

Pam 91(08): (43) [1962 John and Sugden]  
with compliments,  
Dr. Higden ✓  
B.S. John.

REPORT OF THE  
OXFORD UNIVERSITY  
EXPEDITION TO  
EAST GREENLAND  
1962

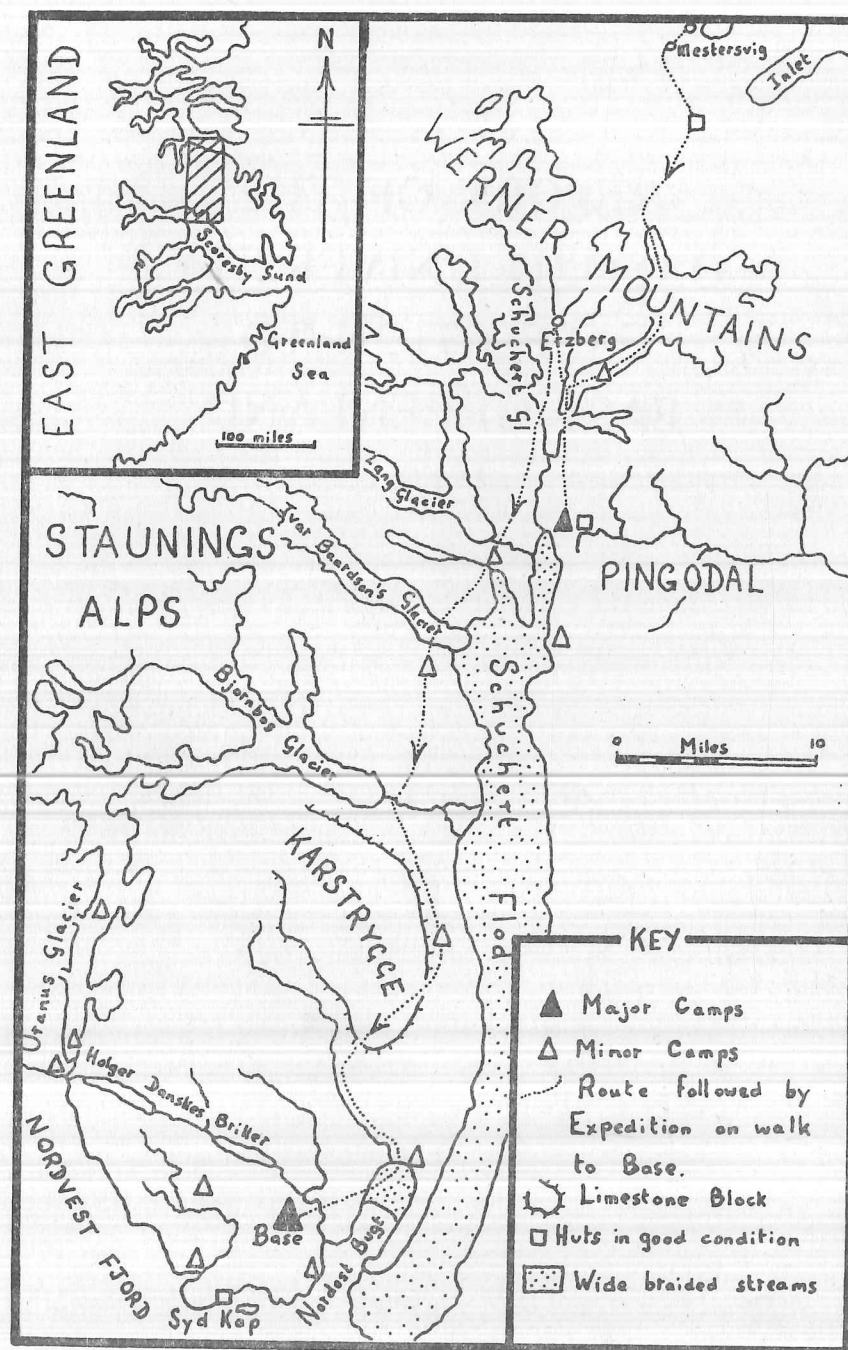
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Reprinted from Oxford University Exploration Club Bulletin No. 12



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## Oxford University Expedition to East Greenland, 1962

B. S. JOHN and D. E. SUGDEN

### Introduction

The expedition carried out a nine-week scientific programme in the Schuchert Valley and in the coastal area north and west of Syd Kap, a former Eskimo settlement 120 miles inland from the mouth of Scoresby Sund. This part of East Greenland offered, within a relatively compact area, conditions of active glaciation and varying degrees of de-glaciation. The scientific work was carried out in these different environments and covered aspects of glaciology, geomorphology, zoology, and botany.

The venture was the first from Oxford University to Greenland since the war and it followed a smaller Oxford Expedition to Iceland in 1960, the report of which can be found in the *Oxford University Exploration Club Bulletin No. 10*.

### Preparations

Preparations for the expedition began fifteen months before the date of departure. The first detailed plan was produced by mid-November, 1961, which was early enough for our first grant application and allowed ample time to complete official formalities.

In view of the dangers involved in working in Greenland and the difficulty of mountain rescue operations, the Danish Government justifiably approves only those expeditions which satisfy their strict regulations. We formally applied for permission to work in East Greenland through the British Foreign Office over seven months before our departure. We obtained such permission soon after we were granted the support of the Mount Everest Foundation and the Royal Geographical Society in March, 1962. We found it profitable to plan our scientific programme in close consultation with the appropriate Danish Scientific Departments, since this avoided the danger of duplicating previous work in Greenland. Negotiations were greatly simplified by the presence of an expedition member permanently living near Copenhagen.

Our greatest organizational headache developed over travel, since our proposed date of departure had to be altered because of examination commitments and ice conditions. Annual and seasonal variations in the melting of the ice made it impossible to arrange even the means of transport until a few weeks before departure. Finally, we decided to fly into Greenland in July and leave by sea in early September.



By the end of May all personnel problems had been solved and our eight-man party consisted of:—

- D. E. Sugden, B.A. (Jesus College, Oxford), Joint leader and geomorphologist; expeditions to Norway and Iceland.
- B. S. John, B.A. (Jesus College, Oxford), Joint leader and geomorphologist; expedition experience in Iceland.
- J. G. Cruickshank, B.Sc. (Lecturer, Queen's University, Belfast); geomorphologist; mineral prospector in East Greenland in 1956 and 1957.
- S. E. Wörm (Sorø Academy, Denmark), cameraman, liaison officer with the Danish Government and interpreter; mineral prospector in East Greenland in 1955, 1956 and 1957.
- G. P. Arnold (St. Catherine's Society, Oxford), equipment organizer and zoologist; expedition experience in Iceland.
- A. B. Hall, ornithologist; meteorological observer with the Falkland Islands Dependencies Survey, 1955–57, and expedition to East Greenland in 1961.
- D. F. Chamberlain (St. Catherine's Society, Oxford), botanist; expedition experience in Afghanistan in 1961.
- E. A. Colhoun, B.A. (Queen's University, Belfast), geomorphologist; surveying experience.

Dr. H. G. Reading kindly agreed to act as our Home Member and we would like to thank him for his invaluable work while the Expedition was in the field. We are very grateful for the help and support given to us by Professor L. R. Wager and Dr. K. S. Sandford who acted as our referees, and for the kindness of Professor E. W. Gilbert and our tutor Mr. E. Paget in allowing us to organize the expedition in our Schools year. We would also like to thank Miss Libby Nesbit-Evans for many devoted hours spent as a voluntary secretary.

#### THE JOURNEY TO BASE CAMP

A month before departure one ton of food and equipment was despatched to Reykjavik on m.s. GULLFOSS. On 17th July all eight members left Renfrew airport for Reykjavik on the first leg of the journey to Greenland. Sharing the cost of two D.C.3 charter flights with the Leicester University Expedition to East Greenland, four members left Reykjavik on the night of 17th July, and the remainder on 18th July with food and equipment. We flew due north from Reykjavik and after a three-hour flight landed at Mestersvig, the nearest airstrip to our Base. Here, we removed the aircraft door and completed final adjustments to the already overloaded parachute bundles before flying southwards to

the Schuchert. The 450lb loads of food boxes, tea-chests and canvas bags were tightly bound up with parachute harnesses. The drops were most successful, with two parachutes landing near a prospecting hut in Upper Pingodal and six on soft tundra at Base Camp. It is a tribute to the pilot's judgement that the six Base Camp loads fell within a radius of only 200 feet. Remarkably, the only breakages were one kettle and occasional packets of biscuits.

We directed the pilot on the flight up and down the Schuchert Valley and across the Werner Mountains so that we could reconnoitre a route for the next stage of the journey—the 100-mile walk to the parachute loads. For this each man carried about 25 lbs of delicate scientific instruments (which we had not dared to entrust to our inexperienced parachuting), light camping and climbing gear, the minimum of personal equipment (tooth-brush, towel and sleeping bag), and food for seven days. On the morning of Thursday, 19th July, we left Mestersvig Mine and walked across rough saturated ground for eight hours to Sortebjerg hut where we had a short rest before setting out to cross the Werner Mountains. In view of the bad snow conditions on the Mellem Pass we chose to cross the more distant low pass between the Easter and Sirius Glaciers. We hoped to be able to reach the foot of the Sirius Glacier in twelve hours and then split up, one group going straight to Pingodal (to be its base for three weeks) and the other to the Erzberg Mine ready for the walk down the Schuchert.

The crossing of the Werner Mountains taught us two important lessons. Firstly, a sudden storm, which overtook us in soft snow near the firm line of the Sirius Glacier and forced us to shelter in two wind-buffed tents for five hours, demonstrated how quickly the weather can change for the worse. Secondly, we learnt how difficult it can be to estimate time and distance in Greenland. Clear visibility makes distance deceptive, but notoriously changeable snow conditions and glacial rivers can more than double walking time. The estimated twelve-hour walk took the Erzberg party twenty-eight hours and the Pingodal party thirty-three hours.

Our Base Camp party was well received at the mine. After a much needed fourteen-hour sleep we set out on 23rd July on the four-day trek down the Schuchert. The glacial rivers were high and four of the many western tributaries of the Schuchert River proved to be major obstacles. On each occasion we attempted to cross several times in icy, waist-deep water before finally succeeding. Trekking in the heat of July with heavy loads was uncomfortable and sleep was only possible during the few hours when the sun dipped behind a mountain and the temperature fell. As we moved southwards the mosquitoes steadily became worse and by the time we reached Base our faces, necks and arms were badly swollen.

We had made the mistake of dropping our repellent at Base! After four twelve-hour days of hard walking we located our minute, brightly-coloured parachutes with the aid of powerful binoculars and set up Base on 26th July.

#### PROGRAMME IN THE FIELD

##### *Pingodal*

The Pingodal party consisting of Cruickshank, Wörm, Chamberlain and Colhoun carried out its scientific programme from an old prospecting hut conveniently situated near the main pingos. Chamberlain and Colhoun made a trip to East Schuchert to study more distant pingos (8th and 9th August) and Cruickshank and Wörm visited Erzberg between 4th and 6th August. On 14th August the party left Pingodal, crossed the Schuchert River and started the long trek down the valley, arriving safely at Base two days later.

##### *Base Camp*

Camp was set up near the Konglomerate River between the Holger Dankses Briller lakes and the sea. In addition to work carried out directly from Base, trips were made by Sugden and John to the raised beaches of Nordost Bugt (1st-4th August) and by Arnold and Hall to the plateau west of Base (12th-15th August). After their arrival from Pingodal, Cruickshank and Colhoun left Base and spent six days in the high Karstrygge limestone block. Arnold and Chamberlain joined them in the Karstrygge on 24th August but the onset of bad weather forced the whole party to return to Base.

##### *Uranus Glacier*

In view of the unpredictability of conditions in Nordvest Fiord and the badly crevassed nature of the glaciers on the far side, we decided to turn our attentions to the safer Uranus Glacier on the northern shore. On 19th August Sugden, John, Wörm and Hall walked from Base to Kayak Vig where the canoes had been left with all the food and equipment for ten days. Almost immediately after setting off on the seventeen-mile trip up Nordvest Fiord to the glacier, we were forced ashore by a strong glacial wind and heavy sea. Ten hours later the wind fell and four hours' canoeing saw us to our fiord-side camp site near the glacier. During the course of the glaciological work we established two camps on the glacier, one near the snout and one at 3,370 feet. Using an improvised sledge we reached the higher camp quickly but four days of continuous snowfall prevented us from pushing higher and forced us to ski down to the lower camp a little earlier than expected. As soon as the drilling programme was completed we took advantage of calm fiord conditions to canoe overnight to Syd Kap. We returned to Base on 28th August.

On 30th August we struck Base Camp and the whole expedition moved to the Royal Greenland Trade Department's hut at Syd Kap. In the five days that elapsed before our departure, we moved all remaining equipment to the hut by canoe, completed the fieldwork on unfinished projects and wrote preliminary rough drafts of our findings.

#### RETURN JOURNEY

Before leaving England we had arranged to be collected at Syd Kap by a thirty-foot motor boat from Scoresby Sund settlement on 2nd September. On the night of 4th September it had still not arrived. We feared that ice conditions further down the fiord were bad and that we might have to walk out to Mestersvig, abandoning most of our equipment, but at 4.30 a.m. on 5th December the boat arrived and with great relief we welcomed the Danish District Officer and the Eskimo crew of four. The 108-mile voyage through the ice-bergs and floe-ice of Scoresby Sund took twenty-two hours. On arrival at Scoresby Sund settlement we were warmly welcomed and the Inspector and District Officer kindly offered us a roof over our heads. We spent an enjoyable five days receiving contradictory reports of KISTA DAN's progress in the pack-ice, playing football against "East Greenland", and watching Eskimos at work and play. KISTA DAN arrived on 11th September and we sailed the same day, not for Akureyri as previously arranged, but for Copenhagen. As usual, ice conditions had played havoc with the sailing schedules and the enforced detour cost us an extra unexpected £300. The expedition arrived in Copenhagen on 17th September and each member travelled home independently: Cruickshank to his wedding with two days to spare, Colhoun ten days late for his post in America, Wörm two weeks late for his teaching post in Denmark, and the rest of us to less important commitments at home.

#### SCIENTIFIC WORK

##### 1. GEOMORPHOLOGY (Cruickshank and Colhoun)

(a) *Pingos (pseudo-volcanoes)*. The five pingos previously observed in the Schuchert Valley were carefully examined and surveyed. Accurate diagrams of their form and structure have been produced. The investigation was correlated closely with botanical work on plant colonization carried out by Chamberlain. It is hoped to make these observations the basis of a paper which may throw some light on the origin of pingos.

(b) *Karst*. The typical morphology of the Karstrygge region was examined with special emphasis on surface markings, valley forms and



slope profiles. Description of limestone features in the semi-arid climate of East Greenland should contribute towards the understanding of karst morphology in Arctic climates.

(c) *Soil structures.* Surface permafrost markings were examined and correlated with vegetation patterns, angles of slope and depth of permafrost. A series of valley slope transects were surveyed and it is hoped to judge the relative importance of weathering processes on slope formation.

(Sugden and John)

(d) *Raised beaches.* A transect across a fine series of beaches at the head of Nordost Bugt was levelled by theodolite and forms the basis of a morphological sketch map of the Syd Kap region. These beaches were correlated with other signs of marine action along fifteen miles of coast and were found to fall into a regular sequence extending as high as 440 feet. When shells collected from the more prominent beaches have been dated it should prove possible to estimate the recent rate of isostatic recovery in this part of East Greenland and to produce a detailed analysis of the relative importance of successive stillstands in the area since ice retreat.

(e) *Ice temperatures.* The ice programme was carried out on the largely unexplored Uranus Glacier, which is about sixteen miles long and flows southwards from the South Staunings Alps. Although bad weather restricted the work at the head of the glacier it proved possible to make a series of longitudinal borings from above the firn line to the snout. A cross transect was also made near the firn line. The ice temperatures, measured to an accuracy of  $\pm 0.1^\circ\text{C}$  at one-foot intervals in each hole, provided information on the effect of summer melting on the previous winter's cold wave. A morphological sketch map of the glacier and its main tributaries was compiled.

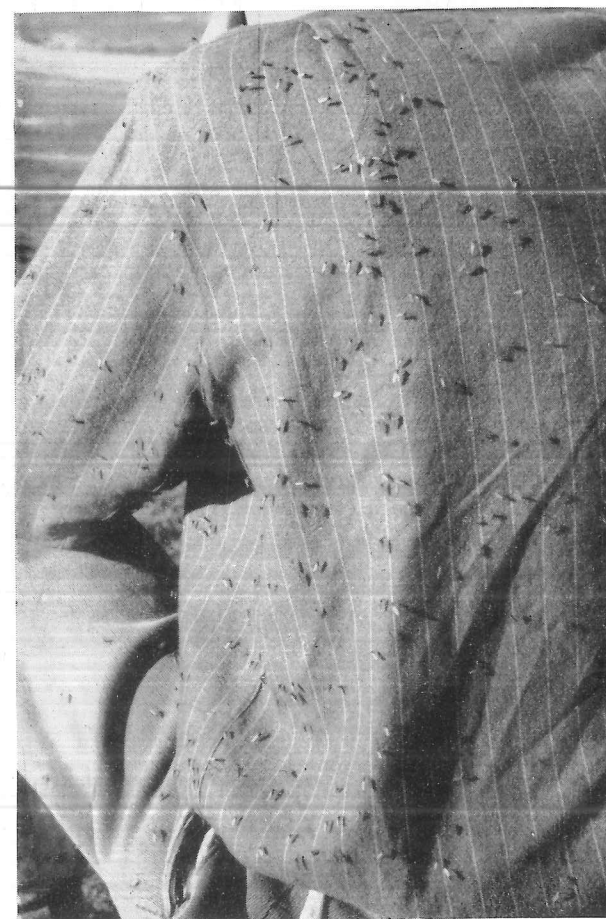
## 2. ZOOLOGY

(Arnold)

(f) *Notostracean crustacean: Lepidurus arcticus.* The animal occurred in the majority of the ponds and small lakes in the vicinity of Base. Specimens were kept in tanks for the greater part of the time and observations were made both on these and those in the ponds. (Tanks were quickly constructed in the field by fixing together ready-cut perspex sheets with chloroform.) A few simple experiments were attempted. Eggs were found in the tanks towards the end of August and many specimens were seen



Early morning on Uranus Glacier. Fifteen miles away, beyond the cloud-filled Nordvest Fiord, are the mountains of Renland



A few of the Base Camp mosquitoes

carrying them. Samples of various populations were taken at regular intervals and it is hoped to be able to investigate the hermaphroditic reproduction of the species. Some eggs are at present being kept in the Department of Zoology, Oxford and are beginning to hatch out.

(g) *Mallophaga*. Several birds of different species were shot and *Mallophaga* collected from their plumage. The bird skins were brought back to this country.

(Hall)

(h) *Ornithology*. The Base Camp area provided a wide range of habitats, including mountain crags, sea shore, ponds, marsh and well-vegetated tundra. A detailed survey of the breeding birds was carried out and the results plotted on a map. The most notable species found nesting were Golden Plover and Lapland Bunting. The later breeding stages of a Red Throated Diver were watched from a hide ten feet from the nest. Meadow Pipits were frequently observed and it is possible that this may be the northernmost record for this species in East Greenland. Counts of moulting and breeding Barnacle and Pink-footed geese and details of their distribution were made for the Wildfowl Trust.

### 3. BOTANY

(Chamberlain)

(i) *Collections*. About 140 plants of higher species were collected and most of these have been identified. The records have been given to Dr. G. Halliday of Leicester University. The genera *Potentilla*, *Taraxacum*, *Braya*, *Draba* and *Puccinellia* were collected for the Arctic Institute, Copenhagen. A small collection of Bryophytes is now being identified. It is hoped to be able to assess the influence of altitude on moss communities.

(j) *Ecological survey*. A survey of the plants associated with surface patterns and solifluction phenomena was correlated with geomorphological work by Cruickshank and Colhoun.

### 4. FILM

(Wörm)

(k) Over 3,000 feet of 16 mm. colour film were shot and give a comprehensive picture of the expedition's activities in Greenland. The film also includes shots of wild animals and birds and life among the Eskimos in Scoresby Sund settlement.

## 5. SCORESBY SUND

(l) Colhoun made a detailed geographical survey of the settlement.

(m) Tape recordings were made of Eskimo songs sung by an old man who remembered life before the arrival of the first European ship in Angmagssalik. These are to be given to the Pitt Rivers Museum, Oxford, together, it is hoped, with some rare East Greenland "tupilak" carvings.

## 6. HORTICULTURE

(n) Lettuces and radishes planted at Base did not grow.

## EQUIPMENT

Our equipment was selected for its lightness, efficiency and safety. The relatively high cost of such equipment can be justified in Greenland where accidents can easily occur and where rescue operations are hindered by extreme isolation.

*Tentage.* Our two Good Companions were fitted with sewn-in maxwill groundsheets and terylene flysheets. Each complete tent weighed only 6 lbs. yet could sleep three men comfortably. On glaciers we used two Arctic Guineas and fitted extra snow flaps onto the flysheets. These three-man tents, weighing 15 lbs. each, proved to be solid and warm even under cold glacial conditions. All tents were fitted with mosquito netting.

*Personal equipment.* Outer garments were brightly coloured and anoraks were specially made of grenfell cloth and our waterproof suits of yellow nylon. Both were most effective and we were able to work comfortably in all weathers. For sleeping, besides warm, compact sleeping bags, we took two-inch thick foam rubber strips covered in polythene. These mattresses (1'6" x 4') were adequate in insulating our bodies from glacier ice and added a touch of comfort to stony camp sites. We used F.E.B. mountain boots and all were in good condition after nine weeks of hard use on rough rock and ice. Fortunately, we were able to borrow four specially-made light pack-frames of alloy tubing with nylon sacks. Comparison of these with more orthodox yet modern pack-frames and rucksacks also used on the expedition emphasizes the lack of a well designed frame on the open market.

*Canoes.* We used a borrowed "Granta" folding canoe with external buoyancy chambers and purchased a "Klepper" of similar design. Canoes proved an economical means of carrying supplies and equipment in

coastal areas and also on longer fiord trips. Both were very stable and could safely carry two men and 500 lbs. of equipment

*Food*

We bought food packed to our own requirements of nutritional value and weight in eight/man/day boxes. The rations incorporated many recent innovations and provided each man with over 4,000 calories every day on a compact, easily-prepared, but varied diet. The total weight, including packing, was about 2½ lbs. per man per day. A typical day's food consisted of:—

Breakfast	early morning tea; porridge with milk and sugar; frugrains; scrambled egg; biscuits, butter and marmalade; coffee.
Lunch	tuna fish, cheese, biscuits and butter; raisins; chocolate; glucose drink; glucose sweets.
Dinner	oxtail soup; meat stew, garden peas, creamed potato; instant pudding and fruit salad; chocolate digestive biscuits and coffee.

We had six varieties of food box, so that the above menu occurred no more than once in six days. Since occasional fish and bilberries are the only fresh foods to be obtained from the land, we found planned variety of great importance. We carried Horlicks rations for use in emergencies on canoe trips and by parties working far from Base.

Below is a sample food list of one of a series of six/man/day boxes, as worked out by Mr. J. C. G. Sugden late in 1962. Full details and ready-packed boxes may be obtained from Mr. H. May, Laws Stores, Morpeth, Northumberland. It is a tribute to his packing that not one item was missing from any of our boxes and only one or two packets of biscuits were damaged by the parachute drops.



## REMOTE RATIONS: SIX/MAN/DAY BOXES

Minor adjustments are made for use of normal packages

	Package and Instruction	Weight in ounces	Average Calories per person
	1. Pkt. . . . . TEA . . . . .	2	-
E	Tin—even boxes only . . . . . COFFEE . . . . .	(c.2)	-
	2. Plastic—very airtight . . . . . MILK, dried full cream . . . . .	12	270
	3. Pkts. in plastic bag . . . . . SUGAR, Granulated . . . . .	32	570
	4. Plastic . . . . . SALT, iodized . . . . .	2	-
	5. Containers or tubes . . . . . BUTTER or MARGARINE . . . . .	8	280
	6. Plastic bag . . . . . OATS . . . . .	8	140
	7. 1 x 2 oz. plain 2 x 4 oz. milk 2 x 4 oz. nut and fruit } . . . . . CHOCOLATE . . . . .	18	450
O	8. Tube . . . . . JAM or		
E	Container . . . . . MARMALADE } . . . . .	6	av. 70
	9. Small container for c.25 tablets . . . . . HALAZONE . . . . .	-	-
	10. 6 tinfoil pkts. . . . . SPARKUP (inc. Vit. C) . . . . .	c.1	10
	11. 1/2 pkt. . . . . BRONCO . . . . .	c.1	-
	12. Cellophane pkt. of 10 bars . . . . . PRIMING FUEL } . . . . .		
	13. Small box, safety, in plastic . . . . . MATCHES . . . . .	c.2	-
	14. Plastic bag or pkt. . . . . DRIED POTATO . . . . .	6	50
	15. Plastic . . . . . DRIED PEAS (small petit pois) . . . . .	6	80
	16. Waxed and plastic . . . . . CHEESE, Dutch . . . . .	12	
	Cellophane or tinfoil . . . . . Swifts sliced . . . . .	7	370
O	17. Plastic or cellophane . . . . . DRIED APRICOTS or	8	
E	Plastic—very airtight . . . . . FRUGRAINS . . . . .	16	c.120
	18. Plastic or cellophane . . . . . DRIED EGG . . . . .	4	110
	19. Pkt. . . . . SAVOURMIX . . . . .	4	100
O	20. 3 bars . . . . . BEEF		
E	3 bars . . . . . VEAL & HAM } . . . . .	15	390
	21. 2 pkts. . . . . OXTAIL SOUP . . . . .	4	60
	22. 3 pkts. . . . . FRUITARIAN CAKES . . . . .	c.18	c.240
O	23. Cellophane . . . . . KENDAL MINT CAKE or		
	Pkt. . . . . BOILED SWEETS strong		
	24. 2 Pkts. Mitchellhills' Healthy Life . . . . . WHOLEMEAL BISCUITS . . . . .	16	
	2 Pkts. . . . . DIGESTIVE . . . . .	16	660

Approximate total c.4070

O=Odd boxes only

E=Even boxes only

Weight of food c.220 oz.—13.7 lb. or c.2.3 lb. per person per day.

Packaging, priming fuel, matches, paper etc. bring the weight of each box to c.16 lbs.

## SAFETY PRECAUTIONS

*Colour.* Our one blue tent was invisible from a range of one mile, whereas an orange tent could usually be picked out from a distance of five miles. We would recommend that all parachutes, canoes, tents and outer clothing be either bright red or orange.

*Flares.* Since no high physical barrier exists between Nordost Bugt and the Erzberg Mine, each party carried flares and distress rockets guaranteed visible from fifty miles. None were used.

*Wireless.* We were unable to obtain a light wireless capable of transmitting to Erzberg. However, one expedition party was always within two days' walk of the Mine.

*Rivers.* Glacial rivers were our greatest problem and in late July were unexpectedly high, requiring complicated and prolonged roping procedures.

*Nordvest Fiord.* With no warning, strong glacial winds can spring up and quickly reach gale force on a cloudless day. In anti-cyclonic weather fiord conditions are most often rough by day and calm by night, although the reverse is quite possible. In view of the water temperature (2°C above freezing) we considered it unsafe to venture far from the shore in laden canoes. Even in unladen canoes, which can be quickly righted in the event of capsizing, sharp ice fragments are a hazard everywhere in the fiord. Icebergs proved to be far less stable than we had been led to believe; large waves can be produced when fragments shear from their flanks or when they turn over, and we found it wise to give them a wide berth in canoes. No-one paddled a canoe without wearing an inflated lifejacket.

*Mosquitoes.* During the last week of July and the first two weeks of August we were plagued by the insects wherever there was vegetation. Their numbers decreased gradually and they were absent from the sea shore by the end of August. It is a tribute to "Flypel" that it was effective even against Greenland mosquitoes!

*Soap.* Unprotected soap was eaten by Arctic foxes.

*Weather.* For most of the time the sun shone from a cloudless sky and from July to mid-August it was sometimes uncomfortably hot by day. In late August and early September sunny days were pleasantly warm, but as the nights grew dark temperatures fell sharply and extra sleeping bags were welcome. We had about fourteen days of overcast sky with gentle rain at times. On glaciers the weather could only be termed unpredictable.

*Musk-oxen.* Except in the rutting season when Musk-oxen tend to be excitable, they proved no problem. Only two members were charged.

## ACKNOWLEDGEMENTS

*Consultation*

We are most grateful for the generous help and advice given to us by the following during the months of preparation:—

Sir John Hunt; D. F. Baden-Powell Esq.; V. Brinch Esq.; Dr. A. J. Butt; J. Clarkson Esq.; Dr. A. J. Cain; Dr. E. Daintree; C. Elton Esq.; Dr. B. Evans; The Geodetic Institute, Copenhagen; Dr. J. W. Glen; Dr. G. Halliday; Professor Sir Alister Hardy; J. A. J. Jackson Esq.; Dr. B. E. Juniper; Dr. H. Larsen; Dr. R. Marris; Capt. D. Mitchell; Dr. B. Roberts; Scott Polar Research Institute; P. Sell Esq.; Professor R. Spärck; N. Stephens Esq.; J. C. G. Sugden Esq.; Dr. S. M. Walters; Dr. E. F. Warburg; R. G. Wasson Esq.; Dr. S. R. J. Woodell; Members of Oxford University Exploration Club; and for the kindness shown to us in Greenland by:—

Inspector and Mrs. E. Nielsen; District Officer L. Jørgensen and Mrs. Jørgensen; Preben Astrup Esq.; Mr. Nyholm; and many others in Scoresbysund, Mestersvig and Erzberg.

*Equipment*

We wish to thank the following for their invaluable help:—

B. G. Hughes Esq., who built the ice-temperature instrument; The Department of Surveying and Geodesy, Oxford, the Royal Geographical Society and Queen's University, Belfast for loaning surveying instruments; R. S. Allcock Esq., who loaned a canoe, pack-frames and crampons; Messrs. L. & S. Stephens for loaning a vehicle for transporting equipment between Oxford and Leith; Mrs. J. Sugden for fitting mosquito netting and groundsheets; K. A. Mann Esq., Miss Maureen Tinsley and Miss Jacqueline Rosenthal for practical help in Oxford; "Icelandair" for their great help in making arrangements for the parachute drop;

and the following firms for their generosity in providing equipment and food free or at reduced rates:—

Ashton Bros. & Co. Ltd., hand and tea towels; W. & R. Balston, Ltd., drawing paper; Biro, Swan Ltd., biros; Boots Pure Drug Co. Ltd., medical supplies; Bowater Packaging Ltd., food boxes; British Petroleum Trading Ltd., paraffin and jerrycans; British Ropes Ltd., climbing and general purpose rope; Bryant & May Ltd., matches; D. Byford & Co. Ltd., socks; The Canoe Centre, canoe; Co-operative Wholesale Society Ltd., shirts; K. G. Corfield Ltd., photographic equipment; County Laboratories Ltd., Macleans toothpaste; Crawfords Ltd., biscuits; Crookes Laboratories Ltd., lacto-calamine; Frank Davies (Ambleside), climbing gear; Eagle Pencil Co. Ltd., mapping pencils; Elliston & Cavell Ltd., (Oxford), cooking utensils; Endecotts Ltd., filters; The Ever Ready Co. Ltd., torches and batteries; Leonard Farnell & Co. Ltd., ice boring equipment; Gillette Razors and Blades Ltd., razor blades; Hardy-pick Ltd., geological hammers; Thos. Hedley & Co. Ltd., detergents; Horlicks Ltd., concentrated foods; Imperial Chemical Industries Ltd., "Flypel"; Kiwi Polish Co. Ltd., "Wetpruf"; Kodak Ltd., photographic equipment; Kümmerly & Frey, (Berne), publications; Laws Stores, food; Low & Bonar Ltd., polythene bags; Metal Box Co. Ltd., tubes and five-gallon drums; Newcastle Breweries Ltd., use of wire binding machine; Polarizers Ltd., snow glasses; William Ridgeway & Sons Ltd., ice augers; Rumble, Crowther & Nicholas Ltd., toilet paper; Schermuly Pistol Rocket Apparatus Ltd., pyrotechnics; Shippams Ltd., meat foods; Short & Mason Ltd., thermometers; Smith & Nephew Ltd., Nivea cream; W. H. Smith & Son Ltd., notebooks; Templeton Patents Ltd., food tins; Van den Berghs Ltd., margarine; Venus Pencil Co. Ltd., coloured pencils; George Wolfe & Sons Ltd., stout shovels; John Player & Son, cigarettes.

Thos. Black & Sons, (Greenock), Ltd., provided camping and climbing equipment, some of it kindly made to suit our special requirements.

## ACCOUNTS

*Income*

	£	s.	d.
Mount Everest Foundation	500	0	0
Royal Geographical Society	75	0	0
N.A.T.O. Research Grants Programme	177	0	8
Oxford University	150	0	0
Queen's University, Belfast	150	0	0
Alexander Allan Paton Fund	266	5	4
Calouste Gulbenkian Foundation	100	0	0
Gilchrist Educational Trust	100	0	0
Draper's Company	100	0	0
Jesus College, Oxford	75	0	0
Royal Society	50	0	0
Mrs. Smith Trust	50	0	0
Gino Watkins Memorial Fund	50	0	0
Spalding Trust	50	0	0
Flatters & Garnett Ltd.	2	0	0
Personal contributions	640	0	0
Equipment sales (to date)	190	0	0
Articles (to date)	22	2	0

Income (5.11.1962) £2,747 8 0

*Expenditure*

Travel	1,570	19	10
Equipment			
General & camping (expected)	294	0	4
Canoe	79	16	9
Climbing	171	17	6
Scientific	199	0	4
Photographic	191	0	4
Food	261	16	6
	1,197	11	9
Insurance	104	8	3
Administration	96	11	10
Miscellaneous (Customs duties, field expenses, etc.)	57	17	3

Total expenditure 3,027 8 11

Total Income 2,747 8 0

Deficit (5.11.1962) £280 0 11

We would like to acknowledge the very generous financial support given to the Expedition by the organizations listed above.

We hope to make up our deficit through the sale of film and articles, and by lecturing.

B. S. John & D. E. Sugden

(5th November, 1962)