1	-
(2M	10.8	5.3	2.7	10.8	4.6	1.3	10.3	4.0	0.9	8.4	-0.1	-
HUMIDITY %	93	100	88	100	100	100	100	100	100	91	100	-
PRECIPITATION	Sleet	Snow	Sleet	Sleet	Snow	Snow	Sleet	Snow	Snow	Sleet	Snow	-
WIND GROUND	-	-	S	N	-	-	-	SE	-	-	NW	-
DIRECT SKY	N	-	-	NW	-	-	N	-	-	-	-	-
LIGHT SKY	-	-	-	-	-	-	-	-	-	-	-	-
LIGHT GROUND	-	-	-	-	-	-	-	-	-	-	-	-
SUNSHINE	-	-	-	o	o	-	-	-	-	+	-	-
CLOUD 1/8	7	7	8	7	7	8	7	7	8	7	8	-
CLOUD TYPE	St.Cu ASt	St Cu	St ASt	St ASt	St Cu	St	St ASt	St Cu	St	Cu St	St	-

N.B. As state earlier, when conditions were bad readings were not taken above Station 3. In particular in weeks 4 and 5 this occurred to a large extent; and in week 6 only day readings were taken along the transect. As a result of this, in week 6, readings were taken every 2 hours at stations 1 to 3.

THE TRANSECT FAUNA
BY
ANDREW BARBIER

At each sampling station on the transect, sweeps of the vegetation and pitfall trapping were carried out every four hours at the same time as the meteorological readings.

The sweep-netting was carried out using a 12" sweep net, with a flexible rim for maximum area of contact. A standard number of sweeps (10) were done each time. The catch was anaesthetised using ethyl acetate and then placed in labelled bottles and analysed later at Base Camp.

The Pitfall traps were set up at stations 1-7. 6 traps were arranged at each site in a row half a metre apart. A collection was made every 12 hours i.e. an evening and a day collection. The traps were plastic containers 8" deep by 6" wide and were dug into the ground and levelled to the rim. A weak detergent solution was placed in the bottom to produce rapid wetting and subsequent drowning of the trapped animals. The collections (6) were combined at each station.

Station 1 differs from other stations in that, during daylight hours; sweepnet samples were taken every two hours throughout the expedition; Pitfall catches were collected at midday - daily.

This section combined with the meteorological data will provide the basis of the final scientific report. A quantitative statistical treatment will be made and the results shown graphically. A brief glance at the results reveals the expected trend (refer Norway report) of a decrease of species variety and numbers with altitude. Station 3 differs from this trend. This station had a lush vegetation and fits in with the results discussed in the Norway work. (refer, A Study of an Arctic Ecosystem - A. Barbier). Here it was established that temperature was not the most important factor, but that a "good nutrient soil formation was the rate determining step in the development of an Arctic Ecosystem". Station 3 was well supplied with nutrients (by a small stream) and it is expected that the soil ion content will back these facts up. Until further work is carried out no further statement can be made.

Another interesting factor was the almost complete lack of Coleoptera found in the pitfall traps. This order of insects is usually a dominant one. Araneida occurred in significant numbers and appears to be the dominant order of predator Arthropod.

Further to the quantitative approach a sample collection of insects and spiders were brought back for identification at the British Museum.

The British Museum also requested a collection of Collembola (Spring-tails). This was done by taking 10 soil samples at each transect station and also at various other sites in the valley. The samples were stored in plastic bags, and have been sent to the Museum. Here the Tullgren technique will be used to extract the Collembola. The findings will be published in due course, in the full scientific report.

The results of the Sweep-netting and Pit-fall trapping are presented overleaf. The tables were drawn up by Graham Hudson.

SWEEP NET RESULTS

WEEK I

26th - 31st JULY

STATION 1	26th JULY								27th JULY									
TIME (HRS.)	09	11	13	15	17	19	21	23	01	05	09	11	13	15	17	19	21	23
<u>TAXANOMIC ORDER</u>																		
D. CYCLORRHAPHA			1		1		4				1							
D. NEMATOCERA	1		2		1		1		2		2		3		1		1	
COLEOPTERA																		
HYMENOPTERA																		
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
LARVAE																		
TOTAL	1	NR	3	NR	2	NR	5	NR	2	0	3	NR	3	NR	1	NR	1	NR

STATION 1 TIME (HRS.)	28th JULY											29th JULY							
	01	05	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23	
TAXANOMIC ORDER																			
D. CYCLORRHAPHA											6			1	3		8		
D. NEMATOCERA											4	3		5	3	2	2		
COLEOPTERA																			
HYMENOPTERA																			
HEMIPTERA															4				
LEPIDOPTERA																			
(ADULT)																			
LEPIDOPTERA																			
(LARVAE)														2	2	1			
TOTAL	0	0	← NO READINGS →								10	3	2	8	11	2	10	NR	

STATION 1	30th JULY								31st JULY									
	09	11	13	15	17	19	21	23	01	05	09	11	13	15	17	19	21	23
TIME (HRS.)																		
<u>TAXANOMIC ORDER</u>																		
D. CYCLORRHAPHA	2	3	2	2	5	12	10					5	4	2	1	2	4	
D. NEMATOCERA	4	3	6	3		4	2					4	3	7	2	1	2	
COLEOPTERA																		
HYMENOPTERA																		
HEMIPTERA			1												4			
LEPIDOPTERA																		
(ADULT)	1																	
LEPIDOPTERA																		
(LARVAE)	2	9	4		2	9	2					1		2				
TOTAL	9	15	13	5	7	25	14	NR	NR	NR	0	10	7	11	7	3	6	NR

SWEEP NET RESULTS

WEEK I (cont'd)

STATION 2 TIME (HRS.)	26th JULY				27th JULY						28th JULY	
	0900	1315	1715	2130	0115	0515	0915	1315	1745	2130	0115	0515
TAXANOMIC ORDER												
D. CYCLORRHAPHA				1								
D. NEMATOCERA	4		1			3				1		
COLEOPTERA										3		
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	4	0	1	1	0	3	0	0	0	4	0	0

STATION 3 TIME (HRS.)	26th JULY				27th JULY						28th JULY	
	0915	1330	1730	2145	0130	0530	0930	1345	1800	2200	0130	0530
TAXANOMIC ORDER												
D. CYCLORRHAPHA	2						1	1			5	1
D. NEMATOCERA		3		1		1		1			1	8
COLEOPTERA												1
HYMENOPTERA												
HEMIPTERA												1
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												6
TOTAL	2	3	0	1	0	1	1	2	0	6	1	16

STATION 4 TIME (HRS.)	26th JULY				27th JULY						28th JULY	
	1030	1430	1830	2245	0230	0615	1030	1500	1900	-	0215	0615
TAXANOMIC ORDER												
D. CYCLORRHAPHA	2	1	2					1	1			1
D. NEMATOCERA		1		1	1	1		1				1
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	2	2	2	1	1	1	0	2	1	0	0	2

SWEEP NET RESULTS

WEEK I (cont'd)

STATION 5	26th JULY				27th JULY						28th JULY	
	1100	1500	1915	-	0300	0645	1100	1530	1930	-	0245	0645
TAXANOMIC ORDER												
D. CYCLORRHAPHA				N				1	1	N		1
D. NEMATOCERA				O				1		O		1
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	0	0	0		0	0	0	2	1		0	2

STATION 6	26th JULY				27th JULY						28th JULY	
	1115	1515	1930		0315	0700	1115	1545	1945		0300	0700
TAXANOMIC ORDER												
D. CYCLORRHAPHA				N						N		1
D. NEMATOCERA				O						O		
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	0	0	0		0	0	0	0	0		0	1

SWEEP NET RESULTS

WEEK 2

1st - 6th AUGUST

STATION 1	1st AUGUST										2nd AUGUST									
	09	11	13	15	17	19	21	23			01	05	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																				
D. CYCLORRHAPHA	2		2	2	2	1	3				2	2	1	2	1	2	1			
D. NEMATOCERA	2			1	2	1					2	2		1						
COLEOPTERA												2		1						
HYMENOPTERA																				
HEMIPTERA																				
LEPIDOPTERA					1															
(ADULT)																				
LEPIDOPTERA																				
(LARVAE)	1				2						5	6								
TOTAL	5	0	2	4	6	2	3	NR			7	10	1	3	1	2	1	0	0	NR

STATION 1	3rd AUGUST										4th AUGUST									
	01	05	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23		
TAXANOMIC ORDER																				
D. CYCLORRHAPHA	4	2	5	6	1				3	6			6	4	4					
D. NEMATOCERA	1	1		2	2	3					1		4	10			3			
COLEOPTERA																				
HYMENOPTERA																				
HEMIPTERA				2	1			3	2				1		1	1				
LEPIDOPTERA																				
(ADULT)																				
LEPIDOPTERA																				
(LARVAE)						5		1						1						
TOTAL	5	3	5	10	4	8	0	7	8	NR	1	0	11	15	5	5	0	NR		

STATION 1	5th AUGUST										6th AUGUST									
	09	11	13	15	17	19	21	23			09	11	13	15	17	19	21	23		
TAXANOMIC ORDER																				
D. CYCLORRHAPHA			3	4		7	5				5	1	9	3	2	7				
D. NEMATOCERA		3	12	3	2	3					1		6	3	1					
COLEOPTERA																				
HYMENOPTERA																				
HEMIPTERA				3		1							3							
LEPIDOPTERA				1		1									6					
(ADULT)																				
LEPIDOPTERA																				
(LARVAE)				1																
TOTAL	0	3	15	12	2	12	5	NR			6	1	18	6	9	7	0	NR		

SWEEP NET RESULTS

WEEK 2 (cont'd)

STATION 2 TIME (HRS.)	1st AUGUST				2nd AUGUST						3rd AUGUST	
	0900	1330	1715	2200	0100	0545	0930	1330	1730	2145	0100	0530
TAXANOMIC ORDER												
D. CYCLORRHAPHA	1	2	2	5		1		1	1	4	1	2
D. NEMATOCERA	2		2	4	2					8	2	
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)			1									
LEPIDOPTERA												
(LARVAE)					1					4		
TOTAL	3	2	5	9	3	1	0	1	1	16	3	2

STATION 3 TIME (HRS.)	1st AUGUST				2nd AUGUST						3rd AUGUST	
	0930	1345	1730	2215	0130	0600	0945	1345	1745	2200	0115	0600
TAXANOMIC ORDER												
D. CYCLORRHAPHA	2	2	1	6	2	1					7	1
D. NEMATOCERA	2	2		3	1	6		1			4	3
COLEOPTERA												
HYMENOPTERA											2	2
HEMIPTERA												
LEPIDOPTERA								1				
(ADULT)				1								
LEPIDOPTERA												
(LARVAE)	1	4		1	3	1	2	4			1	
TOTAL	5	8	1	11	6	8	2	6	0	0	14	6

STATION 4 TIME (HRS.)	1st AUGUST				2nd AUGUST						3rd AUGUST	
	1030	1430	1815		0230	0645	1045	1430	1845			0700
TAXANOMIC ORDER												
D. CYCLORRHAPHA	2		1	NO	4	1	1			NO	NO	1
D. NEMATOCERA	1			READING	1		1			READING	READING	
COLEOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	3	0	1		5	1	2	0	0			1

SWEEP NET RESULTS

WEEK 2 (cont'd)

STATION 5 TIME (HRS.)	1st AUGUST				2nd AUGUST						3rd AUGUST	
	1100	1515	1845		0300	0715	1115	1500	1900			0730
TAXANOMIC ORDER												
D. CYCLORRHAPHA				NO							NO	NO
D. NEMATOCERA				READING							READING	READING
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	0	0	0		0	0	0	0	0			0

STATION 6 TIME (HRS.)	1st AUGUST				2nd AUGUST						3rd AUGUST	
	1115	1530	1900		0330	0730	1130	1530	1930			0745
TAXANOMIC ORDER												
D. CYCLORRHAPHA				NO							NO	NO
D. NEMATOCERA	1		1	READING							READING	READING
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	1	0	1		0	0	0	0	0			0

SWEEP NET RESULTS

WEEK 3

7th - 12th AUGUST

STATION 1	7th AUGUST								8th AUGUST									
TIME (HRS.)	09	11	13	15	17	19	21	23	01	05	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																		
D. CYCLORRHAPHA	9		5	5	6	5	5	1		1	10	3	27	1		2	1	7
D. NEMATOCERA	1	1	2	3				1			1	1	9			2		3
COLEOPTERA																		
HYMENOPTERA			1	2	1	2									4	6		2
HEMIPTERA	1	1																
LEPIDOPTERA																		
(ADULT)																2		
LEPIDOPTERA																		
(LARVAE																		
TOTAL	11	2	8	10	7	7	5	2	0	1	11	4	36	2	4	12	1	12

STATION 1	9th AUGUST										10th AUGUST							
TIME (HRS.)	01	05	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																		
D. CYCLORRHAPHA	2	1		7	1	18	5	9	2		5	3	3	5	9	15	10	
D. NEMATOCERA		1				3	3	1	1		4		1	4	4	1	2	
COLEOPTERA																		
HYMENOPTERA				3	1	2	2	1			1			1	1		2	
HEMIPTERA									1		1	2	1					
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)																		
TOTAL	2	2	NR	10	2	23	10	11	4	NR	11	5	5	10	14	16	14	NR

STATION 1 TIME (HRS.)	11th AUGUST								12th AUGUST							
	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																
D. CYCLORRHAPHA		5	12	14	4	5	8			1	4	11	7	2	5	
D. NEMATOCERA		3	1	6	4	1				1						
COLEOPTERA																
HYMENOPTERA		1	6		1	2				1		1				
HEMIPTERA																
LEPIDOPTERA																
(ADULT)																
LEPIDOPTERA																
(LARVAE)																
TOTAL	0	9	19	20	9	8	8	NR	0	3	4	12	7	2	5	NR

SWEEP NET RESULTS

WEEK 3 (cont'd)

STATION 2 TIME (HRS.)	7th AUGUST				8th AUGUST				9th AUGUST			
	0915	1315	1715	2115	0115	0530	0915	1330	1715	2130	0200	0600
TAXANOMIC ORDER												
D. CYCLORRHAPHA		2		1				1	1			
D. NEMATOCERA			2	2			1	1				
COLEOPTERA												
HYMENOPTERA	6	3			3			4				7
HEMIPTERA		1										
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA					1							1
(LARVAE)												
TOTAL	6	6	2	3	4	0	1	6	1	0	0	8

STATION 3 TIME (HRS.)	7th AUGUST				8th AUGUST						9th AUGUST	
	0930	1330	1730	2130	0130	0545	0930	1345	1730	2130		0615
TAXANOMIC ORDER												
D. CYCLORRHAPHA		3	5	1	3		4	2	2		NO READING	
D. NEMATOCERA	11	1	2	2	3		1	7				1
COLEOPTERA												
HYMENOPTERA			1									
HEMIPTERA		2							1			
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												1
(LARVAE)		3					2	2				
TOTAL	11	9	8	3	6	0	5	9	2	0		2

STATION 4 TIME (HRS.)	7th AUGUST				8th AUGUST				9th AUGUST	
	1030	1400	1800		0230	0630	1030	1430	1815	0730
TAXANOMIC ORDER										
D. CYCLORRHAPHA					1		1	1		
D. NEMATOCERA			1							
COLEOPTERA										
HYMENOPTERA										
HEMIPTERA										
LEPIDOPTERA										
(ADULT)										
LEPIDOPTERA										
(LARVAE)								1		
TOTAL	0	0	1		1	0	1	2	0	2

SWEEP NET RESULTS

WEEK 3 (cont'd)

STATION 5	7th AUGUST				8th AUGUST					9th AUGUST	
TIME (HRS.)	1100	1430	1830		0300	0700	1115	1500	1845		0815
TAXANOMIC ORDER											
D. CYCLORRHAPHA	1							1			1
D. NEMATOCERA											
COLEOPTERA											
HYMENOPTERA											
HEMIPTERA											
LEPIDOPTERA											
(ADULT)											
LEPIDOPTERA											
(LARVAE)											
TOTAL	1	0	0		0	0	0	1	0		1

STATION 6	7th AUGUST				8th AUGUST					9th AUGUST	
TIME (HRS.)	1115	1445	1845		0315	0715	1130	1515	1900		0845
TAXANOMIC ORDER											
D. CYCLORRHAPHA							1				
D. NEMATOCERA											
COLEOPTERA											
HYMENOPTERA											
HEMIPTERA											
LEPIDOPTERA											
(ADULT)											
LEPIDOPTERA											
(LARVAE)											
TOTAL	0	0	0		0	0	1	0	0		0

SWEEP NET RESULTS

WEEK 4

13th - 18th AUGUST

STATION. 1	13th AUGUST								14th AUGUST									
	09	11	13	15	17	19	21	23	01	05	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																		
D. CYCLORRHAPHA	3	1	2	6	2	2	2	2		1	3	2		2	1	5	1	1
D. NEMATOCERA	3	2		3	1		4				1		5	5	2	2	2	
COLEOPTERA																		
HYMENOPTERA		1			1	1		1				2	2	4	5			1
HEMIPTERA			1															
LEPIDOPTERA																		
(ADULT)		1																
LEPIDOPTERA																		
(LARVAE)			1						1									
TOTAL	6	5	4	9	4	3	6	3	1	1	4	4	7	11	8	7	3	2

STATION 1	15th AUGUST										16th AUGUST								
	01	05	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23	
TAXANOMIC ORDER																			
D. CYCLORRHAPHA		1	3	1	2	6		1	2		1	5	1	2	2	1			
D. NEMATOCERA	1		1		1	3	4	1			3	1		1					
COLEOPTERA																			
HYMENOPTERA						7	1	3					1						
HEMIPTERA																			
LEPIDOPTERA																			
(ADULT)																			
LEPIDOPTERA																			
(LARVAE)					1		1				1	3							
TOTAL	1	1	4	1	4	16	6	5	2	NR	5	9	2	3	2	1	0	NR	

STATION 1	17th AUGUST								18th AUGUST							
TIME (HRS.)	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23
D. CYCLORRHAPHA	6	1	44	5	12	1	12		7	4	4	1	3	1	2	
D. NEMATOCERA	2	3	8	7	7	5	2		4	1	4	2		1		
COLEOPTERA																
HYMENOPTERA				2					3			2				
HEMIPTERA																
LEPIDOPTERA																
(ADULT)																
LEPIDOPTERA																
(LARVAE)		1	1													
TOTAL	8	5	53	14	19	6	14	NR	14	5	8	5	3	2	2	NR

SWEEP NET RESULTS

WEEK 4 (cont'd)

STATION 2 TIME (HRS.)	13th AUGUST				14th AUGUST						15th AUG.	
	0930	1345	1730	2115	0130	0530	0945	1330	1730	2145	0130	0615
TAXANOMIC ORDER												
D. CYCLORRHAPHA		1	1								1	
D. NEMATOCERA	3	7	4			1	1	4			1	3
COLEOPTERA												
HYMENOPTERA	3	6	3			8	5	16	7		1	1
HEMIPTERA			2									
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	6	14	10	0	0	9	6	20	7	0	3	4

STATION 3 TIME (HRS.)	13th AUGUST				14th AUGUST						15th AUG.	
	1000	1400	1745	2130	0145	0545	1000	1400	1745	2200	0145	0630
TAXANOMIC ORDER												
D. CYCLORRHAPHA	6	2	4	11	9	6	6	6	1	5	5	2
D. NEMATOCERA	5	3	2	3	1		4	1	2	6	2	
COLEOPTERA												
HYMENOPTERA	1		1	1								1
HEMIPTERA		1										
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)	1	4		1			1	1	1	2		1
TOTAL	13	10	7	16	10	6	11	8	4	13	7	4

STATION 4 TIME (HRS.)	13th AUGUST				14th AUGUST						15th AUG.	
	1030	1445	1815		0245	0630	1045	1445	1815		0300	
TAXANOMIC ORDER												
D. CYCLORRHAPHA	2	3				1	2	3			1	
D. NEMATOCERA	2	1				1	1					
COLEOPTERA												
HYMENOPTERA			1									
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	4	4	1		0	2	3	3	0		1	

SWEEP NET RESULTS

WEEK 4 (cont'd)

STATION 5 TIME (HRS.)	13th AUGUST				14th AUGUST						15th AUG.	
	1100	1500	1830		0315	0715	1115	1515	1830		0315	
D. CYCLORRHAPHA	1	1	3				1					
D. NEMATOCERA												
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)								1				
LEPIDOPTERA												
(LARVAE)												
TOTAL	1	1	3		0	0	1	1	0		0	

STATION 6 TIME (HRS.)	13th AUGUST				14th AUGUST						15th AUG.	
	1115	1515	1845		0330	0730	1145	1530	1845		0330	
TAXANOMIC ORDER												
D. CYCLORRHAPHA							1	1				
D. NEMATOCERA							1					
COLEOPTERA												
HYMENOPTERA												
HEMIPTERA												
LEPIDOPTERA												
(ADULT)							1					
LEPIDOPTERA												
(LARVAE)												
TOTAL	0	0	0		0	0	3	1	0		0	

STATION 1	19th AUGUST								20th AUGUST									
	09	11	13	15	17	19	21	23	01	05	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																		
D. CYCLORRHAPHA	1	1	1	4	1	2	9	7	4	5	1		2		1		2	
D. NEMATOCERA		12	1	1	3		3				1							
COLEOPTERA	2		3				1	1			1		1					
HYMENOPTERA														1	1			
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)		1																
TOTAL	3	14	5	5	4	2	13	8	4	5	3	0	3	1	1	0	2	0

STATION 1	21st AUGUST										22nd AUGUST								
	01	05	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23	
TAXANOMIC ORDER																			
D. CYCLORRHAPHA	3					1	2	1	7										
D. NEMATOCERA						1	2	1	2				1						
COLEOPTERA																			
HYMENOPTERA													1						
LEPIDOPTERA																			
(ADULT)																			
LEPIDOPTERA																			
(LARVAE)							2												
TOTAL	3	0	0	0	0	2	6	2	9	NR	0	0	2	0	0	0	0	NR	

STATION 1	23rd AUGUST								24th AUGUST							
	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																
D. CYCLORRHAPHA		2							1	1	1					
D. NEMATOCERA		1							3	4		2				
COLEOPTERA																
HYMENOPTERA		1			2				3	1						
HEMIPTERA																
LEPIDOPTERA																
(ADULT)																
LEPIDOPTERA																
(LARVAE)																
TOTAL	0	4	0	0	2	0	0	NR	4	8	2	2	0	0	0	NR

STATION 2	19th AUGUST				20th AUGUST						21st AUG.	
	0900	1315	1715	2115	0200	0515	0930	1330	1715	2100	0115	
TAXANOMIC ORDER												
D. CYCLORRHAPHA												
D. NEMATOCERA	13	6			12	1				1	1	NO READING
COLEOPTERA												
HYMENOPTERA			2								1	
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	13	6	2	0	12	1	0	0	0	1	2	

STATION 3	19th AUGUST				20th AUGUST						21st AUG.	
	0915	1330	1715	2130	0215	0530	0945	1345	1730	2115	0130	
TAXANOMIC ORDER												
D. CYCLORRHAPHA	6		1	14	9			2	1			NO READING
D. NEMATOCERA	6	1		2	2		1					
COLEOPTERA												
HYMENOPTERA	2	2		1	1							
HEMIPTERA												
LEPIDOPTERA												
(ADULT)				1								
LEPIDOPTERA												
(LARVAE)				1								
TOTAL	14	3	1	19	12	0	1	2	1	0	0	

STATION 4	19th AUGUST			20th AUGUST						21st AUG.	
	1000	1415	1745								
TAXANOMIC ORDER											
D. CYCLORRHAPHA											
D. NEMATOCERA		1									
COLEOPTERA											
HYMENOPTERA	1										
HEMIPTERA											
LEPIDOPTERA											
(ADULT)											
LEPIDOPTERA											
(LARVAE)											
TOTAL	1	1	0								

SWEEP NET RESULTS

WEEK 5 (cont'd)

STATION 5 TIME (HRS.)	19th AUGUST				20th AUGUST	21st AUG.
	1030	1430	1800			
TAXANOMIC ORDER						
D. CYCLORRHAPHA						
D. NEMATOCERA						
COLEOPTERA						
HYMENOPTERA						
HEMIPTERA						
LEPIDOPTERA						
(ADULT)						
LEPIDOPTERA						
(LARVAE)						
TOTAL	0	0	0			

STATION 6 TIME (HRS.)	19th AUGUST				20th AUGUST	21st AUG.
	1045	1445	1815			
TAXANOMIC ORDER						
D. CYCLORRHAPHA						
D. NEMATOCERA						
COLEOPTERA						
HYMENOPTERA						
HEMIPTERA						
LEPIDOPTERA						
(ADULT)		1				
LEPIDOPTERA						
(LARVAE)						
TOTAL	0	1	0			

SWEEP NET RESULTS

WEEK 6

25th - 30th AUGUST

STATION 1 TIME (HRS.)	25th AUGUST								26th AUGUST									
	09	11	13	15	17	19	21	23	01	05	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																		
D. CYCLORRHAPHA	2		1	3	2		8			2	2	10	2	3	2		2	
D. NEMATOCERA	10		4		4		1		2	1	6	1		1			2	
COLEOPTERA																	2	
HYMENOPTERA	2		3	1							2		1	1	3		1	
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)							1											
TOTAL	14	0	8	4	6	0	10	0	2	3	10	11	3	5	5	0	5	0

STATION 1	27th AUGUST								28th AUGUST									
	01	05	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23
<u>TAXANOMIC ORDER</u>																		
D. CYCLORRHAPHA		1		1			2	2	4		2	3	23	17	8		10	
D. NEMATOCERA							2	1	1		1	2	1	2				
COLEOPTERA																		
HYMENOPTERA				3			1				1	8	1		2			
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)							1											
TOTAL	0	1	0	4	0	0	5	4	5	NR	4	13	25	19	10	0	10	NR

STATION 1 TIME (HRS.)	29th AUGUST								30th AUGUST							
	09	11	13	15	17	19	21	23	09	11	13	15	17	19	21	23
TAXANOMIC ORDER																
D. CYCLORRHAPHA	19			3	2		8		2	2	1	2	2	3	5	
D. NEMATOCERA	2		1	2		1	1		3	4	2	3	3		1	
COLEOPTERA										1						
HYMENOPTERA			1	2	1	1	1			2				1		
HEMIPTERA			1													
LEPIDOPTERA																
(ADULT)																
LEPIDOPTERA															1	
(LARVAE)																
TOTAL	21	0	3	7	3	2	10	NR	5	9	3	5	5	4	7	NR

SWEEP NET RESULTS

WEEK 6 (cont'd)

STATION 2 TIME (HRS.)	25th AUGUST				26th AUGUST						27th AUG.	
	0915	1300	1715	2130	0115	0515	0930	1330	1715	2150	0115	0515
TAXANOMIC ORDER												
D. CYCLORRHAPHA	1			1				1	1		1	
D. NEMATOCERA	3	2		1			2	4				1
COLEOPTERA							1					
HYMENOPTERA	7	10		2		2	3	7	10			7
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
TOTAL	11	12	0	4	0	2	6	12	11	0	1	8

STATION 3 TIME (HRS.)	25th AUGUST				26th AUGUST						27th AUG.	
	0930	1330	1730	2145	0145	0530	0945	1345	1730	2215	0130	0530
TAXANOMIC ORDER												
D. CYCLORRHAPHA	2	2	5	2	5	3	2	3		2	6	
D. NEMATOCERA	7	1	4		1	1	2	4				
COLEOPTERA												
HYMENOPTERA		2					1	4				
HEMIPTERA												
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)	2	1						2		1		
TOTAL	11	6	9	2	6	4	3	13	0	3	6	0

STATION 4 TIME (HRS.)	25th AUGUST			26th AUGUST			27th AUG.
	1030	1415	1800				
TAXANOMIC ORDER							
D. CYCLORRHAPHA							
D. NEMATOCERA	1	1	2				
COLEOPTERA							
HYMENOPTERA							
HEMIPTERA							
LEPIDOPTERA							
(ADULT)							
LEPIDOPTERA							
(LARVAE)							
TOTAL	1	1	2				

SWEEP NET RESULTS

WEEK 6 (cont'd)

STATION 5 TIME (HRS.)	25th AUGUST			26th AUGUST			27th AUG.
	1045	1445	1830				
TAXANOMIC ORDER							
D. CYCLORRHAPHA							
D. NEMATOCERA	1		1				
COLEOPTERA							
HYMENOPTERA							
HEMIPTERA							
LEPIDOPTERA							
(ADULT)							
LEPIDOPTERA							
(LARVAE)							
TOTAL	1	0	1				

STATION 6 TIME (HRS.)	25th AUGUST			26th AUGUST			27th AUG.
	1100	1500	1845				
TAXANOMIC ORDER							
D. CYCLORRHAPHA	1						
D. NEMATOCERA							
COLEOPTERA							
HYMENOPTERA			3				
HEMIPTERA							
LEPIDOPTERA							
(ADULT)							
LEPIDOPTERA							
(LARVAE)							
TOTAL	1	0	3				

N.B. No insects were caught in the sweep nets at Station 7.

PITFALL RESULTS

WEEKS 1 - 6

STATION 1 TIME (HRS.)	WEEK 1 - JULY							WEEK 2 - AUGUST				
	26th	27th		28th		29th	30th	31st	1st	2nd		3rd
		0100	1300	0100	1300	1300	1300	1300	1300	0100	1300	0100
<u>TAXANOMIC ORDER</u>												
D. CYCLORRHAPHA		1										1
D. NEMATOCERA		1	7			1				2	2	
COLEOPTERA		2									2	
HYMENOPTERA						5	30					
HEMIPTERA										2	3	
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
ARANEIDA		21	12	8		39				3	8	2
OPILIONES			3	1		1				2	1	7
ACARI												
TOTALS	NR	25	22	9	NR	46	30	0	NR	9	16	10

STATION 1 TIME (HRS.)	WEEK 2 - AUGUST					WEEK 3 - AUGUST						
	3rd	4th	5th	6th	7th	8th		9th		10th	11th	12th
	1300	1300	1300	1300	1300	0100	1300	0100	1300	1300	1300	1300
TAXANOMIC ORDER												
D. CYCLORRHAPHA			1				3	1		5	1	
D. NEMATOCERA		2	2		1			1			1	1
COLEOPTERA						1						
HYMENOPTERA												
HEMIPTERA		5	7	15	2			3		6	9	2
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
ARANEIDA		15	20	3	9	3	4	10	1	7	11	1
OPILIONES				1	1	1	2			20	2	1
ACARI				1				1				
TOTALS	NR	22	30	20	13	5	9	15	2	38	24	5

PITFALL RESULTS

WEEKS 1 - 6 (cont'd)

STATION 1 TIME (HRS.)	WEEK 4 - AUGUST								WEEK 5 - AUGUST			
	13th	14th		15th		16th	17th	18th	19th	20th		21st
	1300	0100	1300	0100	1300	1300	1300	1300	1300	0100	1300	0100
TAXANOMIC ORDER												
D. CYCLORRHAPHA			1		1							
D. NEMATOCERA	1		1				1					
COLEOPTERA	1						1					
HYMENOPTERA			1									
HEMIPTERA	3		6		2	1				1		
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)	1		1		1	1		1				
ARANEIDA	4	1	1	1	4	2	5	1	4			
OPILIONES		2			2	2	1	4	4			
ACARI												
TOTALS	10	3	11	1	10	6	8	6	8	1	0	0

STATION 1 TIME (HRS.)	WEEK 5 - AUGUST					WEEK 6 - AUGUST						
	21st	22nd	23rd	24th	25th	26th		27th		28th	29th	30th
	1300	1300	1300	1300	1300	0100	1300	0100	1300	1300	1300	1300
TAXANOMIC ORDER												
D. CYCLORRHAPHA					1		7	1	1			
D. NEMATOCERA												
COLEOPTERA			1		1		2					
HYMENOPTERA					1	1						
HEMIPTERA	1				1							
LEPIDOPTERA												
(ADULT)												
LEPIDOPTERA												
(LARVAE)												
ARANEIDA			2	1	5		5	2	3	4	7	
OPILIONES		1	1	1	2	6			4	2	2	
ACARI					1						1	
TOTALS	1	1	4	2	11	7	14	3	8	6	9	0

PITFALL RESULTS

WEEKS 1 - 6 (cont'd)

STATION 2	Wk.1-JULY 27th 28th			Wk.2-AUG. 2nd 3rd			Wk.3-AUG. 8th 9th			Wk.4-AUG. 14th 15th			Wk.5-AUG. 20th 21st			Wk.6-AUG. 26th 27th		
TIME (HRS.)	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01
TAXANOMIC ORDER																		
D. CYCLORRHAPHA					2			1					1	1				
D. NEMATOCERA	1			3				1					1			1	2	
COLEOPTERA				1				1										
HYMENOPTERA								1					2			2	1	2
HEMIPTERA						1		1										
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)												1						
ARANEIDA	2	4	1	1	4		1	3		2	2	1				2	3	1
OPILIONES	1	2		7	2	3		3	2		4	1	3		3		1	2
ACARI						1										3		
TOTALS	4	6	1	12	8	5	1	9	4	2	7	2	6	2	3	4	9	7

STATION 3	Wk.1-JULY 27th 28th			Wk.2-AUG. 2nd 3rd			Wk.3-AUG. 8th 9th			Wk.4-AUG. 14th 15th			Wk.5-AUG. 20th 21st			Wk.6-AUG. 26th 27th		
TIME (HRS.)	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01
TAXANOMIC ORDER																		
D. CYCLORRHAPHA	1			1	6	2	3	4		1		1				7	1	
D. NEMATOCERA	1			1			3		1									
COLEOPTERA				1		1		1								2		
HYMENOPTERA	1							2				4			1			
HEMIPTERA					1	1	2			3								
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)							1											
ARANEIDA	14	12	2	3	6	1	7		2	1						5	2	
OPILIONES		1	1	3	2	9	2	5	1	4	1	1	2	1		6		
ACARI	1									1								
TOTALS	18	13	3	9	15	14	11	19	2	5	7	3	6	1	0	7	14	3

STATION 4	Wk.1-JULY 27th 28th			Wk.2-AUG. 2nd 3rd			Wk.3-AUG. 8th 9th			Wk.4-AUG. 14th 15th			Wk.5-AUG. 20th 21st			Wk.6-AUG. 26th 27th		
TIME (HRS.)	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01
TAXANOMIC ORDER																		
D. CYCLORRHAPHA					3	2			1									
D. NEMATOCERA	1	2		2			1		1									
COLEOPTERA			1						1									
HYMENOPTERA																		
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)																		
ARANEIDA	1	1																
OPILIONES																		
ACARI			1						2									
TOTALS	2	3	2	2	3	2	1	0	5	0	0	0	NR	NR	NR	NR	NR	NR

PITFALL RESULTS

WEEK 1 - 6 (cont'd)

STATION 5	Wk.1-JULY 27th 28th			Wk.2-AUG. 2nd 3rd			Wk.3-AUG. 8th 9th			Wk.4-AUG. 14th 15th			Wk.5-AUG. 20th 21st			Wk.6-AUG. 26th 27th		
TIME (HRS.)	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01
TAXANOMIC ORDER																		
D. CYCLORRHAPHA																		
D. NEMATOCERA	1								1									
COLEOPTERA	2		1	1		1												
HYMENOPTERA																		
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)																		
ARANEIDA																		
OPILIONES																		
ACARI																		
TOTALS	3	0	1	4	0	1	0	0	1	2	6	1	NO READING					

STATION 6	Wk.1-JULY 27th 28th			Wk.2-AUG. 2nd 3rd			Wk.3-AUG. 8th 9th			Wk.4-AUG. 14th 15th			Wk.5-AUG. 20th 21st			Wk.6-AUG. 26th 27th		
TIME (HRS.)	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01
TAXANOMIC ORDER																		
D. CYCLORRHAPHA																		
D. NEMATOCERA	7		2						1			1						
COLEOPTERA	2																	
HYMENOPTERA																		
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)																		
ARANEIDA																		
OPILIONES	1																	
ACARI	2																	
TOTALS	12	0	2	4	0	1	1	3	1	1	9	0	NO READING					

STATION 7	Wk.1-JULY 27th 28th			Wk.2-AUG. 2nd 3rd			Wk.3-AUG. 8th 9th			Wk.4-AUG. 14th 15th			Wk.5-AUG. 20th 21st			Wk.6-AUG. 26th 27th		
TIME (HRS.)	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01	01	13	01
TAXANOMIC ORDER																		
D. CYCLORRHAPHA																		
D. NEMATOCERA																		
COLEOPTERA																		
HYMENOPTERA																		
HEMIPTERA																		
LEPIDOPTERA																		
(ADULT)																		
LEPIDOPTERA																		
(LARVAE)																		
ARANEIDA																		
OPILIONES																		
ACARI																		
TOTALS	NR	NR	NR	0	0	1	0	0	2	0	0	0	NO READING					

NEMATODE ANALYSIS

BY

KEVIN BARRATT

NEMATODE ANALYSIS - by KEVIN BARRATT

Six soil cores (2 x 4cm) for nematode analysis were taken at each transect sampling station in the 1st, 3rd and 6th weeks in the field.

The nematodes (small worms) were extracted using the Baermann technique. This consisted of crumbling and placing each soil core on a single sheet of tissue paper on a wire gauge, resting on a glass funnel. A length of rubber tubing and a clip was attached to the funnel stem. The funnel was then filled with water, so that the soil was almost immersed. In this situation the nematodes swim from the soil and fall to the bottom of the tube.

After 12 hours extraction time, 15 cm³ of water were run off from each funnel and the number of nematodes in 1 cm³ of each sample were counted using a nematode counting chamber and a light microscope. The number in each 15 cm³ sample was then calculated, and the results are tabulated overleaf.

The results show a difference in trend between the lower transect sections (1, 2, 3) and the higher stations (4, 5, 6). The former show a decrease followed by an increase in population size, this probably being caused by the large amount of rain which fell over the last two weeks. Stations 4, 5 and 6 show an overall increase over the six weeks, the large increase in the last week again probably due to the rain. There therefore seems to be a time lag in the development of the maximum population size, the upper parts of the transect reaching a maximum later than the lower parts. This is possibly due in part to the fact that the full effects of the Arctic summer are experienced much later on the upper reaches of the transect than they are on the lower reaches. However, the full significance of the nematode results cannot be estimated until a statistical treatment has been carried out.

NEMATODES

WEEK 1

	ST1	ST2	ST3	ST4	ST5	ST6	ST7
1	75	90	135	0	0	0	0
2	0	45	105	0	0	0	0
3	15	45	45	0	0	15	0
4	30	30	90	0	0	15	0
5	0	15	90	0	0	15	0
6	15	30	30	0	0	0	0
MEAN	22	42	82	0	0	7	0

WEEK 3

	ST1	ST2	ST3	ST4	ST5	ST6	ST7
1	45	30	15	0	0	30	0
2	0	0	0	0	0	30	0
3	15	15	60	30	0	15	0
4	0	0	0	45	0	0	0
5	0	60	0	15	0	0	0
6	15	0	30	0	0	0	0
MEAN	12	17	17	15	0	12	0

WEEK 6

	ST1	ST2	ST3	ST4	ST5	ST6	ST7
1	0	15	15	30	0	45	
2	0	0	0	105	15	0	
3	75	0	30	15	0	15	
4	15	75	15	15	0	0	
5	60	15	0	45	0	0	
6	0	30	60	0	45	225	
MEAN	25	22	20	35	10	47	

ORNITHOLOGICAL REPORT
BY
PETER ELLIS

This report does not set out to make any scientific statements concerning the ornithological situation in the area, as we did not incorporate any detailed studies on this subject as part of our scientific programme. However, from our daily observations, it is hoped that enough information has been obtained to supplement the more detailed work, by filling in one aspect of the natural environment.

The ornithological picture was a meagre one with only 10 species of birds being observed during the six-week period spent around Kugssuatsiaq. The rugged terrain of the southern tip of Greenland has little to offer in the way of suitable habitats for all but a handful of birds which have colonised its inhospitable lands. Strictly speaking the types of habitat were not so restricted (as can be seen from the flora report). However, the lack of variety in habitats and the extreme harshness of those habitats that existed were no doubt primary factors which dictated the ornithological scene.

The distribution of the various species was related to three habitat zones, namely: maritime, coastal lowland zone and inland mountain region. A fourth zone - the high barren peaks and glaciers - was not unexpectedly devoid of arian life, although isolated visits by certain species undoubtedly occur. Of the three active zones, the maritime and coastal lowland areas were found to be the most important, each being occupied by four species. Søndre Sermilik fjord was the home for one species of duck - the Red Breasted Merganser (*Mergus senator*), one member of the Auk family - the delightful Black Guillemot (*Cepphus grylle*) and two Gulls - Icelandic (*Larus glaucoides*) and Gloucous (*Larus Hyperboreus*).

In the lowland vegetation zone, which was basically salix scrub (dense at times on favourable south-facing slopes and extending to an altitude of around 200 metres) cover was provided for three species of Passerine, the Redpoll (*Acanthis flammea rostrata*), the Wheatear, the Greenland sub-species (*Oenanthe oenanthe leucorrhoa*), and the Snow Bunting (*Plectrophenax nivalis*). In addition, one member of the Grouse family - the Ptarmigan (*Lagopus mutus*) - inhabited the coastal zone. Of these four species, the last three extended their range into the third zone, the barren inland valleys and low mountain slopes. Here, isolated pockets of ground cover provided suitable habitats, even for breeding. Young Ptarmigan were found at up to 1,000 metres and a party of Snow Buntings were observed at 1350 metres.

A summary of bird sightings is presented below. The order of the species is as arranged in the latest order of classification according to "The Field Guide to the Birds of Britain and Europe" by Peterson, Mountfort and Hollom, which was used as a reference in the field. The system of Richmond (1968) is employed in which each species is assigned an order of magnitude thus:-

Magnitude A	-	over 1000 individuals seen in a day
Magnitude B	-	100 - 1000 individuals seen in a day
Magnitude C	-	20 - 100 individuals seen in a day
Magnitude D	-	5 - 20 individuals seen in a day
Magnitude E	-	1 - 5 individuals seen in a day.

From the summary it will be seen that no species occurred at magnitudes A, B, or C. Most species were represented at magnitude D, whilst the three large predators and scavengers - Peregrine, Glaucous Gull and Raven, occurred at magnitude E as might be expected.

RED BREASTED MERGANSER (D) (*Mergus serrator*) As we landed at Kugssuatsiaq in the early hours of 21st July, a pair of ducks were seen out in the fjord. These were probably Mergansers. On 5th August a party of 16 were observed swimming away from the beach below Austrian Camp.

PEREGRINE (E) (*Falco peregrinus*) Solitary birds were seen flying along the fjord coast on three occasions - 21st July, 27th August and 2nd September.

PTARMIGAN (D) (*Lagopus mutus*) The most widely distributed of the species we encountered, and the only species of which we found the nesting sites. Three nests with recently hatched eggs were found - at Basin Camp (altitude 800 m); by the Cascade (altitude 550 m) and at Station 3 on the Transect (altitude 300 m). In addition female birds with young were observed - at Base Camp (altitude 150 m), above Station 6 on the Transect (altitude 850 m) and just below the main col at the head of Kugssuatsiaq (altitude 1000 m). The largest party was the family at Base Camp - a female with 5 or 6 chicks. When we set up camp the chicks were quite small, and it was interesting to watch them grow up. On 31st July one of the chicks was caught and photographed, and by the end of August they were flying around the scrub and showing off their white wings. As we departed Base Camp on 2nd August the family was still in residence.

ICELAND GULL (D) (*Larus glaucoides*) Often seen flying along the fjord, with 14 being observed on 31st as we patrolled the fjord in our rubber dinghy.

GLAUCOUS GULL (E) (*Larus hyperboreus*) One flying up fjord on 5th August. A large solitary Gull was seen on two other occasions whilst members were fishing in the fjord, but it was late evening and positive identification was impossible.

BLACK GUILLEMOT (D) (*Cepphus grylle*) Small numbers always present in the fjord, 8+ seen on 31st July.

WHEATEAR (D) (*Oenanthe oenanthe s.sp leucorrhoa*) Occasionally seen in the main valley up to 1000 metres. Juvenile birds seen at Austrian Camp on 21st July.

SNOW BUNTING (D) (*Plectrophenax nivalis*) Seen frequently in the main valley especially between fjord and Base Camp where they would sing close to the tents. On 29th July a pair seen on ridge to "They were there" at an altitude of 1150 m. A small party was observed on the summit of Whaleback (1350 m) on 14th August.

REDPOLL (D)
(*Acanthis flammea*
s.sp. rostrata)

Small numbers along coastal scrub zone during earlier part of the expedition.

RAVEN (E)
(*Corvus corax*)

Only solitary birds of this species observed - down by the fjord on 15th August; flying down valley by Base Camp on 18th August, and flying up fjord on 3rd September.

At this point it is worth recording a few additional ornithological notes made during the travelling before and after our stay at Kûgssuatsiaq. On arriving at Narssarssuaq we found Lapland Buntings (*Calcarius lapponicus*) holding territory close to the hut where we stayed. At first, attracted by the delightful song, we eventually tracked down two pairs of these birds and were able to study the beautifully marked males at close quarters. Other birds present at Narssarssuaq were:- Common Sandpiper (*Tringa hypoleucos*), Wheatear and Raven.

The ferry journey proved to be very disappointing from the bird watching point of view, and only Gulls at a distance and Black Guillemots were observed. In the town of Nanortalik Snow Buntings and Wheatears were to be seen in the streets, whilst on the shore close to the town a pair of Ringed Plovers (*Charadrius hiaticula*) exercised distraction techniques to lure us away from the presumed nest sight. Also close to the town, more Lapland Buntings and a single Peregrine were seen.

The journey up Søndre Sermilik from Nanortalik to Kûgssuatsiaq being made at night, we naturally saw nothing of any bird life. However, on the return journey at the beginning of September we encountered quite a large number of Gulls as we approached the open sea - Lesser Black-backed (*Larus fuscus*), Herring (*Larus argentatus*) and Kittiwakes (*Rissa tridactyla*). On the journey back to Narssarssuaq we noticed a bundle of dead Kittiwakes in the bows of the ferry, no doubt they would make a Greenlander and his family a tasty meal.

Both the Greenlanders and the Danes take advantage of the cheap guns available in the local stores and spend much of their spare time hunting around the villages and along the coast, shooting practically anything that moves. White-tailed Eagles (*Haliaeetus albicilla*), Gyr Falcons (*Falco rusticolus*) and Peregrines are all persecuted to protect the interests of the sheep farmers, and these birds are now becoming scarce in South West Greenland. One has to remember that hunting is a natural occupation for the Greenlanders and nationally rates second to fishing as a profession. Even the skipper of the ferry made an impromptu change to the course of his boat as we approached Nanortalik on the journey out, in order to take a pot shot at a seal which had been sighted in the fjord. Having apparently missed the animal the journey was resumed as if nothing out of the ordinary had taken place.

MAMMAL NOTES

BY

PETER ELLIS

The most noticeable general observation concerning mammals in the Kûgssuatsiaq area was their almost complete absence. Indeed, 50% of the expedition members did not see a single live mammal during the six weeks we spent in and around the valley. In many ways this was hardly surprising. The extreme harshness of the landscape provided little in the way of suitable habitats for herbivores above the 200 metre high coastal zone, and the tiny number of herbivores and small bird population obviously affected the presence of carnivores.

Included in our list of scientific equipment were two dozen small mammal traps on loan from the Longworth Scientific Instrument Co. Ltd. These we had decided to take in case a population of Greenland's only small mammal - the Collared Lemming (*Dicrostonyx hudsonius*) to be present in Kûgssuatsiaq. This was not to be the case, however, and the only live mammals observed were two Arctic Hares (*Lepus timidus*). These were encountered on 25th July, one kilometre south west of Base Camp, as a party of five of us were returning from load carrying to our first advance camp. The Hares were seen together, the coat of one being pure white, whilst the other was a soft grey in colour.

Although we saw no other live mammals, we did find signs of present or past mammal occurrence. The most frequent signs related to the Arctic Fox (*Alopax lagopus*). On two occasions the feathered remains of Ptarmigan (*Lagopus mutus*) indicated the recent presence of Arctic Foxes, the lack of any skeletal remains ruling out death due to a member of the Accipitridae, (Eagles and Falcons). A more positive sign of the existence of the Arctic Fox came to light on 17th August when a climbing party found fresh fox tracks whilst crossing the large glacier 5 Km N.N.W. of Kûgssûp Qâqâ. The tracks accompanied those of a small number of sheep which no doubt had ventured onto the glacier from the large, relatively lush valley at the head of Kûgssuatsiaq, which leads S.W. to the fjord of Sioralik and the settlement of Sletten 40 Km away. (It should be remembered that sheep rearing in South Greenland forms an important contribution to the Greenlandic economy.)

On this same day evidence was gained of the presence of our third mammal - the Polar Bear (*Thalarctos maritimus*). Shortly after finding the fox tracks the climbing party split into two groups, and whilst the majority continued their assault on the "White Slab" (1950 metres), Mick and Kevin decided to venture into the valley from whence the tracks appeared to come. Whilst passing through the usual boulder moraine they found a set of large, human-sized prints on patches of snow, which they later positively identified from books at Base Camp as those of a Polar Bear. It was unusual to find evidence of the Polar Bear this far south in the summer. However, they are a fairly common sight during the winter months, five having been shot on the small island of Nanortalik during the winter of 71/72. (The name "Nanortalik" can be roughly translated as "the place of the bear".)

Perhaps the most interesting mammal 'observation' related to a species no longer found in the extreme south of Greenland. Although the Reindeer (*Rangifer tarandus*) was once common in many parts of Greenland, its natural range has become extremely restricted in recent decades, and some 100 years have passed since this species occupied

the area around Kûgssuatsiaq. We were not aware of this fact when on 8th August another climbing party found a Reindeer antler at an altitude of over 1,400 metres on the ridge south west of the col at the head of Kûgssuatsiaq. The very small antler (25 cm long) was obviously of considerable age, but at the time we did not realise the significance of our find. Its occurrence at this altitude, close to the summit, can only be attributed to the activities of an Eagle.

From these few observations it is difficult to make any real conclusive statement about the mammal population around Kûgssuatsiaq. So rugged and extensive was the terrain that larger numbers of the smaller mammals could easily have gone unnoticed, and it is probable that the Hare population was higher than indicated by our observations. With the larger mammals, however, it seems unlikely that there is enough food to support more than a few individuals. As Arctic Foxes tend to move around in small parties, it would seem that one such group roaming over an extensive area was responsible for the various signs that we found. Had the group been in the immediate vicinity of Kûgssuatsiaq they would almost certainly have been attracted to our various camp sites and food dumps.

FLORA REPORT
BY
PETER ELLIS
AND
KEVIN BARRATT

FLORA REPORT - by PETER ELLIS and KEVIN BARRATT

For some years the Grønlands Botaniske Undersøgelse (Greenland Botanical Survey) has been conducting a systematic flora survey of the country, and each year selected sites have been visited by small teams of Danish botanists. In August 1962 such a team visited the valley of Isortoq, 8 km away on the south east side of Søndre Sermilik, but prior to our expedition no botanical work had been carried out on the west side of the fjord. The G.B.U., therefore, were particularly keen for us to make a flora collection whilst based at Kûgssuatsiaq. Our mountaineering qualifications would also enable us to obtain specimens from above 800 metres which the G.B.U. herbarium sadly lacked.

The Botany Department of the British Museum were also interested in specimens from this part of Greenland, and offered financial support as well as the loan of collecting equipment. Thus the compilation of duplicate collections of vascular plants (flowering plants, grasses etc.) formed the main section of our flora programme. Two other sections completed the programme: a collection of lichens and mosses for the British and Leicester Museums; and a series of line surveys carried out at each of the transect collecting stations.

The responsibility for the various sections was delegated to individual members of the expedition. Andrew took charge of the collection of grasses and sedges, and he and Kevin supervised the line surveys; whilst Alan controlled the lichen collection, and I the collecting of flowering plants, shrubs and ferns. The other expedition members frequently contributed considerable time and energy in helping to obtain specimens, and at peak periods of activity the section organisers were often confined to Base Camp in order to deal with the volume of specimens. After the inspection of a fresh consignment of 'herbage' the collector was usually rewarded with an appropriate comment such as "where on earth did you find that!" or "Oh no! Not another one of those".

As none of us were qualified botanists it would be presumptuous to attempt to include check lists of our work in this report. This we hope to do in our second report when the various collections have been expertly analysed. However, it is felt that some information on the basic plant communities would be of some interest here. These are based on those described in "The Flora of Greenland" by Bøcher, Holmen and Jakobsen, Copenhagen 1968, (English translation by Elkington and Lewis).

The various plant communities encountered as one moved inland from the fjord were as follows:

- 1 - Beach - a narrow gravelly beach stretched $1\frac{1}{2}$ km south west from the mouth of Kûgssuatsiaq. Elsewhere the coastline was generally rocky on our side of the fjord. The beach was almost devoid of plant life, with only a few grasses (e.g. *Elymus arenarius*) and the "Sea Pea" (*Lathyrus japonicus*) being conspicuous.

- 2 - Herbslopes - meadow-like communities rich in species, especially dicotyledonous herbs. Richest communities on sunny south-facing slopes, with moist fertile soils. Typical species:- *Alchemilla* spp., *Angelica archangelica*, *Campanula gieseckiana*, *Leucorchis albidula*, *Potentilla tridentata* and *Veronica fruticans*.
- 3 - Copse - Scrub vegetation from $\frac{1}{2}$ - $1\frac{1}{2}$ metres high, stretching from sea-level to c.300 metres. Often very dense especially on sunny sheltered slopes. A particularly dense belt was found along the coast north east of the mouth of Kùgssuatsiaq. Dominant species was *Salix glauca*, with *Betula pubescens* and *Juniperus communis* also important. Numerous mosses and damp loving plants found in shade of these shrubs (e.g. *Coptis trifolia*, *Potentilla crantzii* and *Pyrola minor*).
- 4 - Bog - a few small boggy patches were found within the 'herbslopes' and copse. Moss-rich vegetation with dwarf shrubs and sedges.
- 5 - Marsh and Wet Flushes - frequently found along stream banks and seasonal river bed. Wet, clayey soil supported communities of:- *Calama grostis*, *Carex*, *Epilobium*, *Equisetum arvense*, *Eriophorum scheuchzeri*, *Luzula*, *Oxyria digyna*, *Pinguicula vulgaris*, *Saxifraga* spp and *Tofieldia pusilla*.
- 6 - Dwarf-shrub - various mixed heaths among and above the copse zone. *Empetrum hermaphroditum* and *Vaccinium uliginosum* the more important species, with *Loiseleuria procumbens* and *Phyllodoce coerulea* in smaller numbers.
- 7 - Grassland - vegetation of grasses or grass-like species. Slopes Frequently rich in mosses and lichens. Snow-covered in winter, but with a long growing period.
- 8 - Fell-field - The name given to vegetation of scattered plants usually in wind-exposed localities. Open communities on scree or between boulders, with numerous crustaceous lichens covering the stable stones. Typical species:- *Draba* spp, *Dryas integrifolia*, *Juncus* spp, *Papaver radicum*, *Silene acaulis*, *Viscaria alpina* and *Woodsia ilvensis*.
- 9 - Snow-patches - Dense, moss-rich vegetation with low herbs, occurring where snow accumulates and persists for long periods resulting in a short growing period. Dwarf species include:- *Diapensia lapponica*, *Diphasium alpinum*, *Harrimanella hypnoides*, *Pedicularis flammæa*, *Salix herbacea* and *Sibbaldia procumbens*.

- 10 - Alluvial ground - Not included in the "Flora of Greenland" but included here because alluvial deposits along the banks of the glacial river formed an important linear community from sea-level to over 700 metres. Numerous colonies of grasses and *Chamaenerion latifolium* especially important.

The collections we made in Kùgssuatsiaq are now with the British Museum, and we await with interest the results of our work. After the specimens have been identified one collection of the vascular plants will be forwarded to the G.B.U. in Copenhagen.

PLANT SURVEY - by KEVIN BARRATT

At each transect sampling station, and also at the 'Last Post', a patch of vegetation in between stations 3 and 4. A 100 foot tape was stretched over the vegetation and at one foot intervals along this tape a needle was placed to the ground, and all the species it touched were recorded. This was done four times at each station, and the percentage frequency for each species at each station was recorded. The results are tabulated overleaf.

This method is not the most accurate available for quantitative plant studies. However, its simplicity and the speed with which it could be carried out made it the most suitable for our purposes, which were not to give a detailed quantitative description of the valley's flora, but to give some idea of the floral composition of each transect station.

At Base Camp, the vegetation consisted largely of dwarf willow and beech on a bed of moss, with an undergrowth of grasses (*Agrostis* species) and the shrubs *Empetrum*, *Juniper* and *Vaccinium uliginosum*. Station 2 was of slightly different composition, lichens and mosses being the dominant species. Station 3 had the greatest variety of species, the dominant being the dwarf willow. This station was fed by a small stream, which, although not permanent (it dried up towards the end of the expedition), must have played a part in establishing the relatively lush vegetation of this station. Station 4 was also fed by a stream, but this had the effect of waterlogging the soil to some extent, with consequent results on the density and range of species. Not surprisingly, mosses were the dominant species here. Above station 4, not only was the vegetation much sparser but also the number of species occurring was considerably reduced. This reflects the poorer, less stable, sandy soil on the upper reaches of the transect.

PLANT SURVEY RESULTS

SPECIES		% FREQUENCY							
		St.1	St.2	St.3	Last Post	St.4	St.5	St.6	St.7
1	Mosses	85.75	61.75	34.5	25.25	27.25	7.5	9.5	1.75
2	Lichens	15.75	64.5	4.0	17.5	18.25	50.25	41.5	0.25
3	Cerastium sp.	2.0		1.0		0.25		0.25	0.5
4	Salix sp.	51.5	3.25	65.75	8.25	13.0	8.75	11.5	
5	Agrostis sp.	42.75	18.0	24.75	9.75	0.75	0.25		
6	Alchemilla alpina	6.75		2.0	1.75	0.25	0.5		
7	Hieracium alpinum	2.25		2.25	0.5		0.25		
8	Betula sp.	50.0	57.0	17.75	30.0	0.5			
9	Vaccinium uliginosum	15.5		10.75	4.25	3.25			
10	Polygonum viviparum	1.25		10.75		5.25			
11	Veronica fruticans	1.75				0.5			
12	Empetrum hermaphroditum	18.75	8.75	16.75	22.25				
13	Juniperus communis	8.0	20.75	1.75	0.5				
14	Campanula gieseckiana	1.75		0.75	0.75				
15	Potentilla crantzii	0.25		7.75					
16	Potentilla tridentata	1.0		2.0					
17	Liverwort	7.75	0.5						
18	Juncus sp.	0.25	0.25						
19	Pyrola minor	0.75							
20	Arabis alpina	0.5							
21	Festuca sp.	0.5							
22	Lycopodium clavatum	2.0							
23	Taraxacum sp.	1.25							
24	Chamaenerion angustifolium	1.0							
25	Carex sp.		0.25	20.75		3.5	0.25	0.75	0.5
26	Deschampsia sp.		0.25						
27	Chamaenerion latifolium			0.5	1.0		0.25		0.5
28	Poa sp.			3.25		1.5	0.25	1.0	
29	Nardus sp.			25.0		0.5	0.5		
30	Bartsia alpina			2.0	0.75	0.75			
31	Thalictrum alpinum			26.5					

PLANT SURVEY RESULTS (cont'd)

SPECIES		% FREQUENCY							
		St.1	St.2	St.3	Last Post	St.4	St.5	St.6	St.7
32	Rhinanthus sp.			3.5					
33	Alchemilla vestita			6.25					
34	Diphysium alpinum			1.5					
35	Oxyria digyna			0.5					
36	Phleum sp.			1.25					
37	Ferns			0.5					
38	Erigeron uniflorus			0.75					
39	Alopecurus sp.			0.25					
40	Angelica archangelica ssp. norvegica			10.0					
41	Juncus trifidus					0.25	2.0	1.75	0.25
42	Silene acaulis					0.25			0.25
43	Phyllodoce sp.					14.75	6.75	0.25	
44	Lychnis alpina					0.25			
45	Thymus praecox						0.5		
46	Saxifraga oppositifolia								0.25
47	Bare Rock	1.5	7.5	1.75	3.5	23.0	33.5	33.75	75.0
48	Bare Ground				0.25	6.75	3.25	10.25	20.0

APPENDIX I

APPENDIX I

PERMISSION TO ENTER GREENLAND - ANDREW BARBIER

The Ministry for Greenland in Copenhagen maintains overall sanction on who enters and explores Greenland. Although it is possible to fly to Greenland as a tourist, it is not possible to climb or carry out scientific research in the remote areas without permission.

The procedure, on arrival in Greenland, is to contact the local police who then check the expedition credentials. If they have been warned of the expedition by the Ministry, the expedition is then allowed to go ahead. The only other point is that they insist on knowing where you will be and when you plan to return - for obvious reasons.

When we first started looking into the possibility of entering Greenland, the policy regarding permission seemed vague. In the past two years, however, the Danish Government has considerably tightened up on access to Greenland. This is partly the result of the increased numbers of expeditions and increased numbers of accidents. Accidents to the Danes mean time, and valuable resources wasted in a country which can ill afford this luxury. In particular we were worried what affect the French Expedition to Lindenows Fjord in 1971 would have on the Danish attitude to climbing in South Greenland. This expedition had to be rescued at great cost and was known as the 'Sikorsky Rescue 1971).

Another reason for strict access control is the desire to keep Greenland free from pollution. Expeditions are not innocent in this respect (see Travel Report).

The procedure for application is -

Submit a lengthy application to the Ministry for Greenland containing the following:-

- a) The programme of your expedition including a detailed statement of your scientific programme as well as a full description of how you propose to achieve your mountaineering and exploratory objectives.
- b) Details of how you propose to travel to and from Greenland.
- c) Names, ages and qualifications of the members of your expedition.
- d) The proposed dates of your expedition.
- *e) Measures you propose to take in order to be as self-reliant as possible in event of an accident.

* Each expedition is required to carry insurance against an accident which would be used to cover the costs of the rescue to the Danish Authorities. The principal sum insured is decided in each case by the Danish authorities, if, and when, they approve the application.

The latter is not as high in cost as has been suggested in various mountain publications of recent years. The Danes now insist on the

expedition using a Danish Insurance Company.

Once this is complete send all the information to the British Foreign Office. The form is then sent through the Diplomatic channels to the Ministry for Greenland.

The Danes will also not consider any application to visit Greenland which arrives after the 1st of February on the year preceding the expedition's visit.

If the expedition is thorough and conscientious in the preparation of these plans, no reason really exists for refusal. The Danes are especially interested to know of rescue facilities. Also, Scientific work is very beneficial. If simply a mountaineering party, it is very useful to have the backing of, say, the British Mountaineering Council or the Mount Everest Foundation (jointly administered by the Alpine Club and Royal Geographical Society).

Our expedition obtained rescue cover through Lloyds. This was not obligatory as we had a large scientific aim. Nevertheless it would be foolhardy not to obtain rescue cover.

We would like to thank The Foreign and Commonwealth Office; The British Embassy, Copenhagen; The Royal Danish Embassy, London, for giving very valuable assistance in our quest to obtain permission.

Lastly, of course, our thanks to the Danish Government for granting us permission to visit and explore this beautiful country.

APPENDIX 2

FOOD REPORT - by ALAN DOUGLAS

It was decided from the beginning that we should be entirely self-sufficient as regards food supplies for the duration of the expedition. Only by so doing could we hope to obtain a major part of the supplies as donations and at reduced prices, and package it in a way that would be easily handleable in the field.

The fact that everything had to be packed and ready for shipping to Greenland soon after Easter meant that we would have a very short period of time in which to obtain and repack nearly one ton of assorted supplies - enough for ten people for two-and-a-half months. A list of likely firms was compiled from those that had donated to the Norwegian expedition, from other recent expedition reports and from a morning spent with note-book and pencil in several local supermarkets. During February and March each of these received a carefully worded letter plus pages of detailed information covering every aspect of the expedition and emphasising that the success or failure of the whole project depended entirely on their donation. Fortunately, many of those to which we wrote responded generously, and in the end we received over two thirds of the total (nearly £200 worth of assorted groceries and all our packaging materials) as donations. The largest single donation being £100 of groceries from Brierleys - an extremely valuable grant.

Both in content and method of packaging the rations were based closely on those devised for the 1970 Norwegian expedition. They had worked well in practice and the modifications that we felt to be necessary were mostly small variations in quantities and a general improvement in the method of sealing. As our numbers had simply doubled - from five to ten, estimation of quantities was simple. In neither case did the rations have very much to do with advanced expedition diatetics, other than to ensure that Protein, Carbohydrate and Fats were not entirely absent. Vitamin content was supplemented with an assortment of C, D, and multi-vitamin tablets which were eaten like Smarties, a different colour each day.

Realising that we would need to work as two separate groups for the purposes of the scientific and mountaineering programmes and that it would be impossible to cook as a single group of ten under normal expedition conditions, it was decided to divide the food into two five-man ration boxes for each day. Smaller units might have given greater flexibility in the field but would have greatly increased the amount of packaging and therefore both the work in preparation and the overall weight.

The items included in the boxes to be used whilst travelling were more or less identical for each day. For the rest of the period the food was split into Base Camp (Scientific) and Mountaineering boxes (the ration scales overleaf are typical of each). In general the Base Camp boxes were heavier as they included more tinned and less dehydrated items. They were also supplemented by any items that could not conveniently be broken down - preserves, condiments, flour etc. and by all those leftovers from manufacturers standard cases that we had not the heart to leave behind.

Every dry item, unless conveniently packed, was weighed out into the correct amounts and heat-sealed in polythene bags. These were then packed in specially made, double-walled, stout cardboard boxes, 380 x 230 x 140 mm - 150 in all. Each box was labelled and numbered, checked and rechecked and sealed again in a larger polythene bag.

Making up all these boxes was a long and tedious job and with the general packing occupied almost all the Easter vacation. Each day we found a few extra items that were missing and many visits were paid to a local wholesaler to fill in the gaps. Hours were spent scouring Leicester for supplies of Christmas puddings - not easy to come by in April, and we never had enough.

Five days food were retained to last us until we reached Nanortalik. The rest were crated ready for shipping, via Copenhagen to the same destination. Soon after this our original plans were changed as we received details of the travelling arrangements, and the total length of the expedition was reduced by five days. Our arrival in Nanortalik ten days ahead of the long overdue Edith Neilsen meant that more food had to be bought locally for that period; we had also included five days emergency food. The overall result was that we had far too much, and even though the daily food boxes alone were more than adequate, great efforts were devoted to consuming as much of the extra as possible.

Four boxes fitted conveniently onto a packframe and made a reasonably manageable load. A few, in spite of the careful packing, suffered slightly from damp following the boat journey to Kûgssuatsiaq but were soon dried out - the sealed contents remained unaffected. For utter simplicity and ease of use in the field they were well worth the effort involved.

For the most part quantities of the items in each box were about right. The only real criticism was the lack of sufficient variety. Even the most stoic amongst us began to find over two months of dehydrated vegetables and dried egg monotonous - all the more so as food became the all important topic of conversation, the subject of eloquent debate never applied to more mundane matters.

Cooking was by petrol and paraffin stoves. It was kept to a reasonable standard by the scathing abuse that followed any particularly revolting offering, and after a short while the preparation of a three-course meal from all dry ingredients became a simple routine for most of us. On occasion the diet was supplemented by one of the more popular items on the menu - fresh cod from the fjord. That the Calorific value was more than adequate is evidenced by the fact that almost everyone of us gained weight during the course of the expedition.

Here is an example of an early attempt to cook a full tea by Kevin Barratt (28.7.72). Needless to say he soon learnt better ways.

- 18.25 Started getting tea ready.
- 18.35 Three stoves lit at once; two go out immediately.
- 18.37 Soup On!
- 18.37 and 30 seconds - Mick fills the stove. Kev, with hands in pockets, is arguing with Graham.
- 18.40 Kev stirs soup. Comment - "It Looks Hot". The day previously he had made a brew long before the water had boiled. The term 'Barratt Boiling Point' was thus coined. Here the soup must have reached 'Barratt Boiling Point'.
- 18.45 Stove relit. Here we discover that Kev has put teepol in Mick's stove instead of paraffin. Kev is still watching with hands in pockets.
- 18.50 Three stoves at last going. Kev starts the 'cooking'.
- 18.52 The Soup is about to boil over. Kev is having difficulty deciding how to stop it.
- 18.54 Kev asks someone to butter the Ryvita. Mick obliges. Perhaps some food is imminent?
- 19.02 Soup is served. Kev demands his Ryvita.
- 19.10 He is now having trouble with the Chunky Chicken Supreme.
- 19.12 Mick washes the mugs. Kev stirs the Chicken Supreme.
- 19.15 The Carrots boil dry.
- 19.24 Potato is mixed.
- 19.25 Carrot is served.
- 19.30 Meal is served. Just over the hour since the cooking started.
- 19.33 Frying pan, butter, and Christmas pudding tipped over. Kev battles on.
- 19.37 Graham begins to make the milk.
- 19.42 Kev sets light to plastic sheet with petrol. He then messes up the frying pan beating the resulting fire out. The rest of us are now almost convulsed watching this epic.
- 19.50 Custard thinking about being made. Kev is trying to sort out the mess of the last few minutes. Meanwhile 2 stoves are going along with nothing on them.
- 19.53 Kev pours custard powder all over himself.
- 19.58 Stove goes out.
- 20.08 Milk boils over.
- 20.19 Serves Custard.
- 20.37 Brew Poured out.

It has taken two hours and twelve minutes to prepare tea. The rest of us have received aching stomachs with laughing too much. It is notable that no-one offered to take over.

After that incident Kev rarely made mistakes whilst cooking.

TWO TYPICAL RATION SCALES (all one man/one day)

Weights in ounces - in case of dried foods dry weight is given

Item	Mountaineering	Base Camp
Ryvita Crispbread	3.2	3.2
Tea bags	2 no.	2 no.
Instant Coffee	0.5	0.5
Drinking Chocolate	0.5	0.5
Sugar (white)	4.8	4.8
Sugar (brown)	0.8	-
Dried Milk	2.0 (1 pint)	2.0 (1 pint)
Tinned Margarine/Butter	1.6	1.6
Spray dried whole egg	1.2	1.2
Oatmeal	2.0	2.0
Baked beans/Tomatoes	-	6.4
Tinned Herring/Sauges	1.5	-
Cheese spread (tubes)	1.0	1.0
Biscuits	1.6	1.6
Chocolate	1.6	1.6
Dried fruit	-	2.4
Salted peanuts	1.6	-
Boiled sweets	1.0	-
Meat spreads	0.7	0.7
Soup	0.3 ($\frac{1}{2}$ pint)	0.3 ($\frac{1}{2}$ pint)
Complan	1.0	1.0
Powdered potato/rice	1.0	1.0
AFD Vegetables	1.2	1.2
Tinned meat	-	6.4
AFD Meat	1.2	-
Tinned fruit/rice pudding	-	6.4
Dried apple/Christmas pudding	1.0	-
Custard powder	0.2	0.2
Salt	0.2	0.2
Matches	1 box	1 box
Brillo	1 no.	1 no.

APPENDIX 3

APPENDIX 3

MEDICAL REPORT - by ANDREW BARBIER

John Precey did an excellent job as medical officer to the expedition, his untimely withdrawal two weeks before departure left Graham Hudson (the new medical officer) preciously little to do - except administer the drugs and make up the kits in the field (small mountain kits and the main Base Camp Medical Box).

We are extremely grateful to Dr. Creighton, the Student Health Officer at the Polytechnic. He provided us with a comprehensive list of medical requirements. On the day before our departure he gave us a brief, but very succinct lecture on how and when to use this supply of drugs. This was followed up by a bandage instruction session to all members (3 of whom already held First Aid Certificates) by Sister Margaret Faulkes-Williams (Sister at the Student Health Centre). Fortunately, as we had hoped, most of the help and advice proved superfluous!

We also made medical arrangements for when we were in Greenland. The expedition did not have a qualified doctor in the field. We thus made arrangements in Nanortalik (the nearest habitation by fjord) for medical help. The medical facilities consisted of a modern hospital situated in Nanortalik and a hospital ship which toured South Greenland. The Greenland (Cape Farewell) Expedition across at Isortoq also had a Doctor - Dr. Rolfe Birch. We co-operated with this expedition in event of accident.

The procedure we had in case of an emergency was:-

- 1) Release warning flares - Red. (We had a call and answer system.)
- 2) Go for assistance in boat either across fjord to help Cape Farewell expedition or into mountains to help our own expedition.
- 3) Radio Nanortalik (from Cape Farewell Base Camp).
- 4) At the same time a party set-off in a rubber dinghy to get help in Nanortalik.
- 5) Also utilise the manpower of both expeditions to bring the casualty down from the mountains (16 people).

This plan was carefully worked through by our respective expeditions. We all hoped that no co-operation of this kind would be needed.

Our medical-log, kept whilst in the Kugssuatsiaq valley, contains 58 entries. 45 of these were for treatment using anti-histamines for mosquito bites! This aspect of expedition life has been mentioned in almost every section of this report. Of the ten expedition members, only Kevin failed to respond well to treatment, his face and hands became blistered at the site of his mosquito bites. For the others, the mosquitos were really only a source of constant irritation. A gradual immunity being observed. This aspect of medical health in the Arctic regions must not be underestimated.

The remaining entries were: five for treatment of minor cuts and abrasions; four for sore throat and headaches; three for a short lived attack of vomiting and diarrhoea on Adolf and Pete Bear and lastly treatment of Andrew's burnt sleeping bag with elastoplast.

A list of drugs and bandages taken out by the expedition are recorded in the table overleaf.

LIST OF MEDICAL EQUIPMENT TAKEN ON THE EXPEDITION

FUNCTION	TYPE	AMOUNT	SUPPLIER
Analgesics	Fortral	100 caps.	Winthrop
		10 amps.	"
	Lobak	200 tabs.	"
	Panadeine	200 tabs.	"
	Panadol	500 tabs.	"
Antacid	Dijex	300 tabs.	Boots
Antibiotics	Distaquaine VK	200 tabs.	Dista
	Imperacin	200 tabs.	I.C.I.
	Mycivin	100 caps.	Boots
	Thalazole	500 tabs.	M & B
Antidiarrhoeal	Codine Phosphate	200 tabs.	Boots
Anti-Emetic	Stemetil	100 tabs.	M & B
Anti-Histamines	Anthisan	100 tabs.	"
	Banistyl	200 tabs.	"
	Phenergen	200 tabs.	"
	Anthisan Cream	20 tubes	"
Vitamins	Becosym	1000 tabs.	Roche
	Redoxon	500 tabs.	"
	Sanatogen	360 tabs.	Fisons
Miscellaneous	Antiseptic Cream	20 tubes	M & B
	Cetavlon Cream	20 tubes	I.C.I.
	Cetavlon Solution	1500 ml	"
	Synalar Ointment	20 tubes	"
	Plaster of Paris Bandage	6 pkts.	Boots
	Blood/Solution Admin. Sets	6	Baxter Labs.
	Fenwall Blood Packs	2	"
	Dextrose Saline Solution	12 litres	"
	Dressings		
	Crepe Bandages 4"	10 off	Boots
	" " 3"	10 off	"
	Kling Bandages 6"	10 off	"
	" " 4"	10 off	"
	" " 3"	10 off	"
	Zinc Oxide 1/2"	12 off	"
	Gauze 1 oz	96 pkts.	Mr. C. Precey
	Elastic Adhesive Dressing 1 1/2" and 3"		
	Medical Cotton Wool	64 oz	Anon.
Medic-air Splints	Half Arm Splint 301	1 off	Industriacare Ltd.
	Full Arm Splint 302	1 off	"
	Half Log Splint 303	1 off	"
	Full Leg Overboot Splint 307	1 off	"

The above list was compiled by John Precey from the advice of Dr. Creighton.

Each Member of the expedition received small-pox and tetanus injections; Blood-group checks and dental treatment before going out to Greenland.

APPENDIX 4

APPENDIX 4

EQUIPMENT NOTES - by PETE MEADS

For large expeditions with big-name climbers and a well-known objective such as Everest, obtaining great quantities of specialized, and hence expensive, equipment is merely a question of letting the major manufacturers know of your plans, outlining your requirements and waiting for the free sample and generous discount offers to roll in. All the manufacturers ask in return is the odd photograph of their product in action and a couple of lines of praise in the expedition report, or nowadays best-seller. This arrangement is eminently satisfactory for all concerned. It does mean, however, that the small, low-budget, college or club expedition, although equally meritorious, tends to be left out in the cold in the free gear stakes, since manufacturers of specialist gear have very low profit margins, and can see no significant return in the form of publicity for their outlay in the support of such expeditions.

Thus, in our case, as in the case of many other small expeditions, the majority of the climbing and personal gear we took was our own, most of it collected over a period of several years climbing. Of course, some members had collected more than others. Kev and Adolf, for example, had little more than boots and waterproofs, and thus went on a spending spree. The rest of us seemed to limit ourselves to duvets, new sleeping bags and proper breeches.

All this new gear came from Leicester's only proper climbing shop, Roger Turner Mountain Sports, who at an early stage in the planning were bullied into giving us a very decent discount. Mike Browne, the manager, also did a lot for us by approaching the major manufacturers on our behalf, and managed, by what devious means we know not, to get us even cheaper sleeping-bags and ruscacs, when our own appeals to the same firms would doubtlessly have resulted in the usual negative reply. We must also thank both Roger and Mike for much useful advice and criticism, being much older and wiser than us kids.

The need for a small dinghy was discussed at great length at expedition meetings. We eventually decided that it was a necessity, and a C craft C-10 inflatable dinghy with outboard was purchased secondhand. This proved useful, and would have been essential had the need arisen for getting outside help while we were in the valley. It was sold locally before we left Greenland.

Of the equipment which was donated or offered at cut rates we took the following:-

Expedition ropes were supplied by British Ropes Ltd., and we took two 150' 11 mm Viking perlon ropes and one 300' 9 mm bicolour rope. As expected, the 150' ropes suffered greatly at the hands (and crampon-shod feet) of some members, and had a lot to cope with in the way of sharp-edged rocks, but they survived in one piece and the fact that they have been bought by members as personal ropes speaks for our continued confidence in them. The 300' rope was not used, mainly because nobody wanted to carry it and partly because we didn't climb anything steep or difficult enough for its advantages to outweigh its disadvantages. Nice rope, though.

Fingerless mittens were supplied by Millarmitt, and these were very handy on the transect when it was cold and wet, as ones fingers are free to perform delicate operations with thermistor probes etc. They are also reasonably mosquito-proof, and Kev wore his in the Base Camp tent even on blazing hot days, to discourage them from stripping the flesh from his hands whilst doing insect counts and other esoteric scientific things.

Sunglasses came from Polaroid. Although we all had special dark snow goggles we found normal polaroid glasses were quite adequate, even in extreme conditions of bright sun on snow, due to their polarizing action cutting down glare. Nobody suffered from snow blindness, and we all looked very smart.

Apart from personal tents, two Blacks Icelandic tents were used at Base Camp for storage and scientific work, and also two Good Companions. These were borrowed from the Leicester Education Committee Outdoor Pursuits Centre.

Last but not least (ridiculous phrase) cagoules and overtrousers were supplied by Henri-Lloyd Ltd. These are made of heavy nylon with crown proofing which is guaranteed to be 100% waterproof, and indeed we found this to be the case. As with all truly waterproof clothing, there is a problem with condensation when sweating profusely, but in normal walking this was minimal. The garments proved especially welcome when one was pushed out of the tent in the morning to cook breakfast in the rain cum snow, and their protection made this awful task almost bearable.

Efforts were made to obtain a Base-Camp radio, but these proved abortive. In the end, it was felt that an emergency situation, if it arose, was catered for by the purchase of the boat, which could be used to fetch help.

A P P E N D I X 5

LIFE IN GREENLAND - by GRAHAM HUDSON

Greenland, often said to be the World's largest island, is actually three islands under a dome of ice which is nearly 3,000 metres thick. The most northerly point, Kap Morris Jessup, is the nearest land mass to the North Pole and the most southerly point, Kap Farvel is on a similar latitude as that of Oslo. But even though the southern part is situated at a relatively low latitude the whole of the country has an Arctic climate. It is this Arctic climate that makes life so different from many other countries.

Before the expedition arrived in Greenland none of the members really knew what to expect. We knew that eskimos and igloos were not to be found in the south, but I think we were all a little surprised to find such things as supermarkets and luxury flats. We were all eager to find out more about the country and were constantly asking people questions until they must have been tired of us. But after all our questions and a two-month stay we only found out a little about the country. Michael Davis and myself decided to stay, after the other expedition members had gone home, and face an Arctic Winter. After several months of living among the people we have now begun to understand Greenland.

The population of Greenland (which is part of Denmark) is about 50,000 people of which most are Greenlanders, but there are also about 4,000 Danes living here who are trying to improve the living conditions of the Greenlanders. It costs Denmark 700 million crowns (approx. 50 million pounds) a year as there is not enough industry to support the country. The main industry is fishing and hunting and the people who don't fish provide the services to the towns. Most towns are situated along the west coast which is free of ice for most of the year. We now live in Nanortalik which is on the south west coast.

Nanortalik is a typical town in Greenland, of average size, with a population of 1,300 people. It is set on an island which is the biggest of many in the area and is very close to the mainland. There are two long fjords nearby that cut into the mainland and it is in these fjords and among the islands that the fish can be found (if you know where to look). The main months for fishing are June to September although it is possible to fish all year round, weather permitting. At the end of May the pack-ice starts to drift south and the sun starts to shine. The sun soon heats up the water in the fjords and the cod fish start to come into the fjords from the bottom of the sea. They live at a certain water temperature and in the winter the fjords are too cold, so they descend to the warmer water which can only be found in the deep sea.

In April and May the fishermen start their work by preparing their boats and nets. The fishing cutters must have a new coat of paint and any small repairs carried out and the nets must be inspected and any holes repaired. When most of the ice has gone they sail to the end of the fjords and lay down their nets. The first month is usually not very productive but from June - August the fish can be found in large quantities.

The work starts to ease off again in September and by October the cold weather has returned and the fish have gone out to sea again. For these four months the work is very hard but a lot of money can be made. Some fishermen will find jobs on land but others will just live off their summer earnings during the winter.

In Nanortalik there are ten fishing cutters, but the fishermen who don't work on these have their own small dinghys and go out and spin for the cod. Also many people who work on the land will go out early in the morning and fish for salmon which can be found in September and October.

Fishing is very hard work and often the fishermen work 15 hours a day for 7 days a week, only getting a rest when there is a storm blowing. Every night they will sail home with the day's catch and get a few hours sleep before setting off again at 2.00 a.m. in the morning when it starts to get light. At the end of the season most fishing cutters from Nanortalik take a two-week trip round to the East Coast, seal hunting. The seals are sold for food to the Greenlanders and the skins are used for clothes, sold to the local trading company or used as decorations for the wall. Seal hunting is a pleasant rest/holiday after a hard season's fishing.

During the summer in Nanortalik life goes on much the same. The builders take advantage of the good weather and long days and get as much outside work done as possible. There is always plenty of work in the summer. In the long winter there are many people out of work and they either live off their summer earnings or live off the state. The work on land is mainly in the form of services for the town. There are two large shops in which you can buy almost everything from food to stereo record players. There's a hardware store which sells everything from outboard motors to fishing hooks and there are services that every English town would have such as a bank, a church, a post office, a community hall (for the cinema, dances and badminton), a fire station, a garage etc. There are in fact some things that even an English town wouldn't have, such as a generating station and water works, because the town has to be self-supporting.

Many people here have a lot of free time but usually something can be found to occupy it. There is the cinema twice a week that always shows an old film and there's a dance once a week. On most nights in the winter there is evening school where you can learn many things like cooking, photography, carpentry, pottery, bridge, chess and even English! There are also several clubs such as the billiard club, clay pigeon shooting club, chess club, badminton club and knitting club. When you are absolutely desperate, with nothing to do, you can always turn to one of the two bars and spend a few hours drinking. But unfortunately this is one of Greenland's biggest problems as there is a very high rate of alcoholism in the country.

The whole of Greenland has an Arctic climate but the weather differs considerably from north to south. The short summer over all the country is generally good with plenty of sun and long hours of daylight. In the north the midnight sun can be seen on many days. But the winter can

be harsh and very cold. The south has many storms and snow several feet deep, but the temperature rarely goes below -20°C . In contrast the north is very cold but the storms are infrequent and this gives the opportunity for sledging with dogs for most of the winter. The weather in the south is not really suitable for sledging and in fact sledge dogs are forbidden south of Holsteinsborg. This is because they can be dangerous and they would attack the sheep which are raised in the south.

When the other expedition members went home Mick and I stayed in Greenland to work. I got a job on one of the fishing cutters and Mick took a labouring job on land. I found it most satisfying to set off in the morning, just as it was getting light, for a day's fishing. Although it was most interesting I also found on several occasions that these icy waters can be dangerous. The first time was when we were sailing home after a day's fishing. The weather was not too good and we took a short cut round the south west side of Nanortalik Island which is open to the sea. The sea was rather rough and half-way round there was a nasty screeching noise from the motor. The prop shaft had split in two! Our radio not working, we could not contact land and were helplessly drifting towards rocks and big icebergs were menacingly near. Our skipper set off in a rubber dinghy (the expedition dinghy) to the town and within two hours we were rescued with nothing worse than me being sea-sick and nearly losing a false tooth.

Our second incident was a fine day when Mick came with us to help take up the nets. He can now tell you how cold these waters are after falling in twice within fifteen minutes. He was cursing and swearing a little more than usual but a couple of glasses of shnaps and some dry clothes soon warmed him up.

My worst experience was one day in October; we were setting off for a week's fishing at a town about forty miles from Nanortalik. The weather was good and three of us left in good spirits. We had been sailing for about two hours and were taking a short cut through a mass of islands. Suddenly there was a loud crash and I jumped out of the cabin to find that we had hit some under-water rocks. We were still floating although we had a hole that was letting in water. Fortunately the hole was not too big and the pump could take the water out as fast as it came in. We turned round and set off for home. The weather had slowly been getting worse and by the time we were an hour from home a force nine gale was blowing. Things soon became desperate because the waves were breaking over the ship and water was getting into the small machine room. The pump now could not take the water out fast enough and it was slowly rising in the machine room so that the motor might stop any minute. This left us with only one alternative and that was to get to land quickly. In a couple of minutes we found a suitable place and had to run the boat aground in a beachy alcove. We were again rescued within a couple of hours after using two red rocket flares (expedition flares) and the next day, after about four hours, we managed to refloat the boat with only a little damage.

But Greenland, with its harsh weather and dangers, is a magnificent and beautiful country. The air is fresh and pollution free and the sea has not been spoilt like most of the waters of the world. Its mountains, glaciers and ice cap should be seen by all and now, with an up-to-date traffic network of coastal vessels and helicopters it is possible for anybody to take an adventurous trip to this beautiful country of Greenland.

APPENDIX 6

FINANCE - by HARRY WILSON

Budgeting for any expedition appears to be a rather hit and miss operation, and however much thought goes into planning and estimating, one comes unstuck almost as soon as one starts. At least this was our experience.

At the finish we ended up by being adequately patronised. The larger grants from the various institutions obviously formed the bulk of our finance along with our personal contributions. This does not remove the need to obtain as many sponsors, however small, as possible. We are most grateful to the local companies and we found that those who helped this time had mainly helped the Norway Expedition in 1970.

Not only was help required in hard cash, but also in goods supplied to us. These have been mentioned by other members in their sections, but medical, packing and crating, and especially food, would have had to be purchased. Those who gave certainly defrayed our expenses and helped us to keep somewhere near our budgets.

The response to many letters sent out was in general very poor, many declined help but wrote encouragingly, but the disappointments were eclipsed by one or two surprises. We wrote to many Trusts as well as private companies. Expedition members meeting in the Union for lunch became accustomed to reading the news from my face. When we received the British Museum grant, a complete surprise to us, jubilation helped to relieve some of the tension which inevitably mounts as departure date looms near with little in the bank to cover it.

The budget was amended as necessary and photographic needs were kept to a minimum, members providing all the film for transparencies and black and white. Those who took good photographs found themselves inundated for spares by the other members. Those who did best seem to be the ones with damaged cameras or without a camera.

Contributions of food helped us keep below the budgeted figure, but being without food on arrival in Nanortalik came as a shock. Supplies from the supermarkets were adequate although it became a little repetitive as we attempted to eat as frugally as possible.

We left the dinghy and flares in Nanortalik hoping that Graham and Mick would sell them for us. In the case of the dinghy this avoided return freight charges, and the small profit helped towards the outward charges. Both might be described as a "best buy" as will be seen from Graham's report.

We were by no means a wealthy party and considering the limited extent of the finance to the size of party and its objectives, we are quite satisfied to finish with a little cash to cover postage on the reports and lecture expenses.

Some of the donations as can be seen from the Income Statement made a marked difference to our position. We knew fairly early on that we had

the support of the College Governors and the Students' Union, but we had to wait a long time for news of our application to the Mount Everest Foundation. When we heard the news we breathed a sigh of relief, as this meant we were just about home and dry.

We took Danish Kroners with us so as to make all payments in Greenland in cash. The day before departure was a bit of a panic as the currency restrictions then in force didn't allow our Bank to supply all the cash, so a hasty visit was paid to another Bank to get the balance.

Once we left Nanortalik for the valley my duties as money minder were over until we returned to civilization. I personally felt very strange at not having to carry either mine or the expeditions' cash around. It took a few days before I stopped carrying my front door keys around with me as well.

As well as being treasurer I was adopted as accommodation officer whenever we landed. My selection of hostelry has already been documented, but luckily there were few complaints at what I talked us into. After the sumptuous accommodation in Julianehaab I was left with the problem of keeping up standards. Certainly without Lis's help in Nanortalik we would have been in difficulties in finding and paying for anywhere to stay. Throughout our travels we never spent a night out in the cold en route and were always received eagerly and made welcome. Nothing was expected in return, a feature which was more than appreciated by us and gives food for thought on at least one aspect of the so called 'advantages and advances of high civilisation'.

Appendix 6

Income

	£	p.	£	p.
Members Contributing - 10 x £100	1,000.00		1,000.00	
<u>DONATIONS RECEIVED</u>				
British Universities Student Travel Association	100.00			
W. Blackburn Esq.	5.00			
The British Museum (Godman Exploration Trust)	100.00			
The British United Shoe Machinery Co. Ltd.	10.00			
N. Corah (St. Margaret) Ltd.	10.00			
J. Hulme Esq.	1.00			
Kirby & West Ltd.	10.00			
Leicester Polytechnic Governors	200.00			
Leicester Polytechnic Students' Union	200.00			
Midland Dynamo Co. Ltd.	5.00			
The Mount Everest Foundation	500.00			
C. Precey Esq. (For Medical Equipment)	9.48			
W.P. Precey Esq.	10.00			
Scott Polar Institute (Gino Watkins Trust)	75.00			
The World Expeditionary Association (W.E.X.A.S.)	50.00			
Wolsey Ltd.	5.00		1,290.48	
Bank Interest on members original contributions	.70		.70	
			£2,291.18	

EXPENDITURE

	£	p.	£	p.
<u>Travel</u>				
Return Air fares Glasgow-Reykjavik-Narssarsuaq	1,054.00			
Boarding fees Glasgow Airport	5.00			
Return fares Coastal ferry Narssarsuaq-Julianehaab-Nanortalik	96.25			
Local fishing boat, Nanortalik-Expedition Valley	94.00			
Travel expenses prior to expedition: Petrol, van hire, meals en route, sundry travel on return	102.41		1,351.66	
<u>Insurance</u>				
Personal travel insurance	100.00			
Freight Insurance	95.50			
Rescue Insurance	105.00		300.50	
<u>Stores and Equipment</u>				
Climbing equipment	32.15			
Inflatable Dingy and Outboard Engine	110.00			
Flares	17.63			
Kitchen Equipment and Sundry Spares	32.66			
Maps	14.08			
Aerial Photographs	1.50			
Medical Equipment	9.48			
Loan of Scientific Instruments	34.40			
Insurance Excess payments to be made on damaged scientific equipment	10.00			
Food	231.31			
	493.21			
<u>Less</u>				
Sale of Dinghy and Engine	148.10			
Sale of Flares	17.50		327.61	
<u>Freight Charges</u>				
Outward Journey	150.09			
Return Journey	64.14			
Handling charges at Nanortalik	3.50		217.73	
<u>Secretarial and Miscellaneous</u>				
Stationery, Telephone, Postage and Sundries	51.93			
Gift to Harry and Lis Østerby	15.00			
Photographs for sponsors	3.61		70.55	
			2,268.05	

Balance Sheet as at 1.3.73

Total Income

£2,291.18

Expenditure

Travel	£1,351.66	
Insurance	300.50	
Stores and Equipment	327.61	
Freight Charges	217.73	
Secretarial and Expenses	<u>70.55</u>	2,268.05
Cash Balance		

23.13
£2,291.18

£2,291.18

APPENDIX 7

BIBLIOGRAPHY

NOTES

It was decided that the two members remaining in Greenland should be given their return air tickets and coastal ferry fares for their return journey whenever that may be.

It is proposed that the remaining cash be retained to pay for postage on expedition reports and lecture expenses.

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Dr. Barry Heighton	-) Project and in building and
Mr. Peter Holland	-) preparing equipment.
Mr. Ian Evans	- Keeper of Biology, Leicester Museum.
Mr. Groves	- Botany Dept. British Museum
Dr. Theresa Clay	- Entomology, " "
Dr. Lawrence	- " " "
Dr. Geoffrey Halliday	- Botany Dept., Lancaster University Botanical advice.
The British Museum	- Natural History Section.
The Leicester Museums	

SCIENTIFIC (cont'd)

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J. Hulme Esq.
Kirby & West Ltd.
The Governors, City of Leicester Polytechnic.
Leicester Polytechnic Students' Union.
Midland Dynamo Co. Ltd.
Mount Everest Foundation.
C. Precey Esq. (Medical Equipment)
W.P. Precey Esq.
Scott Polar Research Institute (Gino Watkins Trust).
Wolsey Ltd.
World Expeditionary Association.
Lloyds Bank Ltd.

MEDICAL

- Dr. Creighton - Leicester Polytechnic Student Medical Centre.
Sister Margaret Faulkes-Williams " " " "

MEDICAL EQUIPMENT

- Baxter Laboratories Ltd. - Blood Packs.
Boots Pure Drug Co. Ltd. - Bandages and drugs.
Dista Products Ltd. - Antibiotics.

MEDICAL EQUIPMENT (cont'd)

- Fisons Ltd. - Vitamin Tablets.
I.C.I. Pharmaceuticals Division - Drugs and antiseptic cream.
Industriacare Ltd. - Splints.
May & Baker Ltd. - Drugs.
Roche Products Ltd. - Vitamin Tablets.
Winthrop Laboratories - Analgesics.

EQUIPMENT

- The Royal Geographical Society - Surveying equipment and approval of
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Longworth Scientific Instruments Ltd. - Mammal Traps.
School of Biology, Leicester Polytechnic - Scientific equipment.
Leicester Education Committee - Outdoor Pursuits Centre - loan of tentage.
R. Turner (Mountain Sports) Ltd. - Equipment discount.
British Ropes Ltd. - Discount.
F. Diak & Sons - Discount on distress flares.
Polaroid (U.K.) Ltd. - Discount on sunglasses.
Millar Gloves Ltd. - Millarmits.
B.D.B. - Discount on Photographic equipment.
Henri-Lloyd - Discount on waterproof clothing.
17th Army Youth Team, Leicester - Fluorescent Aircraft markers.
Geodaetisk Institut, Copenhagen - Maps and Aerial Photographs.
Avia International (Watches) Ltd - Breitling wristwatch.
W.C.B. Packaging Ltd. - Medical Box.
H.J.B. Plastics Ltd. - Polythene tarpaulins, bags and sheet.
F. Jessop Ltd. - Discount on film.
Oakham School C.C.F. - Loan of packframes.

GENERAL EQUIPMENT FOR KITCHEN

Bryant & May Ltd.
Hulme-Martin Ltd.
Metal Box Co. Ltd.
Pemberton Taylor Boxes Ltd.

Matches
Heat sealing machine (loaned)
Polythene bags
Cardboard boxes

FOOD

Batchelors Foods Ltd.
Brierleys (Leicester) Ltd.
British Sugar Corporation Ltd.
Brooke-Bond Oxo Ltd.
A.C. Finken & Co. Ltd.
General Foods Ltd.
Glaxo Laboratories Ltd.
Golden Wonder Ltd.
Littlewoods Stores
Charles Nolan & Sons (G.B.) Ltd.
S. Parkinson & Son (Doncaster) Ltd.
Pearce Duff & Co. Ltd.
Pickering Foods Ltd.
L.E. Pritchitt & Co. Ltd.
Quaker Oats Ltd.
R.H.M. Foods Ltd.
C. Shippam Ltd.
Sutherlands Foods
Tate & Lyle Refineries Ltd.
Trebor Sharps Ltd.
Unilever Export Ltd.
A. Wander Ltd.

A.F.D. apple dice
General groceries
Sugar
Tinned meat/tea bags
Force Wheat Flakes
Instant Coffee
Complan
Salted Peanuts
Chocolate
Tinned Butter
Sweets
Dried onion/custard
Powdered milk
Powdered milk
Porridge Oats
Flour
Tinned meat/spreads
Meat Spreads
Sugar/Golden Syrup
Sweets
Tinned Margarine
~~Powdered milk/Ovaltine/Drinking~~
Chocolate
Weetabix Cereal
Dried Fruit

Weetabix Ltd.
Whitworths Holdings Ltd.

REDUCED PRICES

S. Behr & Mathew
The Ryvita Co. Ltd.
Kavli Ltd.
Keen Cost Ltd.

Dried Egg
Ryvita crispbread (tinned)
Chees Spread (tubes)
General Groceries

GENERAL ASSISTANCE

Lloyds of London - Rescue Insurance facilities.
Endsleigh Insurances Ltd. - personnel and equipment insurance.
Lloyds Bank Ltd - Banking facilities
The Scott Polar Institute - Library facilities.
Dewi Jones - Diet advise and food supplies.
Mrs. Ludbrook - Miscellaneous foods.
C.S. Martin Holdings.
Pat Burke Esq.
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Harry - Cook at Keflavik Airport - overnight accommodation and food.
P. Juel - Steward, Narssarssuaq Airport - Overnight floorspace.
Inspector V.C. Madsen, Julianehaab - overnight floorspace in the
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