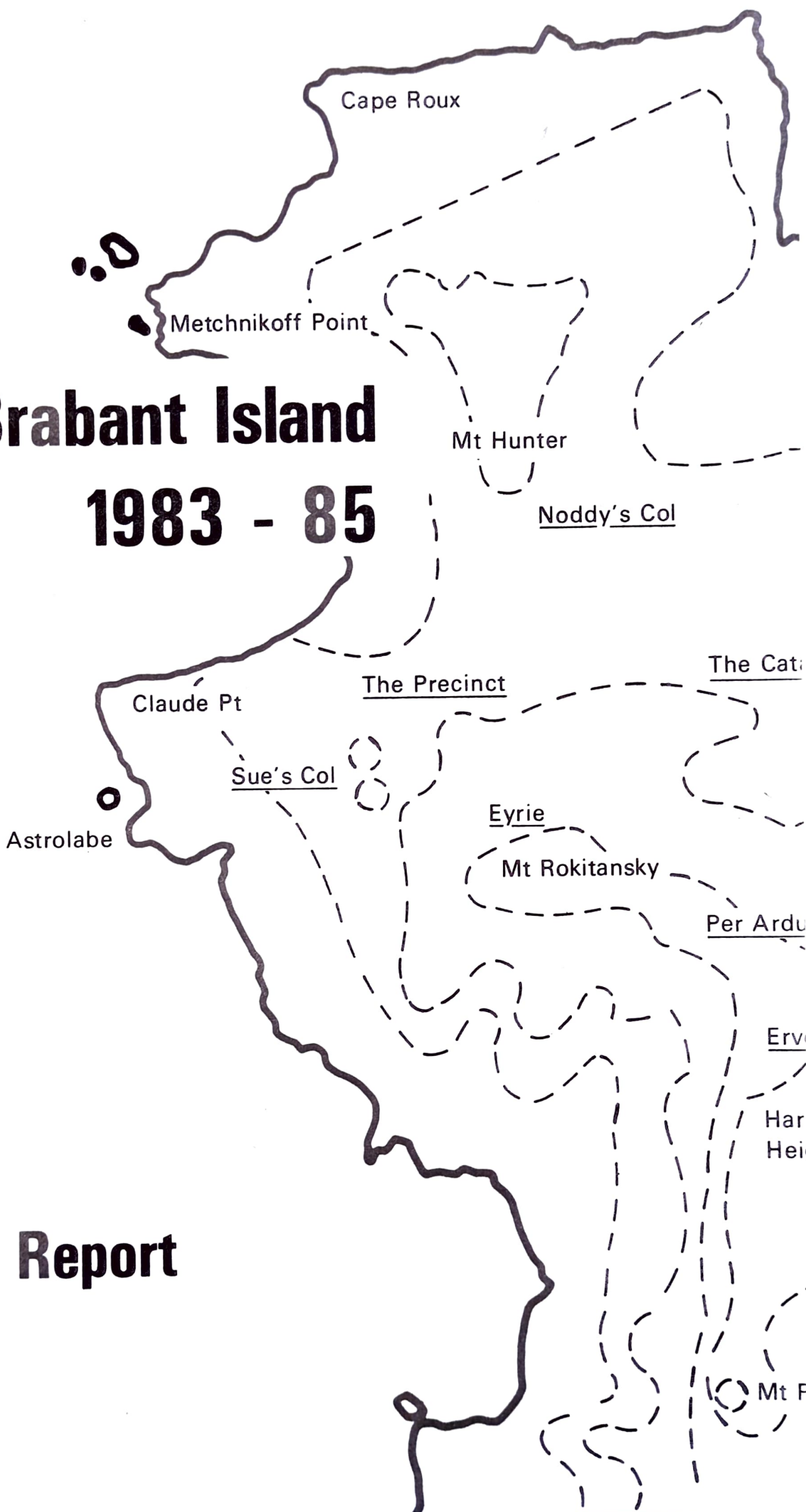


JSE Brabant Island 1983 - 85



Interim Report

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FOREWORD

The Joint Services Expedition to Brabant Island is planned to be one of the largest Service expeditions of recent years; because of the delays that will arise before the researches of the expedition are complete, this interim report has been prepared. It is hoped that it will be sufficient to keep our many sponsors, scientific advisers, colleagues and friends informed of our progress and will, perhaps, interest others in the expedition. To those whose assistance has not been acknowledged, I must offer my apologies but the requirements of speed and economy have dictated some severe editing.

RAF Finningley
June 1984

K W HANKINSON
Flight Lieutenant
Deputy Leader

INTRODUCTION

1. The first-Summer phase of the expedition was, because of HMS ENDURANCE's prolonged refit, shorter than initially planned; further setbacks, in particular the difficulties of overland travel, have restricted the part of the island that could be studied in any depth. Only about 1% of Brabant Island is free of permanent ice; between these isolated headlands and nunataks lie heavily-crevassed glaciers covered by soft snow. Movement is only possible on skis and roped in pairs and all equipment has to be man-hauled on pulks. As a result 8 km constituted a good day's travelling - and travel is usually possible on only 2 days out of 3. Thus we have so far traversed only about one third of the island and made only tentative progress in many of the scientific projects; indeed in one of the botany projects the raw material of the study has yet to be located.

2. As will be seen, it was the intention of the expedition to research some 64 separate projects at one time or another. Inevitably much has been left out of this report but any reader wishing to obtain greater detail on any study is requested to contact the Deputy Leader.

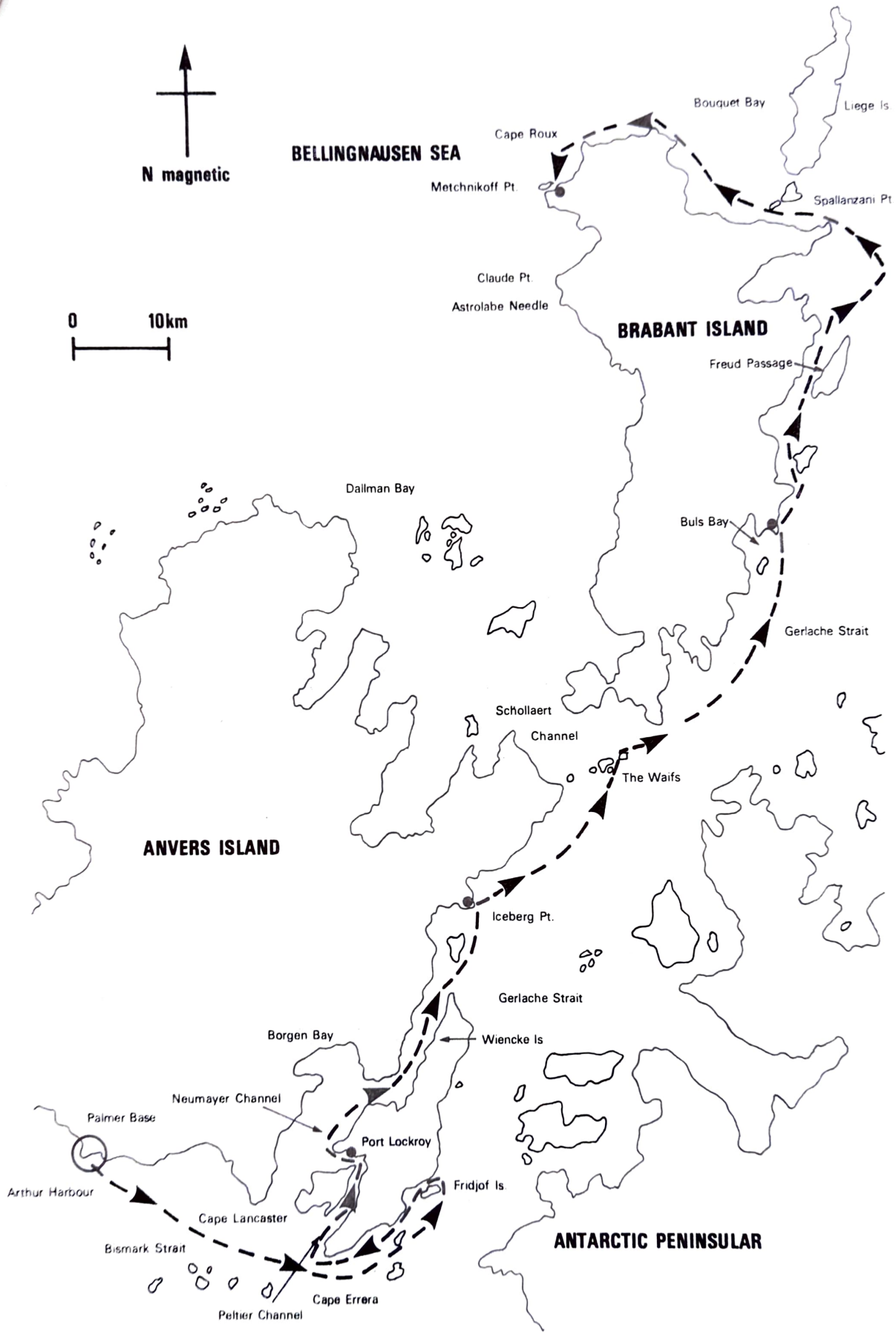
3. Members of the Expedition

a. First-Summer Team

Cpl J R Furse FRGS	RN Chatham	Leader
Cpl I E Atkins	RAF Gutersloh	
LA(P) G Corbett	FPU	
Cpl K De Silva	RE	
Flt Lt K W Hankinson BA FRGS	RAF College	Deputy Leader
Cpl J Hill	CDO Log Regt	
Mne D M Macleod	RM Poole	
Dr J Morris BSc MB BS	St Bartholemews Hospital	
Lt S P Trathen BSc	RM Condor	
Cpl R Worrall	RM Poole	

b. Over-Winter Team

Col J R Furse	
Cpl I E Atkins	
Cpl J Beattie	RAF Kinloss
LA(P) G Corbett	
Capt N Evans BSc	PWO
Francois De Gerlache	
Sgt J Kimbrey	CTC RM
L Cpl J Lumsden	1 QLR
Surg Lt M Oakley	INM Alverstoke
Mr M Ringe BSc	Nottingham University
Cpl J Spottiswood	RE
Sgt P Stuttard	REME



CHRONOLOGY

4. Throughout the first-Summer phase the party was split into several groups around the island. These split and reformed on an ad hoc basis and their progress is, therefore, often difficult to follow. Cpl De Silva simplified matters somewhat by giving nicknames to some of the parties and these usually become obvious in the text. Both expedition and official names are used throughout with notes on their origins where appropriate.

5. Establishing our Bases

- 16 Dec 83 Farewell party on RRS Discovery.
- 17 Dec 83 First-Summer party leaves UK by air.
- 23 Dec 83 Rendezvous with HMS ENDURANCE in Valpairiso, Chile; hold repacking completed in one day. Hankinson struck by falling crate - fortunately the crate was little damaged.
- 25 Dec 83 Party contracts sunburn lying on Chilean beach.
- 28 Dec 83 Party sailed on HMS ENDURANCE for Drake Passage via Patagonian Channels.
- 6 Jan 84 Arrived Palmer Station, Anvers Island. Food, landed in 1982, recovered and skidoos and boats landed and secured.
- 7 Jan 84 Arrived off Brabant Island, Humann Point proves to be an unsuitable base so the secondary option of Metchnikoff Point is chosen.
- 8 Jan 84 Majority of stores landed at Metchnikoff Point along with Furse, Atkins, Hill and Macleod.
- 9 Jan 84 Stores landed at Astrolabe and Metchnikoff Point.
- 10 Jan 84 Stores landed at Buls Bay.
- 11 Jan 84 Boat party (Hankinson, De Silva, Morris, Trathen, Corbett and Worrall) land at Palmer Base on Anvers Island and unpack boat stores.
- 13 Jan 84 Boat party leaves Palmer Station and reaches Port Lockroy.
- 14 Jan 84 Boat party explores Port Lockroy and goes swimming. Furse and Atkins make first ascent of Mt Hunter from Metchnikoff Point.
- 15 Jan 84 Boat party reaches Iceberg Point.
- 16 Jan 84 Hill and Macleod place food cache 10 kms from base and reconnoitre a route for Claude Point.
- 18 Jan 84 Boat party reaches Buls Bay via The Waifs.
- 19 Jan 84 Atkins begins the survey of Metchnikoff Point.

- 26 Jan 84 Boat party reach Metchnikoff Point despite encounters with brash ice, Leopard Seals and Humpback Whales.
- 27 Jan 84 The expedition is reunited at last and most scientific programmes are now underway.

6. The Travelling Phase

- 31 Jan 84 The expedition splits into 3 parties:
- a. Furse, Hankinson and Corbett to continue studies at base camp and Cape Roux.
 - b. Trathen, Atkins and De Silva, who prefer to be known as the East Side Story, to make a geological reconnaissance of the North-East part of the island.
 - c. Worrall, Morris, Hill and Macleod to find a route to Astrolabe.
- 2 Feb 84
- a. The East Side Story reach Lister Glacier.
 - b. The other party reach Noddy's Col; Morris loses sleeping bag to crevasse monster.
- 3 Feb 84 Worrall et al climb small hill, which they name Laura's Peak, then move to the Precinct.
- 4 Feb 84 East Side Story climb Virchow Hill.
- 5 Feb 84 Worrall et al reach Astrolabe.
Furse and party attempt to reach Astrolabe by sea but fail to find suitable landing site.
- 6 Feb 84 Furse and party leave overland for Astrolabe. During the night their tent is blown down and damaged. East Side Story weathered in at the Catacombs.
- 7 Feb 84 Furse et al make ignominious retreat to Metchnikoff Point.
- 8-9 Feb 84 Bad weather and misery throughout the expedition.
- 12 Feb 84 East Side Story begin return to base. Furse and party move to Cape Roux to continue their researches.
- 15 Feb 84 Yet more bad weather and misery. Tent collapses on East Side Story.
- 16 Feb 84 Furse, Hankinson and Corbett return to base to find it deserted. East Side Story return at 2000 hours after epic journey in blizzard. Worrall and party have been unable to make the return journey.
- 17 Feb 84 Sir Rex Hunt is flown ashore to open the Island's post office; he is accompanied, to our surprise, by his secretary but the expedition's natural chivalry soon becomes apparent. Poor weather prevented a search for our missing party. Over-Winter team leave UK.

- 18-20 Feb 84 Widespread poor weather including 2 inches of rain in 24 hours.
- 21 Feb 84 Furse, Hankinson, De Silva, Trathen, Corbett and Atkins prepare to climb Mount Parry. Worrall and party reach The Precinct on their homeward, blizzard-ridden journey.
- 22 Feb 84 Furse et al renamed Cosmic Campsites Ltd by De Silva who is then captured by Crevasse monster. Worrall reaches Noddy's Col in yet another blizzard.
- 23 Feb 84 Hankinson, Atkins and De Silva go ice caving.
- 24 Feb 84 Worrall et al camp near Rontgen Peak.
- 25 Feb 84 Worrall et al reach base camp after covering 28 km in one day.
- 26 Feb 84 Cosmic Campsites Ltd reach Astrolabe and collect rations for assault on Mt Parry.
- 27 Feb 84 Cosmic Campsites Ltd name Sue's Col after Sir Rex Hunt's secretary - the terrain has distinctive features.
- 29 Feb 84 Cosmic Campsites Ltd reach Eyrie after a hard pull in very soft snow. Worrall and party now established doing routine and scientific work at base camp. No proposals of marriage received by any of the expedition.
- 1-3 Mar 84 More blizzards and misery.
- 4 Mar 84 Cosmic Campsites Ltd make first ascent of Mount Rokitansky then camp at 5500 ft.
- 5 Mar 84 Hankinson and Atkins make first ascent of Per Ardua. Worrall and party suffering more rain and routine work.
- 6 Mar 84 Cosmic Campsites Ltd reach The Eaves (6600 ft).
- 7 Mar 84 Cosmic Campsites Ltd reach the summit of Harvey Heights (7800 ft) but fail on the ascent of Mount Parry. The retreat was caused by a combination of carbon monoxide poisoning and shortage of rations. Trathen now suffering severe chocolate withdrawal symptoms. Worrall and party go rock climbing.
- 8 Mar 84 Over-Winter team join HMS ENDURANCE.
- 10 Mar 84 Cosmic Campsites Ltd reach Astrolabe cache - food at last.

7. Science Prevails

- 11-13 Mar 84 Astrolabe proves to be botanically rich and scientific work continues apace.

- 14 Mar 84 Furse, Corbett and Trathen leave for Claude Point but return owing to illness of Trathen.
- 15-20 Mar 84 Science continues at all locations.
- 17 Mar 84 Morris and Worrall attempt to reach Astrolabe by boat - defeated by weather.
- 20 Mar 84 Furse et al reach base camp despite Furse's attempts to appease the Crevasse monster.
- 24 Mar 84 Winter party and all stores landed at Metchnikoff Point. Summer party embarks on HMS ENDURANCE. BBC reporter Robert Fox spends at day at base camp.
- 26 Mar 84 HMS ENDURANCE runs aground within sight of Brabant Island; party saved by skill and daring of Royal Navy.
- 31 Mar 84 Summer party leave HMS ENDURANCE and embark on MV Keren at Port Stanley.
- 14 Apr 84 Summer party reaches UK.
- 26 Apr 84 Hankinson accepts Rolex Award for Enterprise on behalf of expedition.

SCIENTIFIC SURVEY

8. From its inception, this expedition had essentially scientific objectives; although, initially at least, it lacked university-educated personnel this deficiency was largely overcome by the assistance of a wide range of universities and other research organizations. At present 60 projects, listed below, are being carried out - with varying degrees of success. They range from the simplest collection of a few isolated plants or insects to a complete geological survey. As the expedition progresses, and the abilities of the second-Summer party are revealed, more projects will be adopted to replace those completed earlier in the expedition. This diversity of aim is, we believe, only possible in a Service expedition such as this free from the constraints of publication, academic rivalry and the need for immediate results. Thus many projects can be accepted that would not, in themselves, justify a journey to Antarctica.

9. Many of these projects are not related specifically to Antarctica, the psychology could be conducted almost anywhere for instance, but the isolation of Brabant Island makes it a suitable laboratory for studies such as the interaction of plants and the nature of the team make them ideal raw material. The list below shows this in many ways and it must be stressed that some may end in total failure and others may be modified by experience.

10. Projects in Progress

1. Investigation of the igneous history and petrology of Brabant Island.
2. Study of previous glacial advances and retreats.
3. Radiocarbon dating of reference material.

4. Study of microclimate in a frost-leave area.
5. Descriptions of patterned ground.
6. Study of former sea levels.
7. Study of beach formation.
8. Study of the formation of boulder pavements.
9. Studies of iceshed datum levels.
10. Seal census.
11. Crabeater Seal feeding study.
12. Collection of seal skeletons and skulls.
13. Collection of diphyllbothriidae.
14. Study of organochlorine residues.
15. Collection of whole fish.
16. Physiology of fish muscles.
17. Collection of fish parasites.
18. Collection of littoral and benthic invertebrates.
19. Collection of mussels, crabs and squat lobsters.
20. Breeding bird census.
21. Annual cycles of resident birds.
22. Studies of bird feeding habits.
23. Study of penguin traffic patterns.
24. Study of Giant Petrel foraging routines.
25. Collection of whole bird specimens.
26. Collection of ectoparasites.
27. Collection of endoparasites.
28. Collection of tetrabothriidae.
29. Collection of macroscopic arthropods from nests.
30. General vegetation survey.
31. Study of low-temperature adaptation in flowering plants.

32. Description of terrestrial reference sites.
33. Location of moss banks.
34. Study of mineral contents of mosses and lichens.
35. Collection of macrofungii.
36. Collection of predacious microfungii.
37. Collection of microfungii from various plant and animal sources.
38. Taxonomy and distribution of arthropods.
39. Study of plant and soil temperatures at various times and seasons.
40. Mite and springtail population dynamics.
41. Diptera distribution and population.
42. Arthropod gut contents.
43. Collection of Nematodes.
44. Collection of Rotifers.
45. Collection of Tardigrades.
46. Collection of Protozoa.
47. Habituation and acclimation to a cold environment.
48. Study of effectiveness of clothing and shelters.
49. Study of psychological effects of cold stress.
50. Study of changes in circadian rhythms.
51. Study of drug-induced changes in circadian rhythms.
52. Study of illness following cold and other stresses.
53. Study of changes in interactions amongst small groups.
54. Preparation of synoptic meteorological records.
55. Study of orographic airflow modification.
56. Topographic mapping of local areas.
57. Study of iceberg drift.
58. Study of changes in sea-ice cover.

59. Preparation of tidal records.
60. Making corrections to Antarctic Pilot.

INDIVIDUAL SCIENCES

11. Botany - Hankinson. Although the general pattern of Antarctic botany is now well known, especially the botany of the Antarctic Peninsula, there remain significant gaps in our knowledge of the distribution of many plants. In addition there are many studies which, whilst not being specific to polar regions, are well suited to an island such as Brabant. In the absence of a qualified botanist, although one has been selected for the second-Summer party, it was inevitable that the majority of tasks would be the making of collections; some work, however, has been possible in other areas and this will continue throughout the Winter.
 - a. Preparation of Herbarium. A carefully-preserved herbarium is a pre-requisite to further work on the island. Some 150 species were collected from the northern part of the island over a period of 6 weeks. Brabant Island's vegetation proved to be much as expected although the discovery of both flowering plants was a pleasant bonus.
 - b. Vegetation Survey. The density of vegetation, its occurrence in relation to sunlight and nutrients and associations of plants are of considerable interest. Vegetation maps of Metchnikoff Point and Astrolabe were prepared at a scale of 1:1500. Attempts were made to show the relationship between plant density and aspect where applicable.
 - c. Mineral Content of Mosses in Relation to Nutrients. Dr Brown of Bristol University provided us with a simple collecting project where he is attempting to show a direct relationship between the mineral content of mosses and their distance from nutrient sources such as seabird colonies and the sea.
 - d. Collection of Macrofungii. Dr Roy Watling of The Royal Botanical Garden asked us to collect macrofungii - we totally failed to locate any!
 - e. Adaptation of Higher Plants to Low Temperatures. We were lucky to find both the higher plants, *Deschampsia antarctica* and *Colobanthus quitensis*, at 2 sites on the island. Our initial work is to look at their growth, nutrition, flowering and survival in the Winter with a view to undertaking a more complete project next year. Several study areas have been set aside and the occurrence of *Colobanthus quitensis* in one of these at 200 m above sea level should be of particular interest.
 - f. Collection of Microfungii. A complete collection was made of the substances on which microfungii were likely to live - penguin guano, skua nests, dead chicks, seal fur and other attractive objects.
12. Ornithology - Furse. The main aims of this project are to census and map the breeding species and to record the annual cycles of breeding and non-breeding birds. Limited areas of the North and West were covered showing greater than expected, though still sparse, populations. Many snowfree areas remain to be covered next season; at present the species list is:

Blue-Eyed Shag - One proven colony - scattered.

Chinstrap Penguin - About 5000 pairs breeding at 2 sites.

Adelie Penguin - A few non-breeding visitors.

Gentoo Penguin - A few non-breeding visitors.

Macaroni Penguin - Two non-breeding visitors.

Black-browed Albatross - Regular forager offshore, occasionally inshore.

Grey-headed Albatross - Two seen.

Giant Petrel - Small numbers around coast - no colonies.

Antarctic Fulmar - Small numbers around coast, no colonies found.

Cape Pigeon - Colonies found in 3 areas, feeding parties of up to 2000 seen regularly.

Snow Petrel - A few seen, colony suspected.

Black-bellied Storm Petrel - Strong evidence of breeding at 3 sites, not proven.

Wilson's Storm Petrel - Breeds in most snow-free areas.

South Polar Skua - Six pairs breeding plus scattered non-breeders.

Brown Skua - Some non-breeders.

Kelp Gull - Present in most places, breeds in 4.

Antarctic Tern - Breeds in at least 3 areas.

Sheathbill - Breeds at Metchnikoff Point, only one seen elsewhere.

13. Seals - Furse and Worrall. The aim of the work on seals was simply to count all seals seen as the breeding seasons were over before the expedition arrived. The distribution of types was somewhat surprising - especially the absence of Leopard Seals close to such a large penguin colony as Metchnikoff Point. Species recorded were:

- a. Leopard Seals. Several were seen on the East coast and in Bouquet Bay but none in the north-west.
- b. Weddell Seal. Present at most suitable beaches.
- c. Crabeater Seal. A few visitors to beaches and some on the ice in Bouquet Bay.
- d. Elephant Seal. Up to 3 were ashore in the north-west coast moulting; this was unexpected.
- e. Fur Seal. At Metchnikoff Point their numbers increased from 5 on our arrival to 950 by late February. They were also sighted in almost every other suitable area.

14. Invertebrates - Morris. The invertebrate study involved the making of simple collections from varied sites and the comparisons of populations thus extracted. The expedition was tasked with obtaining the following invertebrates:

- a. Mites
- b. Springtails
- c. Wingless midges
- d. Tardigrades
- e. Testate Amoebae
- f. Soil Nematodes
- g. Rotifers

Samples of mosses, grasses, lichens and algae were taken from 4 sites within 10 km of base camp. These were placed in an extractor and once the invertebrates left the substrate they were preserved in 70% Ethanol. The nematodes were extracted using siphons and preserved in a formalin and acetic acid solution while some Tardigrade and Rotifer specimens were simply dried in their substrate. Population studies of mites and springtails revealed different ratios between the 2 types on scree slopes at base camp; the most important influence appeared to be the presence of penguins on the slopes with the highest number of springtails while the mites preferred the drier slopes of the moraine. The wingless midges appeared to show a much greater percentage of adults in March than in January and their larvae were collected in considerable numbers. The other invertebrates were found to be present but a precise investigation of their numbers will await analysis in the UK.

15. Psychology - Hankinson. The isolation of small groups of men under conditions of physical stress with abnormal light/dark sequences provides an opportunity for a number of simple experiments. It was decided at an early stage that some studies, particularly those involving interactions within the group, could well produce tensions and that, therefore, all testing must be objective. The 4 projects chosen were essentially the recording of data; though they may seem esoteric they could have considerable benefit for both military and civil applications.

a. Effects of Cold Stress. Dr H D Ellis of Aberdeen University is conducting a long-term study on the effects of cold stress on tasks that do not require short-term memory. He provided the expedition with a reaction-time testing machine to be used by subjects at varying temperatures. Although not as accurate as laboratory experiments, these had the advantages of being realistic conditions in which the subject could not expect to rewarm at the end of the experiment. Initial results show a fairly consistent relationship between thermal comfort and efficiency but the fine weather and prolonged absences from base camp reduced the number of experiments possible. The greater time in base camp and the colder weather available to the Winter party should enable them to make more progress in this area.

b. Personality Testing. Each member of the party completed a personality test before the expedition. It might be expected that expedition members were more stable and extrovert than the armed forces, and the population, as a whole; some evidence of this could be useful in justifying the value of adventurous training.

c. Circadian Rhythms. Dr S Folkard of Sussex University has been studying patterns of sleep and sleep quality for several years. The abnormal light/dark conditions of the Antarctic provide an ideal opportunity for such a study; this was more so in the case of the expedition since we were not subject to the normal constraints of BAS such as radio schedules. Each member of the expedition recorded his sleep and sleep quality upon waking each day; the results should prove interesting when compared to those in the depths of Winter.

d. Drug-induced Changes in Circadian Rhythms. Recent research has suggested that melatonin, which is produced by the pineal gland, has some influence on bodily rhythms. It appears to work well on sheep so the next stage was Servicemen. Two double-blind trials were conducted over separate periods of 21 days using isolated groups where the effects on sleep length and quality were recorded. This experiment will be repeated in mid-Winter.

16. Meteorology - Hill and Hankinson. Meteorology was one of the more limited of the scientific projects intended only to support other sciences and give a general impression of weather on Brabant Island. Initially, the Summer of 1984 appears to have been somewhat better than expected with slacker winds, higher temperatures and better visibility than is usual in the Antarctic Peninsula. Only a comparison with the long-term records of Faraday and Palmer Stations will confirm these impressions and even then this will take no account of local variations. The dominant weather of Brabant Island appears to be a westerly maritime airstream caused by a series of complex low-pressure areas in the Bellinghausen Sea. This produces a layer of cloud on the mountainous chain of the island that lies between 1500 and 5000 ft. As a result the tops of the mountains are frequently clear while sea level is overcast by stratus and stratocumulus. This cloud cover ensured relatively high temperatures and little diurnal variation though it produced little precipitation. When cumulo form clouds did coalesce, however, heavy precipitation was possible and on one occasion we suffered some 2 inches in 24 hours. The extremes of weather at sea level were:

Jan - Max Temp + 4.0 Min -0.3
Max wind velocity 35 kts

Feb - Max Temp +3.5 Min -2.5
Max wind velocity 55 kts

Mar - Max Temp +3.5 Min -2.5
Max wind velocity 30 kts

17. Survey - Atkins. The objectives of the survey project were firstly to update the 1:250000 map of Brabant Island and secondly to produce maps at a scale of 1:1500 or 1:2000 to support other scientific studies. Equipment was provided by the Hydrographer of The Navy and one of the expedition was trained at the Royal Engineers Field Survey Dept, Hermitage. The first map made was of Metchnikoff Point where the full range of equipment was available and the basic method was plane table and telescopic alidade. The second was at Astrolabe where no specialised equipment was available and a 45 m rope and hand compass

BOAT

had to suffice; despite this, satisfactory results were obtained at an accuracy sufficient for most of the scientific studies. Both maps have so far been used in the preparation of vegetation distribution maps and have made the task of the team's botanist much easier. The existing map of Brabant Island was prepared from a photographic survey in the 1950s; though accurate it has a contour interval of 100 m and we were able to distinguish a number of separate peaks that had not been identified and at least one which, we believe, was incorrectly identified when the features of the island were given names.

18. Geology and Geomorphology - Trathen. Previous geological work in this region has included little on Brabant Island, though a Chilean team collected samples from 24 sites in a brief helicopter-borne survey, but concentrated on Anvers Island and the Danco Coast. The expedition was, therefore, fortunate that Michael Ringe has been granted a NERC studentship to study the geology and petrology of Brabant Island under the supervision of Dr Peter Baker of Nottingham University. In the first phase of the expedition, fieldwork was confined to the northern part of the island and the Buls Bay area. However, sufficient samples were obtained to make geochemical analysis of the specimens worthwhile. Three main types of rock have so far been identified, 2 of them igneous; they are:

- a. Extrusive igneous rocks erupted on the surface as molten lava and then cooled and solidified.
- b. Intrusive igneous rocks which have intruded into local rocks in a molten state and not reached the surface before cooling and crystallizing. These are now revealed as the surface rocks are exposed.
- c. Volcanic conglomerates.

19. Extrusive Igneous Rocks. These consist primarily of basaltic lava flows and were observed in detail at Metchnikoff, Skua and Astrolabe points. They out-cropped along the coast and constituted the top most exposed rock; the flows were generally about 2 m in height and consisted of grey basalt exhibiting a vesicular texture on both the top and bottom surfaces. Many of these flows exhibited a high degree of weathering, with the development of a red colouration and red bole on the outer margins of flows, indicating a break between successive flows. The vertical extent of lava flows varied from 100 m at Metchnikoff Point to 2000 m at Mount Parry and 1000 m on Mount Bulkie; it is not known if these represent one event or a series over a long period.

20. Intrusive Igneous Rocks. These may be major (plutonic) or minor (hyperoysal). The major intrusions, which were observed at Metchnikoff Point and Buls Bay, were of intermediate composition being grandiorites. (The minor intrusions were in the forms of dykes and sills); at Buls Bay dykes of varying composition cut a grandiorite intrusion. At Cairn Point, Claude Point and Astrolabe outcrops of dark-grey porphyritic basalt with a marked development of columnar jointing occurred within the basaltic lavas. These appear to be very high level sills although initial work at Astrolabe suggests that the term laccolity could be better applied to that location.

21. Volcanic Conglomerate. Throughout the northern part of the island an ochre conglomerate periodically outcrops; this contains igneous rock fragments and shows a wide variation in degree of sorting, packing and roundness. At Metchnikoff Point it outcrops as a thin layer suggesting deposition in a temporary lake; elsewhere, such as the cliffs south of Lister Glacier, it occurs on a much more massive scale showing 100 m of exposure.

BOAT JOURNEY by R Worrall RM

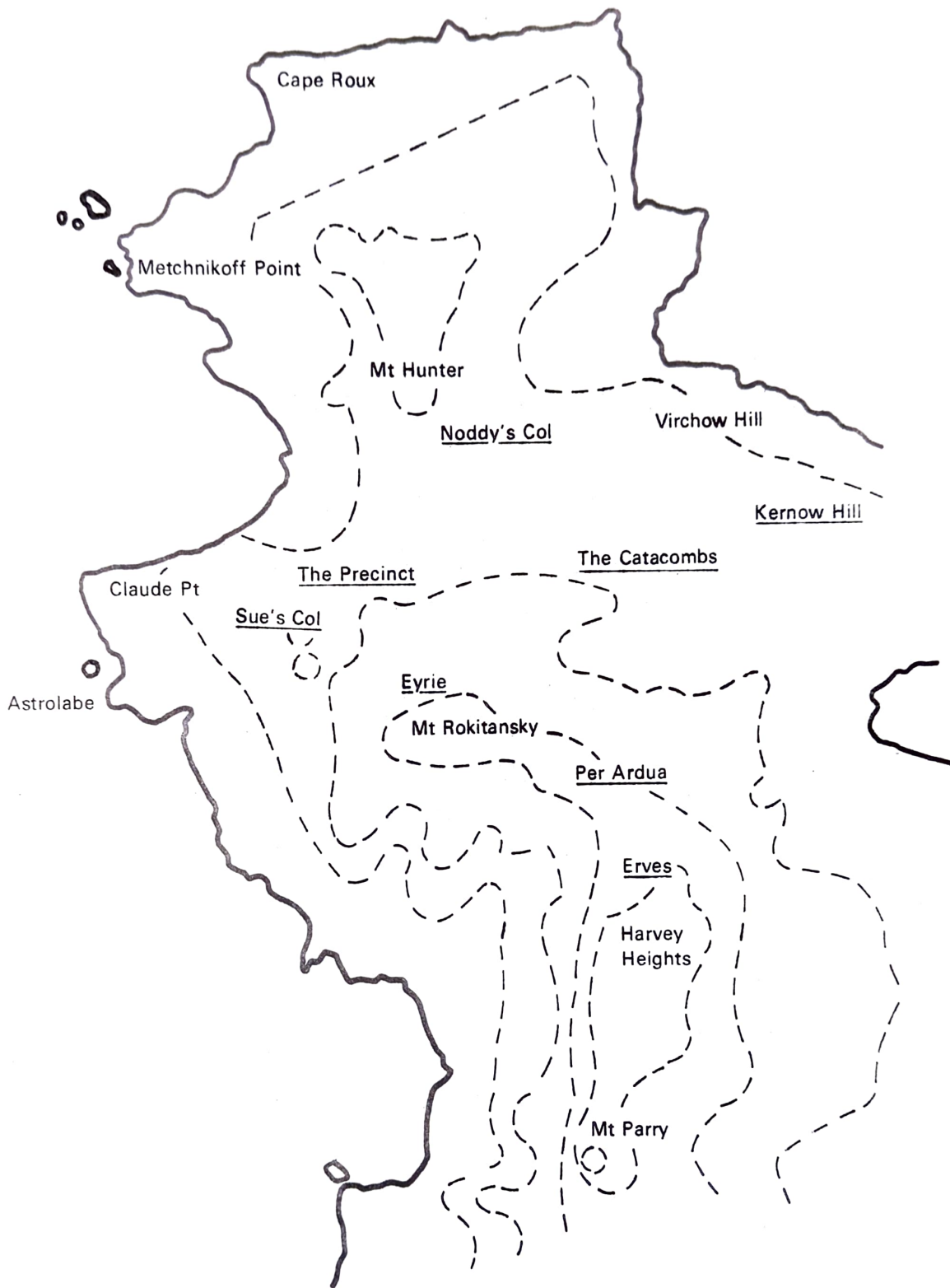
22. Owing to the excellent weather for our stores off-loading period, which relieved the boats of what would have been a very long drawn out period of stores ferrying from Anvers Island to Brabant, the ENDURANCE flight were able to fly most of our stores to Metchnikoff Point on the north-west tip of Brabant Island. The idea was then formed for the 2 boats and 6 members to drive from Palmer Base on the southern end of Anvers Island to Buls Bay on the east side of Brabant Island; then, depending on weather and boats state, to proceed up the east side of Brabant around the north end to Metchnikoff Point or to pulk overland from Buls Bay to Metchnikoff Point. The route was to be via the Bismark Strait, the Neumayer Channel and the Gerlache Strait with the last leg ending in the open waters of the Bellinghousen Sea which thunders unobstructed for hundreds of miles on to the north-west coastline of Brabant Island. The boat party consisted of: Cpl Dick Worrall RM (Boat Party Leader), Flt Lt Bill Hankinson RAF, Lt Simon Trathen RM, Dr Jon Morris, Cpl Kevin De Silva and REL/Air(Phot) Jed Corbet RN.

23. The boat party arrived at Palmer base on 11 Jan 84 and immediately constructed our Avon 520 inflatables and standard Service Johnson 35 hp longshaft engines. Having sorted out our food, equipment and fuel we were ready for departure the next day but, unfortunately, we discovered a broken self baler which required a full day to repair and allow the glue to cure. On Friday 13 Jan 84 we left Palmer base, well loaded down, and repeated the departure 3 times to allow Jed to film from different angles - a procedure we came to know well during the boat trip. Having motored out of Arthur Harbour into the Bismarck Strait we headed West towards Cape Lancaster through a short choppy sea with incredible ice cliffs on portside and Graham Land to starboard. Having strayed too far into the centre of the Strait we missed our turning into the Neumayer Channel by mistaking the beacon at Cape Errera for that of Cape Lancaster; Cape Errera beacon not being marked on the chart, so, instead of seeing Borgen Bay, we could see open sea. After rounding Fridtjof Island we went back round Cape Errera up the Peltier Channel to arrive at Port Lockroy, an ex-Falkland Islands Dependency's hut, to a beautiful evening and our first meeting with the bird life.

24. After a day settling into the Antarctic environment in glorious weather, and allowing Bill and Jon to become members of the Antarctic swimming club, we motored into the Neumayer Channel to encounter our first brash ice which, combined with a spectacular sunset, had Jed speechless as he reloaded, changed lenses and asked us "just one more time" to push our way through the brash to catch that sunlight here or there. We stopped that night at Ice Berg Point which we had spotted the previous week whilst looking for likely landing places from the bridge of ENDURANCE. The following day was cancelled due to bad weather but we managed to set off early on 18 Jan to motor along the Gerlache Strait passing immense icebergs, brash ice and the call for "Take 42 Scene 12, Action". Having stopped at the Waifs for lunch we were again motoring through thick brash ice at the southern end of Brabant which, combined with a following sea, made life a bit more interesting as the brash was now a moving obstacle and as leads opened and disappeared we were having to manoeuvre the craft very carefully. Shortly before, Dick Worrall's engine had leapt off the transom after catching a piece of ice with the propeller which knocked all the blades off and sheared the securing clamps; luckily the engine safety strap held and the engine was back inboard before it could sink. We arrived without further incident at Buls Bay to step ashore for the first time, for some of us, on our home for the next few months.

25. The only frustrating period of the journey followed when we were stuck at Buls Bay for 7 days because of bad weather before making a run for it on 26 Jan. Although the sea was marginal the weather was still a little unsettled and, since there were no known landing places, we were all a little worried. But, even though we encountered brash ice in the Freud Passage, we had a good run up to Spallanzani Point before entering Bouquet Bay which was packed solid with large brash ice. Once through it we entered the last leg of the trip out into the Bellinghausen Sea to round the North end of Brabant to Metchnikoff Point. This leg was really exciting with a 15-20 ft swell, which luckily was long and rolling, thundering into the sheer snow free rock faces around the North end. There were a lot of rocky spikes and islands just offshore and the boats at times motored between them with the sea breaking heavily against these natural obstacles sending towering columns of spray into the air. We arrived at Metchnikoff Point and literally surfed into a cove that is quite sheltered from the elements and an ideal boat haven; everyone was very happy to have had an experience to remember for a long time.

26. Our total distance covered, including detours and filming, was approximately 140 miles - which in the Antarctic and in an open boat is some achievement. We were all glad that we had the chance to see the Antarctic from that angle, and who, on the boat trip, will ever forget the sight of a Humpback Whale when his head suddenly appeared right in front of the lead boat and smiled at us - or was he laughing, who knows? We did not hang around to find out. Well done Avon and many thanks Johnson OMC.



NORTH BRABANT ISLAND 1 : 100 000

Contour Interval 500m

Unofficial names underlined

SKI - MOUNTAINEERING

27. Since the main emphasis during the first phase of the expedition was on reconnaissance, little technical climbing was undertaken. The following first ascents were made:

First Peak	1110 m	Furse, Atkins	14 Jan
Diamond Top	1130	Furse, Atkins	14 Jan
Mount Hunter	1425 m	Furse, Atkins	14 Jan
Laura's Peak	1020 m	Worrall, Morris, Macleod, Hill	3 Feb
Virchow Hill	660 m	Atkins, Trathen, De Silva	4 Feb
Kernow Hill	750 m	Atkins, Trathen, De Silva	5 Feb
Mount Rokitansky	1805 m	Furse, Hankinson, Atkins, De Silva, Trathen, Corbett	4 Mar
Per Ardua	1720 m	Hankinson, Atkins	5 Mar
Harvey Heights	2410 m	Furse, Hankinson, Atkins, De Silva, Trathen, Corbett	7 Mar
Polak's Partner	1730 m	De Silva, Corbett	8 Mar

The nature of the terrain, deep snow with considerable amounts of ascent and descent, made ski-mountaineering skis with skins the best mode of travel. We used Dynastar Yeti skis with Emery bindings and found them excellent. Equipment was carried on Solatum pulks which we found, with a few modifications, could carry 200 lbs when hauled by 3 men. These pulks could be hauled up quite steep slopes but this was very time consuming; we paused for thought, however, when we found ourselves on a grade 2 slope with the pulk still in attendance. One of the restrictions on rapid movement was the lack of detail on the map - it was rather like using the AA road map to cross the Cairngorms and we sometimes had to retrace our steps.

28. Pure climbing was restricted to 2 short excursions. Furse and Atkins climbed the north-west spur of Mount Hunter (Grade 3) and Atkins and Trathen climbed Kernow Hill (Grade 4).

PHOTOGRAPHS - CORBETT

29. The final leg of our journey aboard HMS ENDURANCE provided spectacular scenery for the first filming of the expedition when 3000 ft was shot for Trans-World International who are making a film in connection with our Rolex award. At the same time enough stills photography was done to keep our public relations men in UK happy.

30. On the island our still photographic equipment supplied by the RAF and Fleet Photographic Unit continued to function well as did equipment supplied by Pelling and Cross. Meanwhile the 16 mm colour reversal film supplied by Fuji Ltd raced daily through Corbett's camera as he recorded seals, penguins and the strains of hauling a pulk. He alleges that the Benbo tripod provides him with

much sturdier support than do his skis. Similarly the Gitzo monopod has fended off brash ice and angry Fur Seals whilst also assisting in crevasse crossings. We cannot yet comment on the success or otherwise of our 35 mm film supplied by Ilford, Fuji and Kodak but will know when it returns from Colour Processing Ltd.

31. Powered by Duracell Corbett enters the Winter wishing he had more Damart gloves.

EQUIPMENT TRIALS

32. As the first party to deliberately overwinter in tents, the expedition is uniquely placed to determine the relative merits of a wide range of equipment - of both civilian and military origin. The relative merits of Goretex versus Entrant, Superloft verse Thinsulate and natural versus artificial fibres will be studied under the harshest possible conditions. The precise measurements of the physiology programme will make these trials much more objective than many carried out in the past; whilst not likely to end the interminable arguments amongst mountaineers these should at least provide some balanced ammunition. In the first phase of the expedition the weather failed to place much strain on our Service equipment - though we still had some failures.

33. The equipment used on the expedition came from 3 main sources:

- a. SCRDE.
- b. Personal Equipment.
- c. Equipment given, or sold at a discount, by sponsors.

Obviously only the main items of equipment used are described here but any of our readers contemplating a polar expedition can obtain a complete equipment list by writing to the deputy leader.

34. Clothing

- a. Head. Service-issue headovers were often preferred to balaclavas since the latter were too warm. Of the balaclavas, Thermofleece by Mountain Equipment was generally considered the best.
- b. Neck. Most people used the Canadian-issue large scarf and we strongly recommend this item to future expeditions.
- c. Underwear. Various combinations of underwear were tried; Peter Storm and Lifa were popular but the latter held smells and caused at least one case of skin irritation. We advise the use of cotton T-shirts to prevent the clogging of shirts with sweat and the consequent loss of insulation.
- d. Shirts. We found the Army flannel shirt (1954 pattern) to be comfortable and quick drying. The Nevis sport shirt was warm but most considered it an expensive luxury. Norwegian Army shirts were also warm and comfortable but were slow to dry. We advise future expeditions to use the KF shirt as issued.

- e. Pullovers. Only one of the expedition chose to wear the issue-pattern pullover - it was generally considered unsatisfactory in all respects, particularly when compared with the older (1969) pattern pullover which has a closer knit and a greater wool content.
- f. Fibre-Pile Jackets. Fibre-pile jackets replaced pullovers for most of the expedition. Despite their bulk they were found to be warm, hard-wearing and easy to keep clean. Favourite makes were Helly Hansen and North Cape; we found Thermofleece to be less bulky but to have limited windproofing.
- g. Salopettes and Breeches. A great variety of ski and other salopettes were used and most were satisfactory in the mild weather we experienced. It was notable, however, that 3 of the 4 members with previous expedition experience chose Rohan salopettes and wore them continuously.
- h. Duvets and Padded Clothing. A climate such as this does not demand the use of much insulated clothing. We found the Army-issue padded waistcoat and trousers bulky but warm and would advise future expeditions to use them. The duvets we used, Mountain Equipment and Point Five, were satisfactory but bulky; most of the expedition, particularly those on long journeys, coped happily without them.
- i. Outer Clothing. Illasco jackets were given to us by SCRDE and proved very popular although their weight, bulk and water resistance left something to be desired. It was agreed that they were usually the best compromise for working in this climate. Berghaus Thor waterproof jackets and trousers were issued but little used since they were prone to condensation and leaked at the seams; though sound enough they are not really suitable for this climate. The Barbour oiled-cotton jacket was found very satisfactory for use in base camp in wet weather.
- j. Socks. We used loopstitch socks both issue and commercially purchased. The issue arctic and red socks lasted well but their civilian counterparts did not.
- k. Boots. All but one of the party used Koflach Valuga Light ski-mountaineering boots. They were generally satisfactory but we found them often uncomfortable, slow to dry and lacking in insulation despite Thinsulate in the inner boot. For the price, £143, we felt that more could have been expected of them and that a greater variety of sizes should be available. At base camp moon boots would have been useful for those sudden, nocturnal excursions from the tent.
- l. Gloves. A great variety of gloves were used - not all were satisfactory. We preferred the issue-pattern fibre-pile mittens with goretex outers; they were warm, robust and easy to dry and either could be used on its own. The Wintergear goretex/Cordura mittens were not so good and were described as "having all the insulation of wet Kleenex". For light gloves we found that Damart and RN white thermal gloves were satisfactory and easy to dry but not very robust. We advise future expeditions to take them in large numbers.

m. Rucksacks. We used Berghaus Crusader rucksacks provided by SCRDE. They proved to be capacious, comfortable and reasonably weatherproof but not robust enough for prolonged use since the shoulder harness attachment broke on several. A point to note for future expeditions is that careful fitting is required to obtain the correct size for each man.

n. Sleeping Bags. Four types of sleeping bag were used, one of them provided by SCRDE. We found the SCRDE bag warm but bulky and slow to dry; it is not particularly suitable as an expedition bag. The Caravan Thor was light and compact but poorly constructed and not very warm; the Mountain Equipment Firebird of similar weight and bulk was considered excellent. One Polywarm bag, used also in Elephant Island in 1976, was warm and light.

o. Bivouac Bags. We used goretex bivouac bags supplied by SCRDE; these kept our bags dry in all conditions and performed well though we felt that the quality of construction left something to be desired. One bag made of waterproof paper, Tyvek, was used and found to be excellent. Since it is much cheaper (£8) than its rivals we would advise other expeditions to use them.

p. Tents. Although we had a great variety of tents available a few firm favourites soon emerged:

(1) MFC Antarctic Pyramid was expensive, £800, but a sturdy base camp tent that should last the Winter.

(2) Wild Country Super Nova was light and spacious but difficult to erect and insufficiently robust in winds above 50 kts. Despite this it was our favourite tent for travelling since it would sleep 3 in comfort.

(3) Phoenix Phortress is a nylon tent of traditional design; we found it robust but a little cramped and requiring larger vallances.

q. Ice Axes/Hammers. We found that axes most suitable for technical work were not always good for belays in the snow conditions that we encountered. The Snowden Curver and Mountain Technology axes were satisfactory for technical climbing but insufficiently long for belays; the Stubai Manaslu proved to be the best all-round axe in these conditions. The McInnes-Peck axe loaned to us by Thatcham proved useful for digging latrines, holding down tents and prising lichens from rocks but was unsatisfactory for its intended purpose. The only hammer used was the Terradactyl; this proved to be satisfactory.

r. Crampons. We used Foot Fang crampons and found them ideal in almost all conditions when used with Koflach boots. They do, however, require the additional snowteeth at the front and can tend to ball up in soft snow. The same ease of fitting could be obtained by using issue-pattern Salewa crampons with cable bindings.

s. Skis. Dynastar Yeti skis with Emery bindings and Pocomo skins were used throughout this phase. We found them excellent in almost every respect although we would have liked stainless steel fittings on the bindings.

t. Shovels. The snow shovel is an oft-neglected but vital piece of equipment. We found that Bulldog shovels were excellent; Wilkinson-Sword shovels were light and easy to use but not strong enough for this type of work.

u. Knives. The Navy jack knife proved to be heavy and prone to rusting. Almost all the party brought their own Swiss Army knives; these were excellent and were used for everything from dissecting plants to removing stitches from my thumb.

v. Pulks. The Royal Marine issue-pattern pulk was not available to the expedition so Solatum pulks were purchased. Though not designed for the weights we required to carry, they performed reasonably well after some modification. The lesson we learned is that it is better to do your carpentry at home rather than on expedition.

35. The previous paragraph may seem a little bland but it is true to say that we found few items that were outstanding - and few that were appalling.

INTENTIONS OF THE OVER - WINTER PARTY

36. Many might consider that mere survival would be a sufficient achievement for the over-winter party; they, however, have more grandiose ideas and aim to complete not only the scientific tasks but also the bulk of the exploration of Brabant Island. Their tasks fall into 3 main areas.

37. Exploration of the Island. Before the Winter makes travelling unduly difficult it is hoped that a traverse of the Island to Buls Bay will be made; this will enable the team to establish a skidoo route around the Island and will establish them at a base on the southern part of Brabant. Sufficient rations and fuel have been cached just north of Buls Bay to permit an extended reconnaissance of the Solvay Mountains. At the same time Francois De Gerlache will be able to place a plaque marking the site where his grandfather, the discoverer of Brabant Island, first landed in 1898. On the western side of the Island it is hoped that Minot Point will be reached, either by land or sea, since it appears to be one of the largest ice-free areas on the coast and should, therefore, be botanically and ornithologically interesting.

38. Mountaineering. The ascent of Mt Parry having failed, the team will return (this time with plenty of rations) for another attempt as early as possible. In the south of the Island the elegant peaks of Mt Galen and Imhotep will probably be the first objective of any southern party - though they will probably leave one small, moraine-ridden bump for the second-summer party to claim.

39. Scientific Programme. Apart from containing the project described elsewhere, the over-winter team intend to start a number particular to this phase of the year. The most important of these will be Surg Lt Oakley's physiology studies and Cpl Spottiswood's investigation of the feeding habits of Crabeater Seals during the winter months. The latter project will require hunting of the seals either on the pack ice or from open inflatable boats.

FUND RAISING

40. The initial budget from the expedition was around £20000; however, like Topsy, it grew and currently stands at around £100000. This sum has been raised from 5 main sources:

- a. Personal Contributions. Every member of the expedition contributed 25% of his basic daily pay towards the expedition fund whilst on Brabant Island.
- b. Donations from Public Funds. Generous contributions were received from Service public funds concerned with adventurous pursuits. The most important of these was £10000 from DNPTS.
- c. Donations from Non-Public Funds. Various unit non-public funds were approached for support - particularly generous donations were made by RAF and RN Service institutes.
- d. Donations by Charitable Institutions and Individuals. A number of charities concerned with the types of research being undertaken made contributions to the expedition's costs. The support of the Mount Everest Foundation and St Bartholomews Hospital, London was notably generous but smaller amounts from bodies such as Sir Samuel Scott of Yews Trust represented a substantial proportion of their annual outlay.
- e. Sponsorship by Industry. The expedition was aided by several firms - some of them not directly related to the expedition's activities. The most important contribution was £5000 from Saccone and Speed but many other firms, whose advice on equipment was often invaluable, contributed lesser amounts in cash and kind.
- f. The Rolex Award for Enterprise. To our complete amazement, the expedition was selected as one of the 5 winners of the biennial awards made by Rolex. This award, worth 50000 Swiss francs, transformed our finances and gives considerable prestige to the expedition.

41. Fund raising was, after the winter-phase of the expedition was approved, the major pre-occupation of the leader and deputy leader. It was found that a clearly presented statement of the expedition's aims was invaluable and that appeals had to be tailored to the objective of the charity or firm to which we were appealing. We were encouraged by the large number of charities and other bodies who, whilst being unable to assist us, offered their good wishes and moral support.

EXPEDITION SPONSERS

42. The following bodies and individuals gave financial assistance to the expedition's first 2 phases:

HRH The Prince of Wales

The Rolex Award for Enterprise

Saccone and Speed

ICI

Trans-Antarctic Association

Mount Everest Foundation

Trenchard Memorial Award Committee

Hawker Siddeley 50th Anniversary Award Committee
RAF Special Projects Fund
RAF Strike Command
RAF Support Command
HQ RAF Germany
RAF Gutersloh PSI
RAF Kinloss PSI
Sir Samuel Scott of Yews Trust
HRH The Duke of Edinburgh No 2 Account
Strand Insurance Brokers
The Nuffield Trust
DNPTS
RN Medway Sports Association
RAF Mountaineering Association
Army Mountaineering Association
RN and RM Mountaineering Association
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Society Expeditions Ltd
Albert Reckitt Memorial Trust
CDO Log Regt PSI
RM Poole PSI
Joint Services Expedition Training Committee
St Bartholomews Hospital London
WEXAS
Gino Watkins Memorial Fund
Hall School Hampstead
Malvernian Society
Cdr M K Burley
Major D Counsell RA

Mrs E Feltham
Miss L Feltham
Rear Admiral and Mrs J P W Furse
Mr and Mrs D Strang
Army Canoe Union
Army Bird Watching Society
PWO
REME Association
I QLR
RCMS Shrivenham
CinC Home Command Naval Benevolent Fund
HMS Pembroke
Fleet Amenities Fund
RM Poole Unit Funds
RM Sports Association
RN Sailing Association
RN Winter Sports Association
Sailors' Fund

EXPEDITION FRIENDS

43. The following societies and individuals gave us advice, encouragement, abuse and equipment to help us on our way:

HRH The Prince of Wales
British Antarctic Survey
Royal Geographical Society
Nottingham University
Aberdeen University
Royal Scottish Museum
Oslo University
Aston University

St Andrews University
Hull University
University College N Wales
British Museum
Bristol University
Institute of Terrestrial Ecology
Royal Botanic Garden
Central London Polytechnic
York University
Coventry Polytechnic
Glasgow College of Technology
Institute of Naval Medicine
Medical Research Council
Sussex University
Surrey University
Hydrographer of The Navy
National Science Foundation
Palmer Base, Anvers Island
Wintergear Ltd
Field and Trek Ltd
Moorland Rambler Ltd
Stores, Clothing Research and Development Establishment
Berghaus Ltd
Polywarm Ltd
Fuji (UK) Ltd
Kennet Engineering Ltd
Nikon (UK) Ltd
Grouse Ltd
Long John Ltd

Jordans Cereals Ltd
Rowntree Macintosh
Colmans Sauces
Shakespear Ltd
Mountain Equipment
RE Survey Hermitage
Sir Vivian Fuchs
RRS Discovery and The Maritime Trust
Gitzo Ltd
M & AW Cadre Royal Marines
Commander British Land Forces Falkland Islands
Senior Naval Officer Falkland Islands
Logistics Regt Falkland Islands
Sir Rex Hunt
Whittle Hall Typing Pool Royal Air Force College Cranwell
WO I Van Beck CDO Log Regt
Lt Bootland 3 CDO Bde
Mountain Rescue Team RAF Kinloss
Mrs M Steele HM Dockyard Plymouth
Avon Inflatables
Croom Helm Ltd
Colour Processing Ltd
Norsk Polarinstitutt, Oslo
NERC
Polar Postal History Society
Scott Polar Research Institute
Sunday Telegraph
Williams and Glyns Bank Ltd

Young Explorer's Trust
Addis Ltd
Alpine Sports
Ep Barrus Ltd
Belgian Antarctic Committee
British American Tobacco
CBE Associates
Davie Mason and Co
Duracell Ltd
H Fine and Sons
Maureen Hardy
HJ Heinz
Hellma Ltd
Ilford Ltd
Kenco Ltd
Lasergauge Ltd
Lifeguard Ltd
3 M PLC
MFC Survival Ltd
Hawkins and Mainwaring
Measurement Devices Ltd
Multifab Ltd
Nabisco Ltd
Nestles Ltd
Oil Field Hydrographic Ltd
Outward Bound Equipment
Pelling and Cross
Plessey Ltd

Poly Sox
Procter and Gamble Ltd
Racal Ltd
Snakpak Food Products
Swix Sport
Taylors Eye Witness Ltd
Tirfor Ltd
Tog 24
Tri-Wall Containers Ltd
Charles Turner and Co Ltd
UB Biscuits
Vector Instruments
Waddington Games
Wilkinson Sword Ltd
Wilson Marshall
Yachtspeed Industrial Services
Printing Section RAF Cranwell
DMED
Joint School of Photography
Meteorological Office
SSVC
DSGT (N)
PSFO (N)
RNVD Botley
Fleet Photographic Unit
AT Store Thatcham
SEME Bordon
MVEE Chertsey

Petroleum Centre West Moors

RAF Kinloss MRT

and last, but certainly by no means least,

The Captain and Crew of HMS ENDURANCE