ACKNOWLEDGEMENTS

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Full details of our sponsors are available in our expedition report but we are particularly indebted to the following for the supply of products; Northern Foods Ltd., Weetabix, Tate and Lyle, Unilever, Batchel Ilford, Ambre Solaire and W.B. Pharmaceuticals Ltd.

FINANCE

Income	£	Expenditure	£
Monies raised	2224.95	Travel	1693.00
Personal contributions	912.00	Accommodation	96.00
		Food	701.56
		Equipment	186.35
		Insurance	152.50
		Administration	123.46
		Prospectus	56.00
		Levy to C.U.E.T.C.	18.00
		Miscellaneous	92.00
		Balance for printing of final report	19.20
TOTAL	£3136.95	TOTAL	£3136.95

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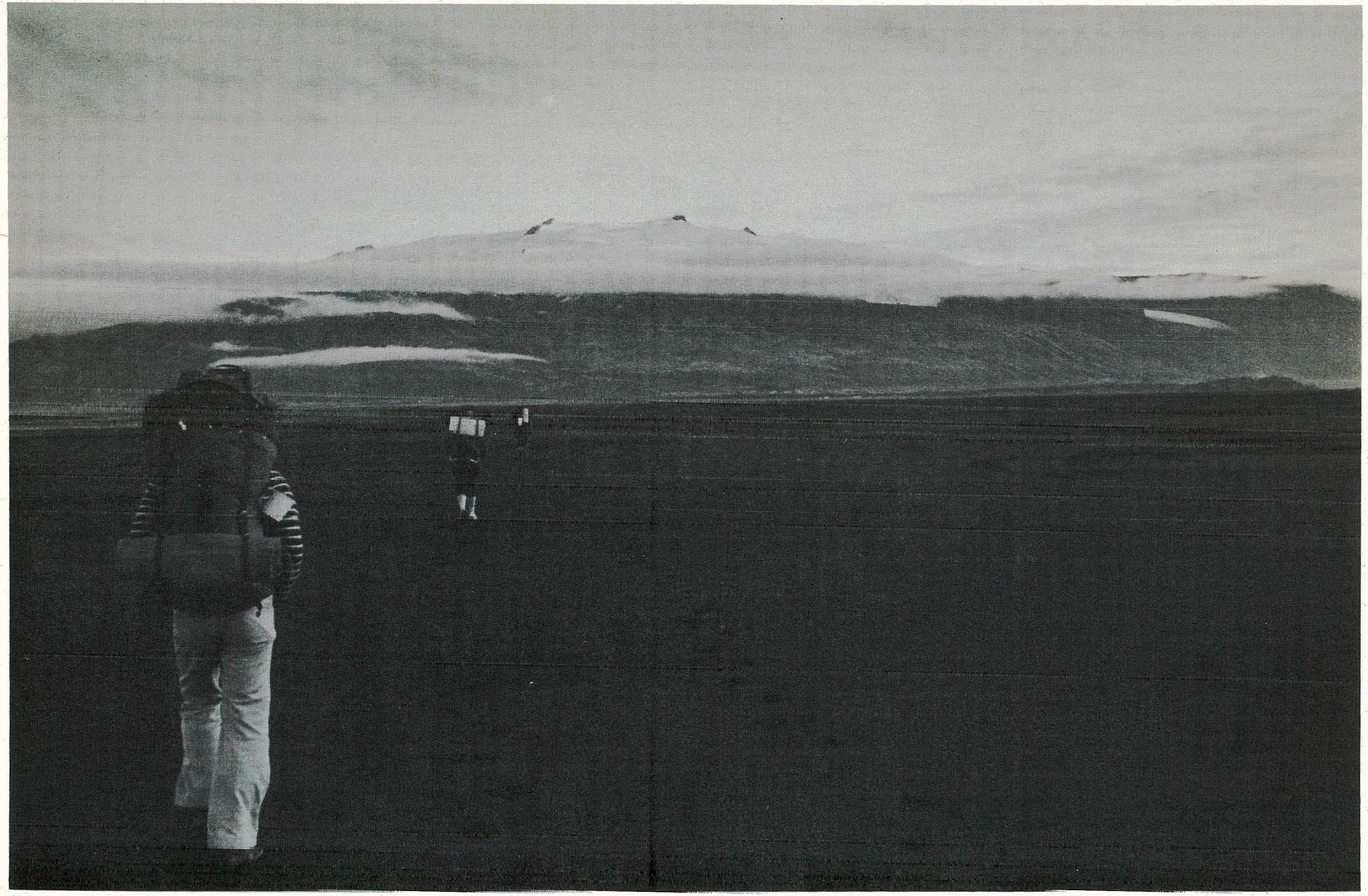
THE CAMBRIDGE EAST GREENLAND EXPEDITION 1982

MEMBERS

Philip Stokes B.A., Leader, Natural Sciences, ex-Emmanuel College
David Branson, Geography, Girton College
Michael Cummings, B.A., Engineering, ex-Queens' College
Jocelyne Hughes, B.A., Geography, ex-Girton College
David Newcombe B.A., Engineering, ex-Girton College
Jane Sears B.A., Zoology, ex-Girton College

The expedition assembled in Reyjavik, Iceland on 29 June. The Scoresbysund radio operators strike that had prevented the 1981 expedition from flying to Greenland was over, but our pilot's pre-flight enquiries told us that as a result of an extremely severe arctic winter the Scoresbysund



airstrip was still under 8 inches of wet snow. (When the strike stopped the 1981 expedition the airstrip was clear.) We were told that the snow would take at least a fortnight to clear and once again sought out other means of getting to Scoresbysund. Flying further up the coast to Mestersvig and then returning to Scoresbysund by helicopter would have cost the expedition a further £2,000 which it did not have. Boat owners prepared to take us wanted a similar figure, and could not in any case guarantee getting through the pack ice. Since we then faced the prospect of spending at least some of the summer in Iceland we obtained an Icelandic research permit for our glaciology project and made enquiries about possible ornithological work (since our Little Auk project was not feasible in Iceland).

On 5 July the expedition travelled to the Langjokull icecap to work on the recently surged glacier of Hagafellsjokull Eystri while waiting for the snow in Greenland to clear. Over a period of ten days surface water conductivity measurements were made on five transects of the glacier, and the new position of the snout was mapped by compass traverse.

The expedition returned to Reykjavik on June 16 to discover that it was now impossible for people in Scoresbysund to travel to the airstrip at all to check its condition but that they considered that it would be impossible to land there until at least the start of August. To make such a late arrival in Greenland worthwhile we would have had to postpone our return to Iceland, and charter our own returning plane instead of sharing a flight out as had been planned. When we failed to secure a cheaper flight in - to enable us to afford a late return - we stopped trying to get to Greenland and concentrated on work in Icleand. In fact the airstrip was unusable well into August so that we could not have flown in any case.

Dr. Aevar Petersen of the Icelandic Museum of Natural History had arranged that we could study the birds of an ornithologically unknown series of sea cliffs, and so at the start of August the expedition split into two groups of three for a fortnight. Three people continued our meltwater conductivity studies. Conductivity was seen to increase towards the edge of the glacier although all values were very low compared to previous studies. The ornithological group studied the seabird cliffs between Bakkafjordur and Vopnafjordur, finding no evidence of rumoured Guillemot colonies but counting and mapping colonies of Fulmars, Kittiwakes and Puffins. Full details of both projects will appear in our final report.

On 15 August the ornithological party rejoined the glaciologists to help complete their study, and on 24 August the expedition returned to Britain.

Although the expedition could be remounted with relatively little trouble

we do not intend to try for a third time ourselves. We should like to apologise for all those who have supported us for not carrying out our plans, but hope that this report shows how it was beyond our control. Some of our unused charter-flight money was spent in travelling to our work in Iceland, but the remainder will be returned to our sponsors.

THE PROJECT: Spatial Variations in the Solute Characteristics of Supra Glacial Streams, Hagerfellsjokull Eyrstri, Iceland

A study was carried out on the distributions of electrolytic conductivity values of ice surface streams at Hagerfellsjokull Eystri (figure 1) during the period July 10th to July 14th 1982. Additionally a plane table survey and compass traverse of the front of the glacier, with respect to Hagervatn, was undertaken primarily to map prominent areas of dirt cones, moraines, crevasses and deformed ice. With these and other data sets (Collins 1973-81; Reynolds and Johnson 1972; Bjornsson 1975; Grove 1979), it is hoped to investigate the existence of patterns in the values of electrolytic conductivity for glacier surface streams and put forward some suggestions explaining any patterns for the Langjokull area.

Specific conductance levels of total salt content of ice have come to be accepted as a useful surrogate for detailed individual analysis of solute components, particularly where spatial measurements are needed over a short period of time. Grove (1979) was undertaken the only spatial survey of this type in Iceland at Myrdalsjokull, and his work will prove to be an essential base line from which to compare the results of this investigation.

METHODS

Field measurements of electrolytic conductivity depended on an electrolytic conductivity bridge with a range of 0.1 to 100000 micromhos per cm. at a cell constant of K equals 1.0 micromhos. All measurements were made at $0^{o}C$ with no temperature correction being found necessary. Suspended sediment was assumed to have a negligible effect on conductivity.

Sampling was performed along linear transects at suitably sized surface streams of average 10 cms. wide. Sampling was carried out at peak melt between 1100 and 1600 hours and not during rain to avoid dilution of meltwater. (See map for positioning of transects.)

RESULTS:

1. Transects across Hagerfellsjokull show a tendency from high to low conductivity values from the ice margins to the centre. The values ranged

from 0.5 to 2.5 μmhos.

2. Areas of high dirt cone densities appeared to have little effect on values of electrolytic conductivity.
3. Values of streams on the ice margins were higher and occurred in areas of debris covered ice (marginal and ablation moraines). Transects commencing near the cleaner ice cliffs of the snout gave lower values (1.0 μmhos compared with 2.5 μmhos).
4. Electrolytic conductivity of rainwater measured 2.0 μmhos.
5. Electrolytic conductivity of deionised water increased over a 24 hour period from 0.5 μmhos (13th July, 1100 hours) to 1.50 μmhos at 1030 hours on July 14th, when placed on the glacier surface.
6. Conductivity of an outlet stream reached values of 4.5 μmhos at 1030 hours and decreased to 3.5 μmhos by 1700 hours: a direct decrease with increased discharge during the peak diurnal melt.

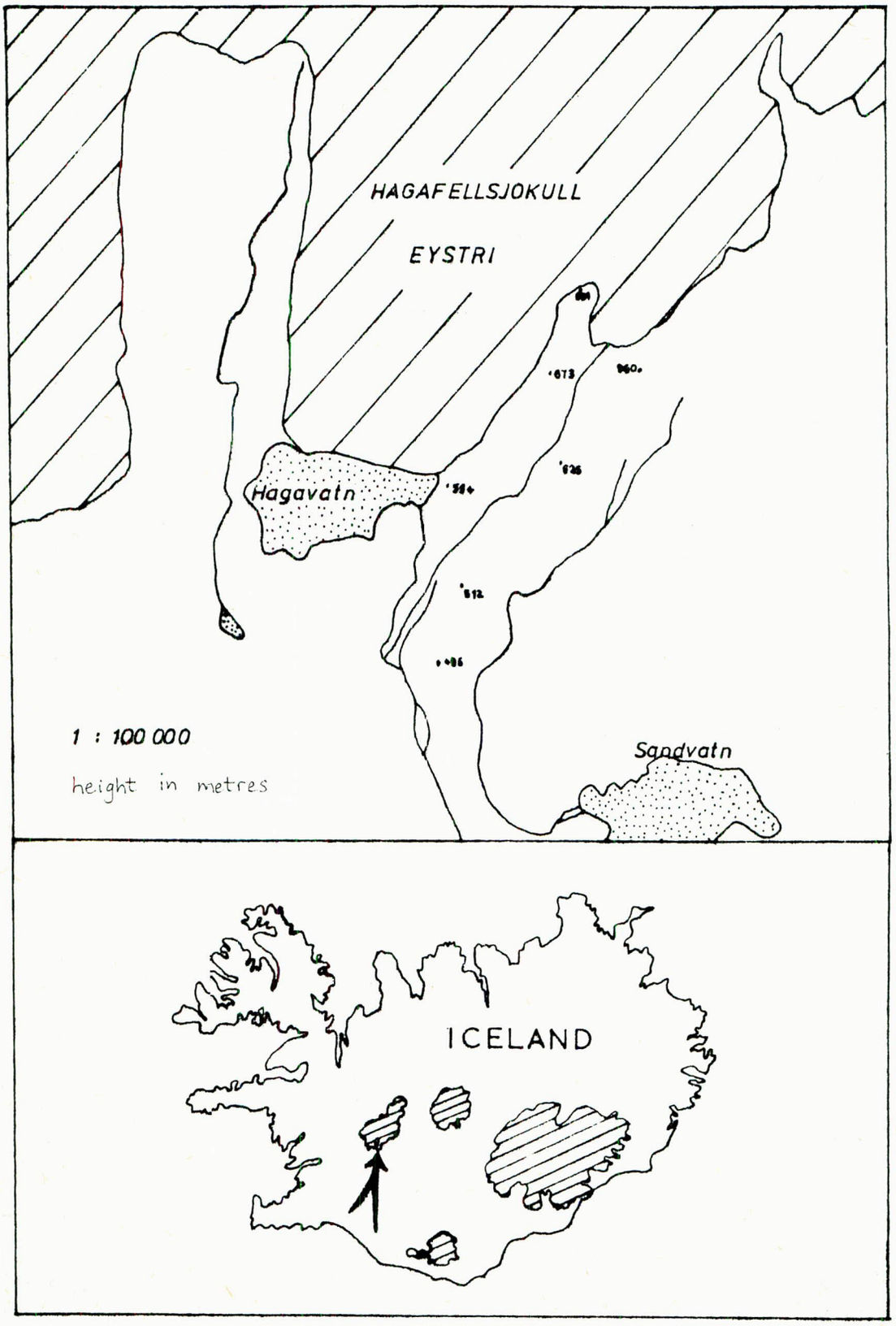
PRELIMINARY CONCLUSIONS:

The results show very low values of electrical conductivity when compared with those of Grove (1979) at Myrdalsjokull. Spatial patterns for the values are not so obvious. Several reasons could account for this:

1. Examination of air photos for the Hagerfellsjokull outlet glacier taken in 1979 show the snout to be 3.5 kms. north east of its present position. The glacier is thus assumed to have surged. Changes in flow dynamics of ice may greatly affect levels of conductance (Coachman et al 1958).
2. Langjokull does not have any gerthermal heat component, unlike Myrdalsjokull which is underlain by the active volcano Katla. Active volcanos can be responsible for elemental enrichment of the atmosphere (Heimaey 1975 and Hekla 1980).
3. Langjokull lies 80 kms. inland and away from the influence of the sea. Influences of salt-bearing winds and inputs of salts in precipitation affect Myrdalsjokull to a much greater degree.
4. Analyses of debris from dirt cones on Hagerfellsjokull are currently being undertaken. Surrounding rock type and debris on the glacier may affect electrical conductivity values by percolation of water through surface depositional material and local lithologies.

These are preliminary remarks. Complete analysis of samples and collection of data will enable more definite conclusions to be drawn up in the final report.

Figure 1: Location Map of the Field Area



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Atkins of Hinckley, B.X.L. Plastics Ltd, Bovril Ltd, Brook Bond Oxo Ltd, Co-operative Wholesale Society Ltd, Covpak Ltd, Dornay Foods, Farquhar North and Co, Food Brokers Ltd, Goodall Blackhouse and Co Ltd, Gra-Bar Ltd, W. Jordan (Cereals) Ltd, Kavli Ltd, Kelloggs, Kenco Coffee Ltd, KP Foods, Kraft Foods Ltd, Lilia-White Ltd, Lucas Group Services Ltd, Lucy Foods, Nabisco Ltd, T.F. Padmore Esq, Pains-Wessex Ltd, Park Cakes Ltd, Pickfords Ltd, Platignum Ltd, The Prestige Group Ltd, Quaker Oats Ltd, Reed Corrugated Cases, Rockware Plastics Ltd, Rowntree Mackintosh Sun-Pat Ltd, Seymour Paper and Packaging, T. Slater (Quilts) Ltd, Smiths Containers Ltd, Supreme Plastics Ltd, Sutherland and Son Ltd, Swiss Cutlery (London) Ltd, Tillotsons Corrugated Cases Ltd, Trebor Sharps Ltd, R. Twining and Co Ltd, Unigate Foods Ltd, United Biscuits (UK) Ltd, United Yeast Co Ltd, Whitbread and Co Ltd, Wilkin and Son Ltd, J.E. Wilson and Sons Ltd.

FINANCE

Income	£	Expenditure	£
The Ernest Kleinwort Charitable Trust	500	Airfares London - Reykjavik	1227
Scandinavian Studies Fund	450	Freight	166
The Mount Everest Foundation	400	Travel in Iceland	486
Royal Geographical Society	350	Food and Fuel	93
New York Explorers Club	270	Insurance	324
Gino Wakins Memorial Fund	200	Medical Equipment	41
Gilchrist Educational Trust	150	C.U.E.T.C. Levy	27
The British Petroleum Co. Ltd	120	Prospectus and Stationery	53
Cambridge Expeditions Fund	100	Administration	86
Worts Travelling Scholarship Fund	100		
Girton College	90		
Patrons	60		
Personal Contributions (6x£250)	1500		
TOTAL	£4290	TOTAL	£2503

Curent balance for refunding - £1787.

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