BRATHAY EXPLORATION GROUP

ANNUAL REPORT
AND
ACCOUNT OF EXPEDITIONS
IN 1963

BRATHAY EXPLORATION GROUP

ANNUAL REPORT FOR 1963

REVIEW OF EXPEDITIONS

Fifteen expeditions were organised by the Group during 1963, six in the Lake District based on our Headquarters on the Brathay estate, four to the island of Foula in the Shetland Isles, and others to Iceland (two), Norway, Yugoslavia and Uganda. Altogether 180 boys and 55 leaders took part, with an average of between 15 and 16 members in each party. Of the 180 boys taking part, 103 were school boys and 61 boys from industrial firms in the United Kingdom, while the remaining 16 were boys from Iceland, Uganda and Yugoslavia, who joined our parties working in those countries.

It remains a cardinal point of policy to recruit members of the more ambitious overseas expeditions only from those who have first qualified either through the 4-week Course at Brathay Hall or through membership of one of our parties in the Lake District or Foula. For schoolboys seeking the wider experience of an expedition overseas, the Lake District expeditions provide the main introduction to the activities of the Group. Boys from industrial firms, however, who form by far the greater proportion of the 4-week Courses at Brathay Hall, are often well qualified on the grounds both of age and experience for membership of overseas expeditions.

It is also true that in these days of ever increasing opportunities for travel, the Lake District does not hold quite the appeal that it did in the years immediately after the War, when the Exploration Group was founded. It is understandable that the older boy from industry, after the experience of the 4-week Course, should want to go directly to the wider experience of an overseas expedition. In our overseas expeditions therefore, we are normally able to allocate places, as has always been our aim, equally between schoolboys and boys from industrial firms. It is much less easy to maintain parity of numbers in the Lake District, and our Council and leaders are considering closely both the future function and composition of these parties. One promising development is a plan to introduce at this stage boys from industrial firms, who have not had an opportunity to attend one of the 4-week Courses. There must be many boys not fortunate enough to work for firms who sponsor boys for Brathay and Outward Bound Courses, who would nevertheless jump at an opportunity to take part in the activities of the Group. A number of such boys are to be offered places in 1964, through the Duke of Edinburgh's Award Scheme, and we are working in close liaison with the Senior Field Officer (Industry), D.S.E. Hayward, who has had wide experience of both Brathay and the Exploration Group.

While seeking to maintain a sensible flexibility in the introduction of boys from the home countries to the activities of the Exploration Group, we remain aware of great opportunities to extend our membership overseas. By including in our overseas expeditions boys from the countries visited we are not only enriching the experience of each party concerned, and incidentally often also its efficiency, but also helping in some small way to foster and develop a widespread interest in exploration among young people. Attention was drawn to these opportunities in the last Annual Report, and, during 1963, there was an important follow-up to the joint British/African venture of 1962 in Uganda. On this occasion the British element in the party was smaller, and our friends in Uganda took on a large part of the preliminary organisation. As a result of the activities of a small unofficial 'Brathay' Committee in Kampala, the expedition itself was a great success and much interest was shown in the idea of establishing a Brathay type Exploration Group in Uganda. The small party of two leaders and three boys from England spent ten days, mainly after the expedition itself, talking to interested individuals and groups in schools, youth clubs and at Makerere University. The Exploration Group films were shown widely.

In 1962 our other venture in international co-operation was in Iceland. This was followed up not only by two further expeditions in 1963, but by a visit of the Iceland members of the 1962 expedition to Brathay in June. The seven Icelandic boys and their leader were first guests for three days at Abbotsholme School, Edinburgh Academy, Marlborough College, Sedbergh School and Rugby School, all schools with strong Brathay links, and whose Headmasters had kindly offered hospitality. The group them re-assembled at Brathay, with Tony Escritt (a leader of the 1962 Iceland expedition) acting as liaison officer, using the Group's headquarters as a base. Mark Wolfson and the Brathay Staff arranged a full and varied programme, which included participation in the beginning of a 4-week Course and visits to mines and shipyards in County Durham.

The 1963 season saw the completion of the rebuilding of the crofter's cottage, Ristie, the Group's base for fieldwork on the island of Foula. An additional room has now been added, designed to serve the double purpose of a small, compact kitchen unit and a porch, with hanging space for wet clothing. The large main room is now in use as a library and workroom, with facilities for use also as a common room/ dining room. Sleeping accommodation is provided in tents sited in the walled enclosure on one side of the building.

We are once again indebted to Sir Ronald Nesbitt-Hawes for organising and leading the working party, which carried out the major part of the building programme. The three following parties besides carrying out their tasks of fieldwork completed the building programme and assisted also in a further project to assist the islanders. The Church on Foula had been re-roofed by the islanders earlier in the year, and in the

process rain and wind had played havoc with the interior decorations. John Gittins, who has played such an important part in the programme of bird studies in Foula in past seasons, most unselfishly devoted much time to initiating a complete redecoration of the Church's interior. With other volunteers following his example, the job was completed during the Brathay 'season' on the island, in addition to the usual tasks of peat carrying and haymaking for the older islanders.

The Group's close and friendly links with the islanders continue and during 1963 we were able to bring to the attention of the appropriate authorities several matters concerning the future of the island. Through the good offices of our Chairman an informal meeting was arranged between Mr Jo. Grimond, the Member of Parliament for Orkney and Shetland, and three of our leaders. Those of us who met him were much impressed by Mr Grimond's intimate knowledge of Foula affairs, and his realistic understanding of the problems involved in maintaining such a remote community. Later Jack Baiss visited representatives both of statutory and voluntary bodies concerned with Foula, and had a further talk with Mr Grimond.

Of the remaining expeditions, it may be noted in the accounts that follow that in Norway, another full season's work on Tunsbergdalsbre carried our longterm study of that glacier almost to its immediate conclusion. After one further expedition in 1964 we hope to produce a full report on the surveys and measurements covering the period 1957/64. The Group's fifth expedition to Yugoslavia returned to the Julian Alps, which had been the venue of two of our previous expeditions. The kindly help of our old friend and adviser Professor Kunaver, of Ljubljana, and the presence in the party of Yugoslav students, whom he had introduced, ensured that local liaison was excellent and that the party made the best of their stay in the region. The steady opening up of the Bohinj valley as a tourist centre is now, from a Brathay point of view, however, robbing the area of much of its earlier attraction and challenge.

THE COUNCIL

There were three meetings of the Council during the year. There were no changes in the composition of the Council during the year, but early in 1964 R.D. Salter Davies, H.M.I. intimated that owing to his commitments at the Department of Education and Science, he was finding it increasingly difficult to attend Council meetings. He wished accordingly to resign, and this the Council accepted with great regret. R.D. Salter Davies had been a member of the Council since its formation in 1952, from the first small Steering Committee, and had played an important part in guiding the affairs of the Group in its formative years. We shall greatly miss his wise and kindly counsel. He has been succeeded as Observer for the Department of Education and Science by W.J. Evans, H.M.I.

THE HEADQUARTERS

During 1963, extensive improvement to the Group's base at Brathay Hall was carried out by the Trustees. The old Bunkroom was demolished and a fine new one constructed on a site nearby, with accommodation for four leaders and sixteen boys in two self-contained units of ten each. On the site of the old Bunkroom a large Equipment Store has been built to replace the previous one, which was demolished to make way for the new Administrative Block at the Hall. It is a great advantage to have all our buildings concentrated on one site and the construction of a tarmac road to the site makes it possible now to drive vehicles to the headquarters in all weathers. The new Equipment Store provides excellent facilities not only for the storage of tents and other camping equipment but also space for expedition members to work when assembling their gear or carrying out repairs. There is a smaller section for the storage of scientific and survey equipment, maps, etc. with space for writing up fieldwork results. The small Leaders' Room in the Common Room/Kitchen block has now become the Quartermaster's room.

We are very grateful to the Trustees for this considerable addition to our amenities at Brathay.

LEADERS MEETING

Forty-five leaders, the Warden and his Staff Instructors attended the Leaders' Meeting at Brathay Hall from the 2nd to 6th January, 1964. The Council was strongly represented in the persons of the Bishop of Norwich, Harvey Gee, John Kempe and Sir Ronald Nesbitt-Hawes. Their presence at the Meeting was much appreciated and their active participation emphasised the close links that exist between the Council and leaders of expeditions. We were pleased also to welcome two officers of the Schools Hebridean Society, Martin Child and Tim Willcocks, a recently formed group working in much the same field as ourselves and with very similar aims. A note about the Society follows. We were also pleased to see Douglas Hayward, now Senior Field Officer (Industry) for the Duke of Edinburgh's Award Scheme.

In addition to the usual reports on the previous season's expeditions and the detailed planning of the new season's programme, study groups discussed and reported on a number of topics, including the composition and content of Lake District expeditions, Norway, Foula, expedition equipment and rations, and archaeological fieldwork. The keynote to our discussions was closer co-operation with the Brathay Courses.

We were delighted to be able to entertain Mr and Mrs F.C. Scott and a number of friends on our Guest Night.

The main part of the Meeting ended on the Sunday morning, when the Bishop of Norwich conducted a short morning service.

SCHOOLS HEBRIDEAN SOCIETY

A close and friendly liaison has been established between this new Society and the Group. For the interest and information of members, therefore, we have asked the Honorary Secretary to contribute the following note about the Society. It will be seen that the Society caters, in part, for a younger age group. This may be of interest to Schools who have boys below our minimum age of 15½ years old keen to join expeditions. We hope also that boys from the Society may at a later stage come on to join Brathay expeditions.

Martin Child's note follows:

"The Schools Hebridean Society was founded in 1960. By the end of 1964 it will have run eight schoolboy expeditions to various Hebridean islands, drawing on boys from about 50 different schools in Britain. The expeditions are arranged in three age groups, with 25-30 boys in each, plus 8-10 officers: Junior: ages 13-14½; Middle: ages 14-15½; and Senior: ages 15½-18. There are also smaller Officer Training Expeditions for senior boys.

The activities on the expeditions are diverse. Instruction is given by qualified officers in rock-climbing and sailing. Some surveying and archaeology have been done, and each expedition undertakes a practical project. There is plenty of scope for the pursuit of individual interests, such as ornithology, botany, geology, human and historical geography and meteorology; whilst fishing, rambling, canoeing, football and cricket provide ample recreation. In addition, the Society is an Operating Authority for the Duke of Edinburgh's Award Scheme. Each expedition is self-supporting: all the food, tents and equipment are taken with the party: A competent medical student acts as a camp doctor.

The expeditions normally last for a fortnight, and take place during the summer holidays. The fee is not more than £20, plus (reduced) rail fares.

The Society is owned by the Schools Hebridean Comapny Limited, a Registered Charity. All the work involved is carried out on an entirely voluntary basis. Further information may be obtained from C.M. Child (Hon. Secretary), The Vicarage, Southwold, Suffolk."

FINANCE

Details of the Expedition Account and of the General Account for 1963 are printed as an appendix to this Report.

Leaving aside the Uganda expedition for which special financial arrangements were necessary, it will be seen that in the Expedition Account fees just covered expenditure. The deficits shown for the Norway and Iceland expeditions, in which travelling costs remain high, were offset by the surpluses on the remaining expeditions. Some increases in fees were made during the year and details are shown in the appendix. We fight a continuing battle to keep fees to a minimum, in order that our expeditions may be open to as many suitable candidates as possible. Capital costs of our headquarters, purchases of camping and scientific equipment, and administration costs continue to be met by the generous grants of the Brathay Trustees. It will be noted, however, that members own subscriptions (as distinct from fees) now exceed £100 per annum.

Small bursary grants are made from time to time to assist individual boys to meet the cost of going on an overseas expedition. At the end of the year we were honoured and delighted to hear that friends and colleagues of the late John Sugden, H.M.I. had expressed a wish to endow a bursary in his memory and had asked the Group to administer the Fund which was being raised. A full note about this new Fund will appear in the next Annual Report, and schools and firms will be sent details of the award of grants from this Fund and the Vaughan Lewis Memorial Fund.

MEMBERSHIP SCHEME

The membership of the Group continues to grow steadily, not only as new members join each year but as many former members of expeditions elect to maintain their association with Brathay. Details of the Membership Scheme, and of Associate Membership, open to anyone interested in the activities of the Group, may be obtained from Maurice Dybeck, The Village College, Sawtry, Huntingdonshire.

FILMS

The following films, made by Maurice Dybeck, are available for loan to schools, firms or organisation or individuals interested:-

1. 'Lake Survey' (15 minutes). An account of a typical Lake District expedition, centred mainly on the survey and sounding of a mountain tarn. Hire fee 12/6d.

2. 'Expedition to Norway' (25 minutes). The mapping by a Brathay party of Tunsbergdalsbre, the largest glacier in Norway. Hire fee 15/-.

3. 'Foula Diary' (20 minutes). A vivid picture of the remote island of Foula, in the Shetlands, and of its inhabitants, as seen through the eyes of a member of a Brathay expedition. Hire fee 15/-.

All three are 16 mm. sound films in Kodachrome and all have won awards at Amateur Film Festivals.

A new film about the Uganda expeditions is expected to be available for circulation before the end of 1964.

Booking requests and all enquiries should be sent direct to Maurice Dybeck, The Village College, Sawtry, Huntingdonshire, (Tel. Sawtry 386).

ACKNOWLEDGEMENTS

We are grateful for help and advice from many individuals and we should like to thank the following firms who have supplied food, stores and equipment at special rates:-

Batchelor's Foods Ltd.	(Dehydrated foods)
Benjamin Edgington	(Tents and camping equipment)
Cadbury Bros. Ltd.	(Chocolate)
J.J. Colman Ltd.	(Instant potato)
Frank Davies (Ambleside)	(Climbing and camping equipment)
D.R. Evans & Co. Ltd.	(Groceries)
F.M.S. Farm Products Ltd.	(Dehydrated fruit and vegetables)
Giertsen A/S (Bergen)	(Provisions for Norway parties)
Nestle Co. Ltd.	(Milk products and chocolate)
Romneys of Kendal	(Kendal Mint Cake)

We also thank the Provincial Insurance Company Limited for generously undertaking the printing of this Report and Mr L. Simons, in particular, for his continued help and advice.

ACCOUNT OF EXPEDITIONS IN 1963

Lake District Expeditions

Expeditions to Foula (Shetland Isles)

Norway Expedition

Iceland Expedition

Yugoslavia Expedition

Uganda Expedition

LAKE DISTRICT EXPEDITIONS

Ever since the completion of the very successful tarn surveys we have been on the look-out for worth-while field work projects in the Lake District. Detailed studies of different kinds have been made in various localities and in recent years the national Land Use Survey has provided interesting work for the Lake District expeditions. Several parties this year were trying out a new project suggested partly by the success of the Land Use Survey and partly by the geomorphological maps which have been prepared by Dr. R. Kay Greswell of Liverpool University. The plan put forward by Eddie Jones and Christopher Barringer is to prepare two sets of detailed maps of areas in the Lake District showing on one set the geomorphological features, and particularly the glacial features, which can be recognised by the keen observer, and on the other set information about the historical and human geography of the area - dates and uses of buildings, industrial sites, archaeological relics and the like. It is hoped that this will not only bring together useful material for anyone making a study of the area, but will also make the members of the expeditions more observant and interested in their surroundings when they are walking in the Lake District or elsewhere. The success of the scheme depends largely upon whether or not it can be operated by non-specialist leaders, and this will become clearer when it has been thoroughly tried out. The actual working method is similar to that used for the Land Use Survey. Small groups go out with a 6" map and record information in pencil, using various agreed signs: then this is transferred to a fair copy kept back at base, using a special colour code.

The first Easter party, operating for six days over the Easter weekend, made a start on this work in the Duddon valley and camped at Cockley Beck Farm, but they were hampered by bad weather. Most of the survey work has to be done in the valley, but the three groups of the party also spent some time on the tops so as to give everyone some fell-walking experience. Four boys who were on this expedition went overseas in the summer and one went to Foula.

The expedition which followed had the same general objective of introducing the members to Brathay and giving them some experience of fell-walking and camping, but the field work planned for it was different. One half of the party camped in Patterdale to make a study of a typical Lakeland farm, while the others started a survey of Rydal Water in preparation for a later study of the reed beds. Walking to the camp sites, and changing over at half-time, gave both halves of the party some fell-walking, including a taste of severe conditions on the top of High Street, but poor weather prevented the completion of either item of the field work programme.

The Summer Expeditions were able to use the new bunk room and the first one got off to a good start with nearly a week of fine weather. They were back at Cockley Beck, mapping the Duddon valley, and by

working in three groups they covered a considerable area, dealing mainly with geomorphology, and mapping corries, moraines, hanging valleys, ice gathering grounds and roches moutonnées. Their last full day in the field was wet, but they used it for making sketches and plans of farm buildings and then they walked back to Brathay next day, the heavy equipment being taken by lorry.

The expedition which followed was working in the Coniston fells just alongside the Duddon valley. They operated from two camps well away from any habitation - one at about 1600ft. in the valley above Levers Water and the other beside Blind Tarn, 1800 ft. up in a pocket just below Brown Pike and looking across the valley to the Old Man of Coniston. The main activity was the plotting of cross and long profiles of the valleys containing Levers Water and Goats Water and, although the weather was mixed, quite a lot of this work was done, with some mapping in the Duddon valley in addition. Both groups carried back all their equipment to Brathay on a fine sunny morning which turned into a very wet and stormy afternoon.

The third Summer expedition suffered very badly from the weather, with six wet days in camp, but they managed to make a successful start on another new project in which they obtained peat samples for Dr. Tutin, of Leicester University, who is studying peat deposits with a view to finding out about the vegetation in the Lake District in early post-glacial times. A party camped for this purpose near Seathwaite Tarn, above the Duddon valley, while the rest of the expedition was in the Ullswater region making a study of a hill sheep-farm: they were prevented by the bad weather from completing a study of Wolf Crags at the northern end of the Helvellyn range.

The last expedition returned to the Duddon, but to do a specific archaeological investigation instead of general mapping. There is an area near Crosbythwaite Farm, above Ulpha, with many cairns and various remains: a detailed map was made of about one-third of this area showing all the items of interest, one cairn was uncovered and examined, and a cross-section trench was dug across an old wall. This work was suggested by Mr John Cherry, of Seascale, and the party was visited on the site by Miss Fell, of the Cumberland and Westmorland Archaeological Society.

The Field Work section of this Report does not contain any account of work done in the Lake District during the year, since much of it is incomplete and remains to be finished or continued by later parties, but an article by Eddie Jones entitled "A New Look at the Upper Duddon Valley" appeared in the issue of "Cumbria" for April 1964 and gives an account of the work being attempted in that valley and the results obtained so far.

EXPEDITIONS TO FOULA (SHETLAND ISLES)

Four Brathay parties visited Foula during the summer and they were engaged on a wide variety of tasks. Tony Land acted as general co-ordinator of plans and all arrangements worked very smoothly except for one change-over which was delayed for two days because the sea was too rough for Hansie Smith to make the crossing from Scalloway.

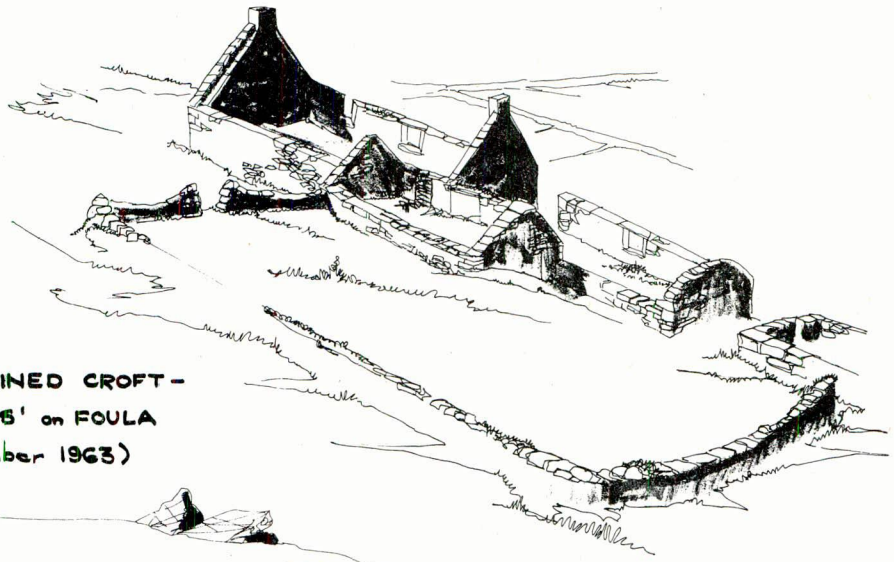
The Advance Party which reached Foula in mid-July was a small one with four leaders and only two boys. They were to make preparations for two major practical tasks which we hoped to complete during the summer, and as two of them were specialists they examined the scope for future biological work on the island. The leader of this party was Sir Ronald Nesbitt-Hawes, a member of the Council of the Group, and they made a good start on the construction of a porch as an addition to our croft "Ristie", to be used for cooking and washing-up, so as to leave the main room for use as a field laboratory and expedition day-room. The transporting of building blocks, sand and shingle was heavy work in which all shared. Meanwhile the annual programme of bird-ringing was got under way and a meteorological station was set up at "Ristie" and regular readings started. This party were lucky to have a skilful angler among them and they enjoyed sea- and river-trout for several meals.

It was the first change-over which was delayed, and the first main party had to wait for 36 hours on the mainland in gloriously sunny but windy weather. Fortunately they were allowed to use the new Youth Centre at Scalloway as a temporary base. There were four leaders and twelve boys in the party and they had poor weather for most of their time on Foula, but this did not prevent them from doing plenty of useful work. The ringing of young bonxies and the netting of petrels continued as in previous years, also the systematic trapping of Foula mice, planned by Brian Tricker and supervised for this first party by Ron Thompson, a visitor to the island and not a Brathay leader. Other studies included some general investigation of crofting on the island and the tracing of the diurnal movements of the sheep.

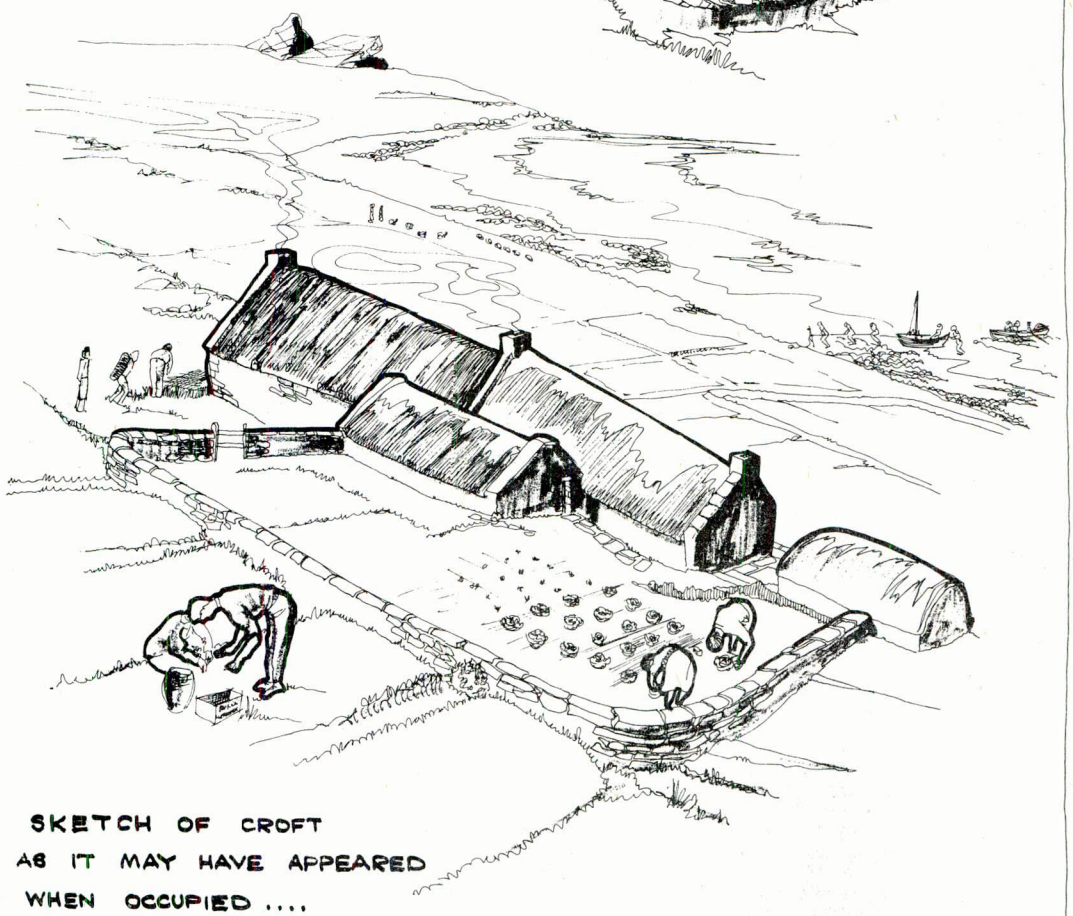
The second major practical task was the re-decoration of the Church, which had suffered from the effects of the weather while the roof was being renovated earlier in the year. The first main party made some progress with this and two leaders conducted the Sunday services.

Don Pirkis, with the help of boys of the party, made a study of the coast of the island, and particularly the relation of land-forms to geology, and an article on this work appears in the Field Work section of this Report.

The second main party, of the same size as the first, had a rough crossing to Foula, but they were not held up. They maintained the



THE RUINED CROFT –
'SPRINGS' on FOULA
(September 1963)



SKETCH OF CROFT
AS IT MAY HAVE APPEARED
WHEN OCCUPIED ....

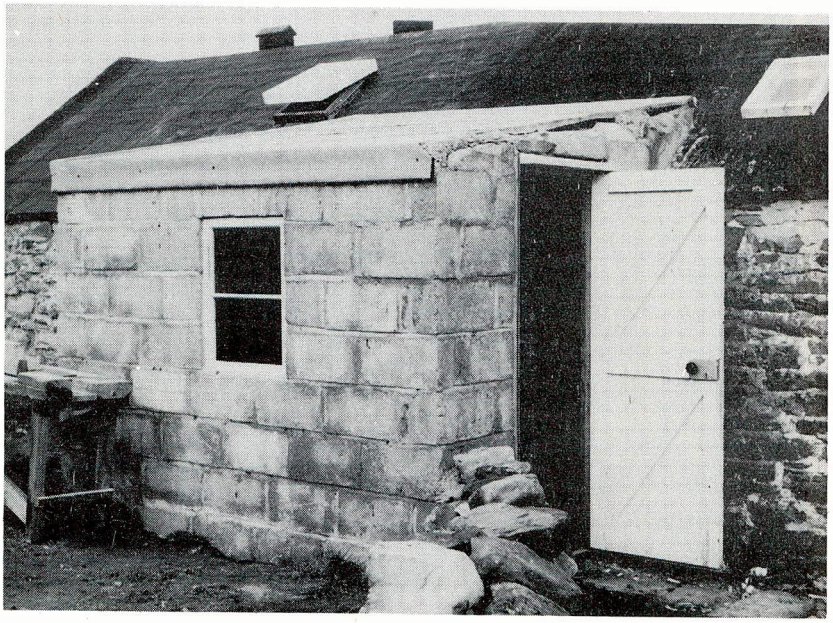
robert

work on the various continuing projects, putting the roof on the new porch at "Ristie". Because of the particular interests of two of the leaders they also made a collection of plants (later sent to the British Museum) and of moths. One member of the party had a nasty fall over a cliff-edge while engaged on the bird work at the South end of the island and he was out of action for the rest of his stay, being looked after with great kindness by Nurse Sandilands, who was as hospitable and kind as ever to all the Brathay parties.

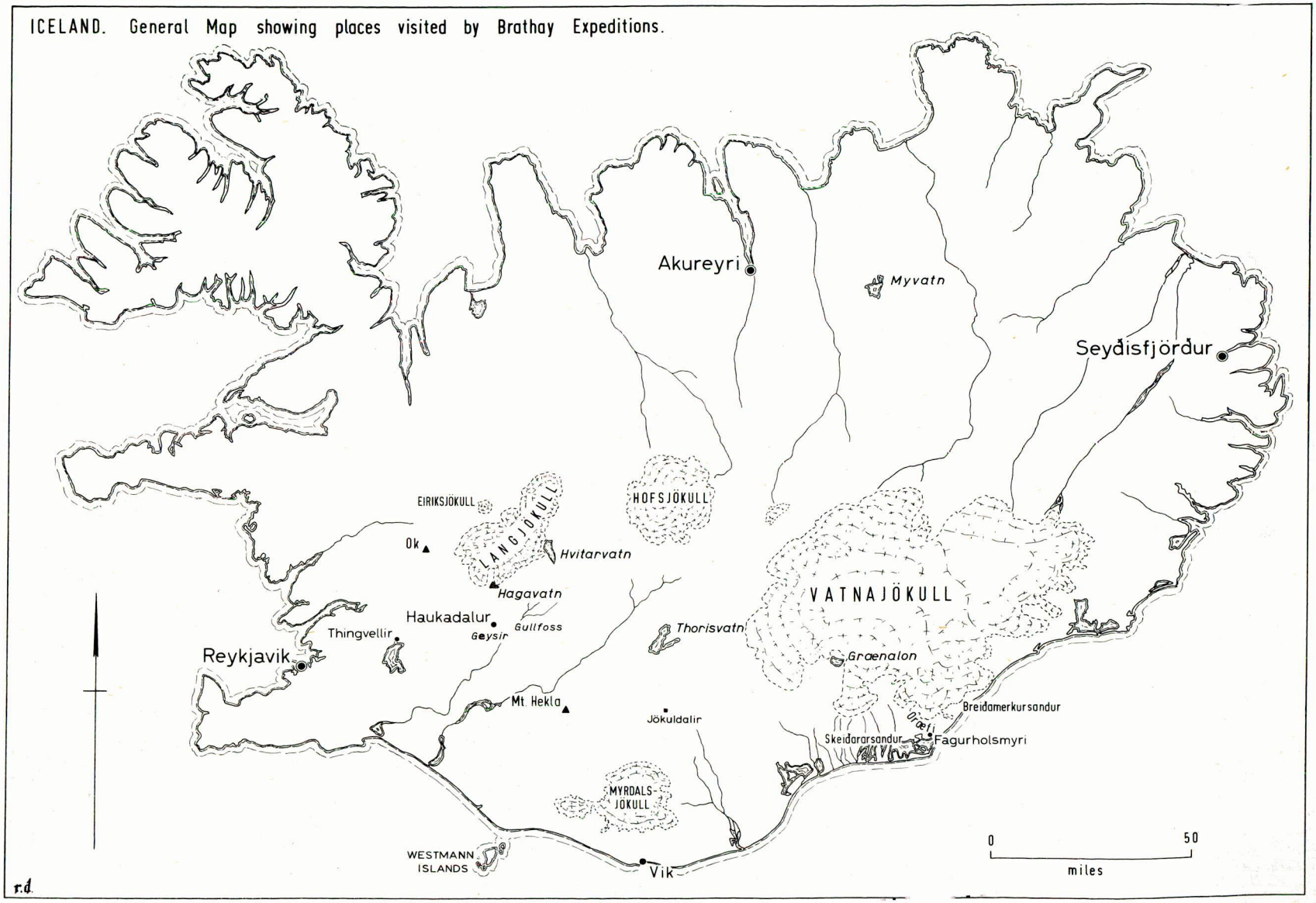
The last party also had a rough crossing, but arrived on the island as planned. Bird work and mouse survey continued and the "Ristie" porch was made weather-proof by rendering the walls with cement. A start was made on fixing the sink, but this will have to be finished next year and shelves fixed for cooking-stoves and equipment. Meteorological observations were recorded regularly during the whole eight weeks of the Brathay stay on the island.

In addition to the various projects already mentioned, all parties had plenty of contact with the islanders, helping to round up sheep, and to move peat, hay and silage, and being freely entertained both in individual crofts and in dances and parties in the School room. The departure of our last part in mid-September means the end of another season for Foula, as for Brathay, since they rarely have any more visitors after this.

It would not be fitting to end this account without expressing our thanks to Alasdair and Betty Holbourn for their hospitality and advice, and to all our other friends on the island for their help and friendly entertainment.



'Ristie' - The porch



In addition to the article on the survey of the Foula coast-line, articles will be found in the Field Work section of this Report describing the season's bird observations and giving an account of the results up to date of the study of the Foula Mouse. There are also lists of moths and beetles collected on the island, together with comments on the distributions found in Shetland.

The illustration accompanying this present account is a drawing made by Robert Gilchrist of the ruins of another croft close to "Ristie" at the north end of the island and an imaginary reconstruction of the appearance of the croft when it was occupied and worked.

ICELAND EXPEDITIONS

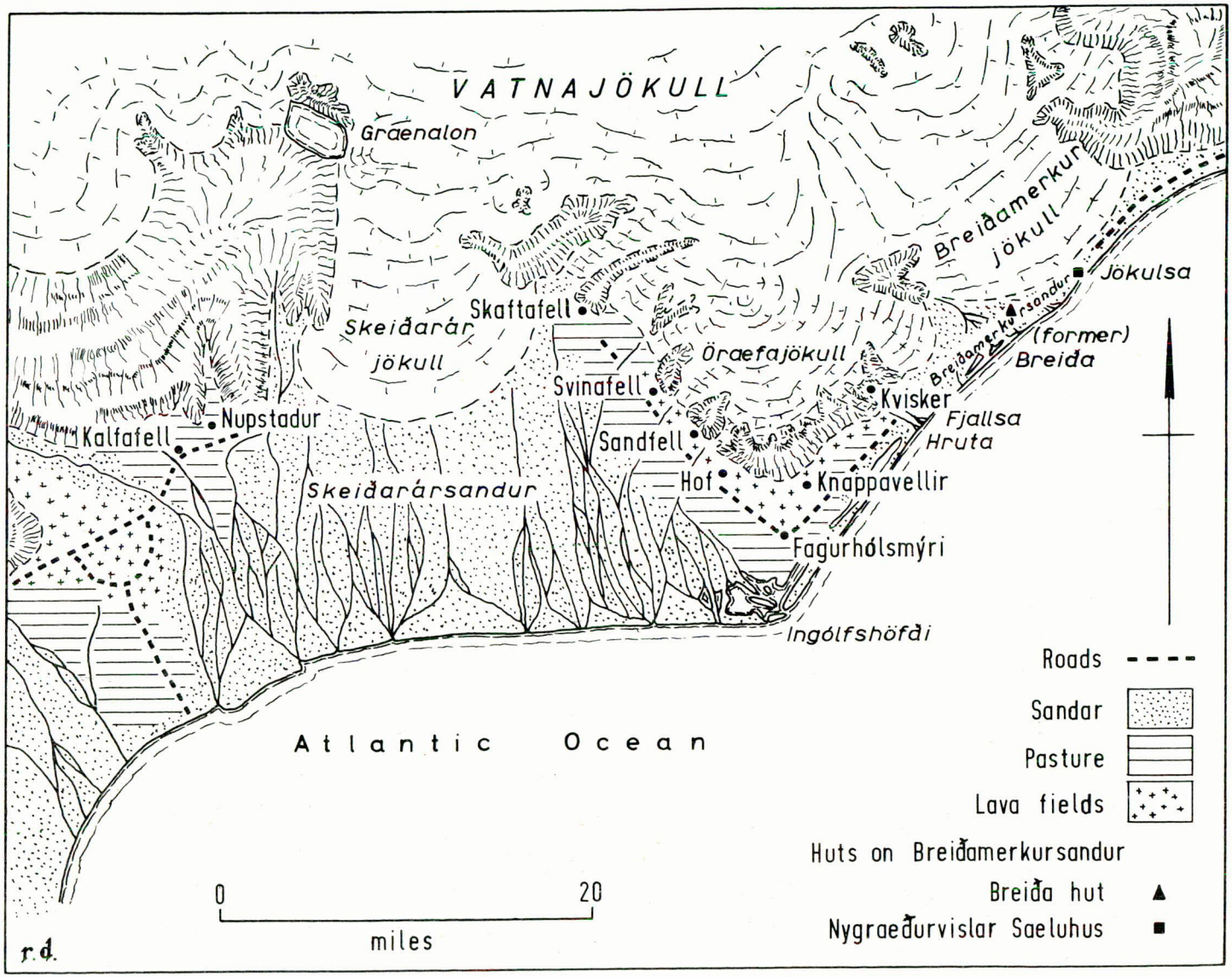
The first Brathay Expedition to visit Iceland was one in 1953 which worked in the neighbourhood of the small volcano, Ok, close to the southern end of the Langjokull ice-cap. Another party visited the same area in 1957, and then in 1959, following a suggestion made by James Fisher, an expedition was sent to the south-east coast to study the reported breeding ground of the Great Skua on the great Skeidararsandur. By using air transport a 1961 party was able to reach the more distant Breidamerkursandur, which proved to be more interesting to the ornithologists, but we left the coast in 1962 and a joint Anglo-Icelandic expedition carried out a variety of studies in Jokuldalir, to the north of Myrdalsjokull. The Icelandic boys had to return home before the end of this expedition and the English members of the party paid a brief visit to the Ok area once more. The general map of Iceland shows the places visited by all these expeditions.

In 1963 there were two expeditions to Iceland, visiting different parts of the island and independent of each other except that the first party took out all the food and heavy equipment for both parties by sea and sorted them out at Reykjavik.

The first expedition left Leith on 22nd July. They travelled by sea, with rough crossings both ways, and they also had some very wet days in the Oraefi district of South-East Iceland where they worked. Meteorological records show that this is the wettest part of Iceland. They had hoped to be joined by six Icelandic boys, but this turned out to be impossible and, as a result, their projected farm studies had to be confined to the single farm, Kvisker, where one of the farmers speaks English.

The journey on from Reykjavik was made by air and a base camp was set up near the air-strip at Fagurholsmyri. Rain began at once and for the next few days it was only by taking advantage of occasional breaks that any bird-ringing could be done, though the rain held off for the whole party to do the paddle across the sands to Ingolfshovdi.

One of the main objects of the expedition was to continue the study of the Great Skua population of the two great sandar east and west



Map to show Skeiðararsandur and Breiðamerkursandur, the two main breeding areas of Great Skuas in S.E. Iceland, together with places visited by B.E.G. expeditions.

of the base, and on Tuesday, July 30th, after four days at base, the whole party set off eastwards, two leaders and six boys camping at Kvisker to study the farm there and the remainder going on to the Breidamerkursandur. Two fine days followed this move and both groups were able to get on well with their work and also to explore the edge of the glacier, with its fine marginal lakes. There was an exchange of boys between the two camps on Friday and then the weather deteriorated again and when the return to base was made on Monday there was some delay to allow the Kvisker party to complete some plane-table work.

Three parties of three spent the next three days exploring north-westwards up the eastern edge of the Skeidararsandur while the rest of the expedition remained at base to continue bird work in the neighbourhood. The weather for these days was the best of the whole period and the walking parties saw some magnificent scenery.

The return to Reykjavik by air on Friday, August 9th, brought them to a brilliantly sunny capital where they met the members of the second expedition, just arrived by air from Glasgow. Both parties were entertained by the Reykjavik Youth Council in the evening, together with Icelandic boys who took part in the joint Iceland Expedition in 1962 and subsequently visited Brathay in the spring.

The results of the bird-work of this expedition included the ringing of 389 birds (including 308 Great Skuas) and a full report on this work is being written up separately. A collection of flowering plants has been sent to Liverpool Museum and the farm survey will be included later in an account of the whole Oraefi region.

Two of the birds ringed at Fagurholsmyri have already been recovered, as follows:

Great Skua ringed 27 July, 1963 recovered 23 Sept.'63 at Lough Corrib, Galway, Ireland.

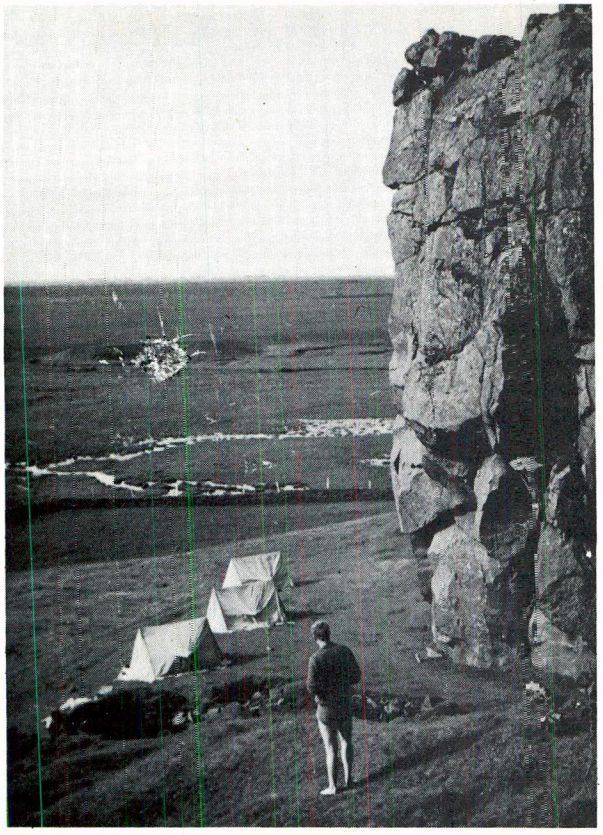
Great Skua ringed 28 July, 1963 recovered 30 Dec.'63 at Sandvik, Öland, Sweden.

There has also been a recovery of a bird ringed by the 1961 Brathay expedition:

Great Skua ringed as pullus on Breidamerkursandur 8 August 1961 recovered 20 Sept.'62, shot half-mile off shore, Change Islands, Newfoundland.

The second expedition was led by Bob Rae and took over the camping gear used by the first party and food which had been brought for them by sea. They were joined by three Icelandic boys and their field-work, decided after discussion with Dr. Thorarinsson, of Reykjavik, was the initiation of a study of the East Hagafell Glacier on the southern margin of the Langjokull ice-cap. Working inland, about 50 miles from

ICELAND 1963



Base camp near
Fagurholsmyri air-strip

Farm buildings
at Kvisker

ICELAND
1963

Young Great
Black-backed Gull

On the marginal lake
Jökulsarlon

Reykjavik as the crow flies, they had better weather than the first expedition experienced on the south-east coast.

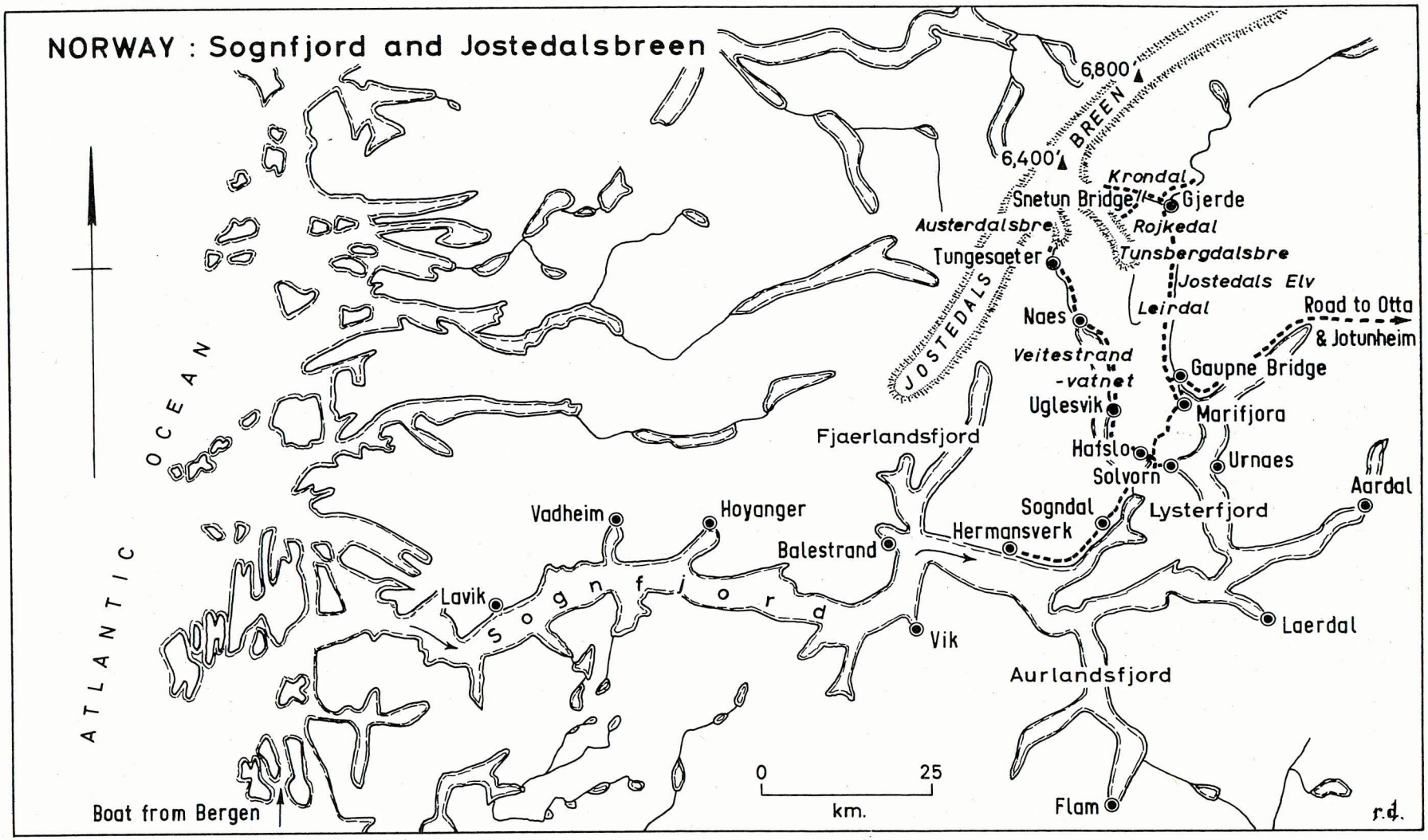
It was a six-hour journey to Hagavatn, where they pitched camp near the small tourist hut, and they were able to visit the famous waterfalls at Gullfoss on the way. This Hagavatn area has been studied previously by a number of expeditions and our party had been kindly given a copy of the map made by the British Schools Exploring Society in 1956. It was at once apparent that the ice had retreated a considerable distance since then, and the East Glacier, which at that time formed the north-eastern margin of the lake, now has its snout over 600 metres from the lake edge. The area between glacier and lake is now occupied by moraines, melt-water steams and quicksand, and movement across it is difficult.

For the first week the whole effort of field-work was concentrated on the glacier. A cairn was built in the middle of the glacier, about 1 mile from the snout, and then a line of stones was laid down the middle line at 150 metre intervals so that observations in later years can give information about ice movement. All the stones had to be carried about two miles from the moraine at the side of the glacier. An attempt to drill holes in the ice for the insertion of stakes (specially brought from Scotland) for measuring the ablation rate was defeated by damage to the drill when it became stuck in the first hole. A plane-table survey was made to show how the positions of the lake margin and glacier edge have altered since 1956 and the resulting map is reproduced in the Field Work section at the end of this Report.

A lot of careful theodolite work had to be done to fix the positions of the cairn and of the stones laid on the glacier, and this was slow work because long distances were involved and the stones could not be seen unless groups of people stood at each spot. The measurements took several days and while it was going on a small party, including two of the Icelandic boys, walked southwards across 10 or 11 miles of desert country to the hill of Sandfell and across this down to the farming country beyond. Here they camped near the farm of Helludal and, with their two interpreters, they were able to find out about life and work on a typical sheep-farm of Central Iceland.

The expedition left Hagavatn in the afternoon of August 22nd and visited the Great Geysir and the historic site of Thingvellir on the return bus journey to Reykjavik. One day was spent in the capital and then they flew back to Glasgow.

Members of both expeditions are specially grateful to Sera Bragi Fridriksson and his staff of the Youth Council of Reykjavik for their hospitality and interest and we hope that the close link forged with them will be maintained in years to come.



NORWAY EXPEDITION

The expedition was led by Ron Lorimer and, following his successful study last year of a farm at Solvorn, one of the objectives of this year's party was to start a study of the settlements in Krondal, the valley from which Brathay parties have for many years climbed up to their base camp for work on Tunsbergdalsbre. There were still many tasks to be undertaken on the glacier and in fact rather too much work was planned for the party, which was a little smaller than usual (4 leaders and 12 boys).

The journey out, starting from Newcastle on August 5th, was as usual via Bergen and the Sogne Fjord, with a night in a barn at Hermanswerk before the final bus journey into Krondal. The failure of the supply of "Instant Potato" to arrive at Newcastle, and the loss of the boots of one of the leaders at Hermanswerk, caused temporary worries, but replacements were eventually purchased in both cases and the party arrived at Snetun Bridge in warm sunshine at mid-day on Thursday, 8th.

All helped to carry the necessary food and equipment for the glacier parties up to the saeters in Rojkedal, but then there was a division into two main parties. Ron Lorimer's party stayed down in Krondal, but carried loads higher up the valley to pitch camp on the 1760 moraine of the glacier Tverbre near its head. The rest of the expedition was to work on the main glacier, Tunsbergdalsbre, for the first week and the leaders who had been there before observed big differences when they got up to the usual base camp site at the head of Rojkedal: there was practically no snow at all in the valley and the usual snow slope up to the col was merely boulder scree. Over Smoky Col, too, there was far less snow than in 1962, and the large snow patch down on the glacier, where a glacier camp had usually been sited, had dwindled to a dirty patch some way out on to the glacier and barely large enough for two tents.

Philip Howarth took a party of four boys over the col and down on to the glacier with very heavy loads to establish a camp beside the middle ice-fall. The excessive melting had made the crevasses wider than usual and route-finding was often difficult, but after one heavy shower they reached their objective and when camp was established they were able to relax in evening sunshine. Meanwhile a small group of three, with Peter Watson in charge, made their camp on the dirty snow patch below Smoky Col and spent the next few days searching for the numbered stones which had been placed down the centre of the glacier to reveal differences in the rates of movement of the ice at different points. When these were found the distances between them were carefully re-measured and the positions of two of them were fixed by taking theodolite sights from them to various cairns.

Philip Howarth's party went down from their camp to observe and photograph the glacier snout, which had retreated about 50 feet since 1962, and they also re-measured distances between the numbered stones

on the lower glacier, below the ice-fall, but their main interest was in an area characterised by the presence of ice-cored ridges and dirt-bands. The intention was to set out painted stones to reveal the ice movement in this part of the glacier, but the task could not be completed because some essential survey equipment had not been brought up from the valley and it was left to Ron Lorimer's party to finish it off during their period on the glacier.

The weather was showery during this first week, but there were some sunny intervals and after a sight-seeing walk along the ridge towards Nottingham cairn the first glacier party walked down Rojkedal in evening sunshine.

While the others were busy on the glacier Ron Lorimer's party had been at work in Krondal. They explored almost every corner of the valley and studied farm buildings and implements. The schoolmaster in Gjerde and a local nurse both spoke English, and the schoolmaster, in particular, gave Ron a wealth of information about the valley and its people. The fine periods allowed some photographs to be taken and all the local people were friendly and helpful: and only disturbing event was the pillaging of the camp by cattle and horses during one day when it was left unattended.

The change-over of parties took place on Friday, 16th. Peter Watson and Bob Gill, with the party from the glacier, took over the work in Krondal, while Ron Lorimer took his party up to the glacier and Philip Howarth accompanied them to assist in the completion of the work in the dirt-band area. They worked from a camp on Smoky Col and completed the measurement of the numbered stones on the glacier (all of which were found) and also set out an accurately measured line in the dirt-band area. The weather continued showery and there was one spell when a warm wind down the glacier produced a very slippery glazed surface instead of the usual rough one and movement was difficult. They also reconnoitred Black Tarn, a corrie tarn in the valley wall beyond Windermere cairn and estimated that its survey would be a major task for a future party.

The valley party were engaged largely on survey work during this second week, making a map of the valley and recording details of cultivated land, barns and farms. They also built a cairn at the snout of the glacier Tverbre so that its movement can be measured in future years.

The whole expedition was re-united, with all the gear, when the bus arrived at 8.30am. on Thursday, 22nd. They travelled to Otta and thence to Oslo, where a day was spent before the voyage home.

The results of the measurements on the glacier will be incorporated in a general account of the Tunsbergdalsbre work to be produced in 1965.

YUGOSLAVIA EXPEDITION

There were four leaders and fourteen boys on this three-week expedition, led by James Burnet. They left Victoria on August 22nd, and after crossing to Ostend, travelled by train via Munich to Jesenice, where they were delighted to be met by our old friend Professor Kunaver. With him were three Jugoslav boys, Rok Vidmar, Andrej Ramor and Matjaz Trauern, who joined the party and camped with them, while another appeared later and assisted on a part-time basis. The whole party spent the first night at a local school and went on next morning by bus, via Bled, to the Bohinj Valley where they were to study farming practice and, in particular, the transhumance between the lowland farms and the mountain grazing-grounds, or planinas.

Camp was pitched in a pleasant field surrounded by pine woods and close to a cottage that the Professor and his family were building. He was there for the first week and the party were very pleased to have his company and his help. The camp was twenty minutes walk from the Bohinj Lake which was the starting point for the farming survey.

The Bohinj valley is a rapidly developing tourist centre and therefore perhaps less suitable for an expedition than the Trenta valley, previously visited by a Brathay party, which is still fairly primitive. The leaders, in particular, found it rather unusual to descend from the day's work above the valley and to pick their way through mushrooming week-end villas and cottages, but the camp site itself was private and rural enough, through subject to occasional bombardment from a nearby quarry when the quarrymen were a little over-enthusiastic in their use of dynamite. The weather was much the same as that experienced in most other parts of Europe during the summer and, although there were some fine days, there was much heavy rain. Some water got into one or two tents, but there was no shortage of wood for making really big fires for drying things out.

Members of the party visited many interesting planinas and also carried out a detailed study of a small village called Gorjuše, with special reference to the everyday life of one family. They were greatly impressed by the friendliness of the local people, who responded to detailed questioning with great patience and friendly courtesy, but nothing could have been accomplished without the help of the Jugoslav boys as interpreters.

Two parties made the excursion to climb Mount Triglav, but the first were advised to turn back because of a somewhat unseasonable fresh snowfall on the upper slopes. The others did the walk from camp to the summit in one day and had a fine view, including the experience of seeing a Brocken spectre: after a night in a mountain hut they walked back next day down the valley of the Seven Lakes.

Mr and Mrs Kruschev were guests of President Tito at the time of the expedition and some of the party waited to see them drive past

when they visited the Bohinj valley. A striking feature of the expedition was the change in attitude of the officials since the time of some of our earlier expeditions to the country. No longer did they appear obstructive, but always genuinely helpful, and there is no doubt that tourists are now welcome.

Before returning home the party paid a visit to the famous limestone caves at Postogna, which Professor Kunaver and his son had helped to explore, and our thanks are due once again to the Professor for all the help that he gave to the party, including arranging for the Jugoslav boys to join them.

EXPEDITION TO UGANDA

The keen interest in the idea of developing Brathay-type expeditions in Uganda, following the very successful 1962 Expedition, encouraged our Council to go ahead with the planning of this follow-up venture.

The moving spirits in Uganda were Dr Merrick Posnansky, of the British Institute of History and Archaeology in East Africa and Dr Bill Bishop, Curator of the Uganda Museum. They gathered an informal but widely representative committee to organise the expedition from the Uganda end. This committee suggested the fieldwork tasks, recruited leaders and boys from Uganda, and made the local arrangements for the transport and provisioning of the party in the field. This greatly simplified matters from the Brathay point of view, and in addition at the Brathay end we had the invaluable help of Ioan Thomas, the leader of the 1962 party, whose knowledge and enthusiasm were decisive in making our plans.

Our task was concerned mainly with the financing of the expedition. Since the previous year the return air fare to Uganda had increased by £45 per head to £225, and no concessions were possible. This obviously limited the size of the British element of the party and it was eventually decided that two leaders and three boys should go. Once again we were greatly encouraged by a generous grant from the Royal Geographical Society, and as in the previous year the Noel Buxton Trust and the C.H. Foyle Trust gave us valuable assistance. Individual members were asked to contribute £100 each and in achieving this received generous help from the firms, schools and local Education Authorities. Finally, when we were still some £450 short of our target, and the whole venture was in jeopardy, the Uganda Government at the instigation of the local committee offered an important contribution, and the Brathay Management Committee generously agreed to underwrite the remaining likely deficit.

Aims of the Expedition

The programme of fieldwork consisted of three main tasks and three subsidiary ones. The major tasks were:

1. To make a detailed map of the new channel occupied by the River Nile at the Murchison Falls, and to examine the great new Fall which now exists.
2. To make a survey of Emin Pashs's Fort at Wadelai on the banks of the Nile, north of Lake Albert, and to carry out excavations under the direction of Dr Posnansky.
3. To make a foot safari into the elephant sanctuary north of the Gulu/Packwach road, and if possible to locate and examine certain mounds reported in 1929, by the then Uganda Game Warden, Captain Pitman Owing to their inaccessibility the mounds had not been visited subsequently and their origin remained a mystery.

The three associated tasks were:

(a) To make a map of the perimeter of General Gordon's Fort at Magungo on the Victoria Nile, and to excavate sections in the enclosing ditch.
(b) To survey the edge of a large erosion gully in the Murchison Falls National Park, in order that subsequent checks may reveal the rate of erosion.
(c) To collect bones from a small area of the Game Park.

In addition to the scientific programme, it was an important aim of the expedition that the small British element should be available after the return to Kampala to give talks, visit schools and to assist the local 'Brathay' committee in its plans to found an Exploration Group in Uganda.

Account of the Expedition

The British element of the party left Gatwick at 9.30p.m. on 5th August in a Britannia aircraft, which made the flight to Entebbe in one hop of a little over twelve hours. Merrick Posnansky and Bill Bishop were at the airport to meet us next morning. Soon we were driving to Kampala to begin a very busy day of conferences, joining up with the African members of the party, a splendid tea party to meet members of the 'Brathay' committee at the home of Mr Marsh, the British Council representative in Uganda, and finally, as the early dusk fell, a short voyage to an uninhabited island in Lake Victoria. Here on Bulingugwe island, members of the Uganda Boys Clubs, two of whom were to join the expedition, were already encamped by the ruins of an ancient African fort, and a great camp fire was blazing. After supper, the drums started to beat and we were entertained by a fascinating succession of African songs and dances lasting far into the night. So a full day which had opened with glimpses of the Sahara from 30,000 feet closed with the 1963 Uganda party firmly launched singing and dancing under a full African moon.

The next two days were spent at King's School, Budo, just ou Kampala. The Headmaster had kindly placed a dormitory at our disposa and we were able to feed in the school dining hall. This enabled us

brief the party fully about the tasks of the expedition, give some practical instruction in surveying and assemble equipment and stores. We were fortunate to be able to take over much of the equipment used by the Baker Centenary Expedition, led by Bill Bishop, who had been working in the Lake Albert region a few weeks earlier.

On the morning of 9th August our cavalcade set out for the Murchison Falls National Park. The heavy gear travelled in a large truck generously placed at our disposal by Coca Cola Ltd., with a welcome gift of 240 bottles of Coca Cola. Members of the expedition followed in a Land Rover kindly loaned by the British Council, and a Chevrolet truck. The latter had been most generously made available to us by a Kampala Contractor for the whole period in the field, together with a driver, who became a popular member of the party. We were much indebted to the generous providers of this vital transport, for to have hired similar vehicles would have added to the cost of the expedition by two or three hundred pounds.

We had decided that the whole party should spend two days at Paraa, before dividing into two groups, one staying on to work at the Murchison Falls and the other going on northwards to Wadelai. Paraa, with its ferry across the Nile providing the only crossing point in this region, is the headquarters of this National Park and the Warden, Roger Wheater, had offered us the use of two spacious huts reserved for expedition use. He helped us in many other ways, and provided Park Rangers to accompany us, while we were working within the Park boundaries.

For our two days together we had decided to make a preliminary reconnaissance of the site of General Gordon's fort at Magungo, some ten miles downstream from Paraa, and to pay a first visit to the Murchison Falls, a similar distance upstream.

Accordingly, on the morning of the 10th we set out to find Gordon's fort at Magungo, led by an armed African Park Ranger who was reputed to be able to guide us to the Fort. After crossing the Nile, our trucks bumped for some distance down a bush track before our guide decided it was time to set off on foot. Our maps had indicated that the Fort might be found within a mile or two of the track. After an hour's hard walking through the bush and having reached the river bank, we seemed to be no nearer our objective. We thought we detected signs that our guide himself was beginning to have doubts about the location of the Fort.

However, all thoughts of Gordon's Fort were soon to be put aside for our guide suddenly motioned us to crouch down in the long grass. There were several herds of elephant in the vicinity and we immediately thought of taking avoiding action. Our guide, however, had spotted something more sinister and in a moment was running down into a gully, letting off a round from his rifle. As we followed him down the hill armed with pangas and sickles designed for clearing the Fort, we saw naked black bodies disappearing in all dircetions. We had run right into a large gang of poachers setting up camp for their evil operations

right inside the Park territory. All but one of the poachers escaped into the thick bush surrounding the creek but one unfortunate man was driven up to his neck in the muddy water and, screaming for mercy, was finally allowed to clamber out on the far side, to race after his fleeing companions.

When the first shock of this unexpected encounter had passed we took stock of the situation. A thorough search produced not only six large dugout canoes, whose crews were probably at least four in number, but also a forbidding array of hippo harpoons and floats, crocodile spears and skinning knives. A considerable quantity of fish was drying in the sun and the poachers had fled leaving everything, including food and most of their clothing. Only one crocodile skin was found to indicate that the group were just beginning operations.

Three members of our party were sent back to inform the Warden while the remainder settled down to await reinforcements. We were relieved to see through binoculars that most of the gang had gathered about a mile away on a hill top with no apparent desire to counter-attack. Three hours later one of the Park launches arrived with a group of rangers who took over the canoes and equipment.

We were able now to make the rest of the journey to the Fort by launch to be landed on the river boundary of its perimeter. Time only permitted a stay of a quarter of an hour but this was long enough to find and walk round the Fort's perimeter and to size up the task of survey. If the poachers' incident had cut short our reconnaissance of the Fort this was more than made up for by a vivid first-hand experience of the difficulties facing those seeking to protect African wild life. We were into the bargain, to have a wonderful trip back to Paraa in the launch which hugged the river bank and gave us never-to-be-forgotten views of elephant, hippopotami and many other animals and birds.

In the meantime, Bill Bishop had driven up from Kampala and was ready to accompany us next day to Murchison Falls. With his wide knowledge of the geology of the area, he was able to give the party a fascinating introduction to the setting of the Falls. On this occasion we took the main track to the Falls on the south side of the Nile, spending two or three hours setting up the main points for the survey of the new northern channel. We stood on the great rock overlooking the 20 ft. wide chasm into which normally the whole mass of the Nile waters fall then, climbing the hill behind, we looked across to see the new northern channel and the great new Fall. During the afternoon Ron Mottershead's party had come up the river from Paraa by launch to see the Falls from below and enjoy the close proximity of abundant wild life.

That evening we completed the preparations for a division of the party into two groups and early next morning Ron Mottershead's party set off for Wadelai.

THE MURCHISON FALLS PARTY

The party remaining at Paraa consisted of Brian Ware (Uppingham School) Leader, assisted by Bob Cox (Sir Samuel Baker School, Gulu) and Edward Setuba (Uganda Boys Clubs Association), together with George Calogeropoulos, David Kazungu, Wilson Kisubi, Henry Ssali and Iqbal Talib, from Uganda Schools, and Bill Day and Richard Summerton, from England. From the base at Paraa, the following fieldwork was undertaken:-

(1) A Survey of the new channel and falls at Murchison Falls

Altogether five days were spent at the Falls. The National Park regulations precluded camping near the Falls, and as the ferry at Paraa only operated between 8 a.m. and 6 p.m., and access to the Falls is now only by a track on the south side of the river, much of our work had to be carried out in the heat of the day. In spite of this and the difficulties of the terrain, surveying in such a setting could not fail to be exhilerating. The Nile in the previous eighteen months had been discharging from Lake Victoria at twice it's normal volume, and some of this greatly increased volume of water, which approaches the Falls through a steep sided gorge, was being forced into a channel on the northern side. The water in this new northern channel, before rejoining the main river, plunges over a wide rock sill to form a magnificent second Fall. Records exist of other occasions when this northern channel has filled and the second Fall has come into being, but this present occurrence, now well into its third year, appears to be on a larger scale both in volume and time. Strangely enough, in the autumn of 1961 when plans were being made for the 1962 Uganda expedition, Dr. E.B. Worthington had suggested as a possible field task the surveying of what was then an old river bed at this spot.

Using a plane-table and telescopic alidade, a map of the area round the Falls was made and the new channel and fall plotted. One long and interesting day was spent on the northern side of the Nile at this point, in order to complete the survey work. Using a Park Landrover and with a guide provided by the Warden, we followed the track, which until eighteen months before had been the main route to the Falls. The rising water had then swept away the footbridge giving access to the main Fall. Now the old track was rapidly being enveloped by elephant grass. This day on the north side afforded close and splendid views of the new Fall, as well as enabling us to complete the mapping.

A map of the Falls area is being prepared and will be published shortly.

(2) A Survey of the perimeter of Gordon's Fort at Magungo

Fort Magungo was established in 1876 by Gordon, then Governor of Equatoria Province, as part of his campaign to quell hostile tribes in the vicinity. In common with other forts of this early period of Uganda's history, Magungo is subject to powerful erosive forces, which operate under tropical conditions. No traces of buildings remain and soon

the outline of the perimeter ditch too may disappear. For this reason we had been asked to make this small contribution to the records of these forts.

Our return visit to Magungo was made on the 16th, and we were again accompanied by the guide who had been with us at the time of the "poachers' episode". We were more fortunate on this latter occasion and found the remains of the fort without difficulty after an hours trek through the bush. We divided into three groups for an intensive day's work. One group, under Bob Cox, made a compass and tape survey of the perimeter bank, while the other two groups each started to excavate a trench across the ditch, which is almost entirely in-filled. One trench had to be abandoned because the soil had been so compacted by the passage of hippopotami en route for the river. The other, however, yielded good results. The profile of the former ditch was clearly exposed in section and finds of pottery made. The thick bush now growing extensively within the perimeter of the fort precluded further excavations.

The trek back to our truck in the evening through trackless bush was a test of our guide's abilities. Having led us safely between two herds of elephant barely one hundred yards apart, we were relieved, as a third and larger herd loomed ahead, to spot the cab of the truck standing above the long grass a short distance away on our left hand.

(3) The Buligi 'bone' survey

This one-day task entailed an interesting journey through the northern part of the Murchison Falls National Park to an area of unusually short grass on the banks of the Albert Nile just north of Lake Albert. Here in a square mile of territory we had been asked to make a detailed investigation of animal bone remains. The object of the survey was twofold. The Warden of the National Park was interested in the number of bones and the variety of different species represented in the sample area, while Dr Bishop was seeking a comparison between present day distribution of animal bones and the distribution of their fossil ancestors.

Our party, joined on this occasion by Charles Sekintu (Assistant Curator, Uganda Museum) and one of his assistants, walked in line abreast at five yard intervals across the whole area in six sweeps. Whenever a bone or group of bones was seen, its position was noted and a sample taken and numbered for later identification. During the day 120 bone finds were recorded, representing many different species. The most striking discovery, however, was the extraordinarily wide scatter of bones. Groups of bones were rare, and this we gathered accorded with the findings of archaeologists. The whole collection of bones was later taken to the Uganda Museum.

(4) The survey of an erosion gully

Many deep erosion gullies exist in the National Park, and one gains the impression that they are rapidly extending their boundaries. In order that some precise information may be collected in future, the

edge of a large gully which threatens the Warden's house, was surveyed in relation to buildings of the Park Headquarters.

THE WADELAI PARTY

This party consisted of Ron Mottershead (Nicholls Secondary School, Manchester) and Bob Astles (Uganda Boys Clubs Association), as leaders, with Samuel Jawuke and Zulfika Chanani from Uganda Schools, John Wallis from England, and Charles Kamanyi and Julius Kiwana from the Uganda Boys Clubs.

After leaving Paraa on 12th August, the party travelled by way of the Pakwach ferry to the site of Emin Pasha's fort at Wadelai, some thirty miles further north on the west bank of the Albert Nile. A tented camp was established within the perimeter of the Fort, but not before the full fury of a sudden tropical squall had flattened all three safari tents a few moments after their erection, exposing members, food and clothing momentarily to the deluge.

Alan Moorhead in his book, 'The White Nile' gives a vivid account of how in 1885 Emin Pasha, who had succeeded Gordon as Governor of Equatoria, was isolated by the Mahdist rising, and retreated to Wadelai with ten thousand soldiers and their families. Here Emin formed the fort into a self-contained township, which was occupied until Stanley reached him in 1888. Little previous work had been done on the site of this considerable fort, but an outline survey of 1935 (Ruskin) provided a useful basis on which to start the surveying. Dense bush in places rendered survey operations difficult but much detail was added to the outline map by the time Merrick Posnansky arrived on the 16th to direct excavations. A trench was dug to establish the nature of the ditch and bank fortifications, and a number of artifacts were found.

One of the most rewarding aspects of the party's stay at Wadelai was the close contact with the native people living in and around the site of the Fort. The way of life of these folk could be observed closely and naturally, for crops were cultivated on the site, and the camp lay by the track between the grass-covered huts and the little papyrus-lined bay on the Nile, where people bathed, washed their clothes, obtained water and kept their dug-out canoes. The expedition first-aid equipment was much in demand for there were no medical facilities within easy reach. Visits to social functions showed the wonderful capacity possessed by these people for self-entertainment in the form of traditional music and dancing. A football match on the last evening revealed their skill in sport, and Brathay lost by many goals.

A FOOT SAFARI IN THE ASWA RIVER REGION

When planning the expedition it had been thought desirable to include a final project which would bring all the members of the party together. Merrick Posnansky suggested that we should try to locate a number of mounds which, as long ago as 1929, had been seen by the then Uganda Game Warden, Captain Pitman, while on safari in the elephant

sanctuary to the north of the road from Gulu to Pakwach. Captain Pitman had thought at the time that these mounds might prove to be of interest to archaeologists but owing to their inaccessibility no one had been able to look further into the matter.

The elephant sanctuary lies immediately to the north of the Murchison Falls National Park and has been uninhabited since the area was cleared earlier in the century in the fight against sleeping sickness. Captain Pitman had kindly made available the notes he had made in his diary during his safari. Acting on this information we decided to start our search from Lolim, where a station by the roadside was in process of construction to house workers on the new railway now nearing completion from Gulu to Pakwach.

The two parties joined forces during the late evening of August 20th, a tropical thunderstorm having caused the first arrivals at Lolim to seek shelter in the half-finished station building, rather than in their tents as intended.

Early next morning, Merrick Posnansky and Brian Ware set off with five boys for a first reconnaissance. After the heavy overnight storms the long grass was very wet and at first the going was hard. The head waters of the Aswa River, which it was necessary to cross, were in full spate. After a trek of two hours nothing worthy of close investigation had been seen and gently undulating country, reminiscent of the Northern Pennines, stretched away from us as far as the eye could see. Ahead lay a long flat-topped hill and it was decided to divide into two groups and to proceed for a further mile separately in order to search the valleys on either side. This proved to be a fortunate decision for during the next half hour each group saw one of the mounds for which we were searching. The first lay only half-a-mile ahead of us, a long low grassy mound standing up very clearly and giving at first sight a clear impression of a man-made origin. In some excitement we covered the remaining distance and started to clamber up the steep side of the mound which was covered with tall grass. There were loose boulders around the base and this added to the impression of the man-made nature of the mound. We climbed to the topmost point where it was quickly evident that we were standing on a mass of solid rock. Rooting up the grass that covered the summit, we saw that this was no man-made structure but a miniature inselberg of solid rock. We estimated the height to be about 30 ft. and the perimeter about 200 yards. After taking detailed photographs it was decided to go straight on to examine the second mound in order to confirm our first discovery.

Our trek to the second mound took us a further two miles from Lolim. Once again we found a mound of solid rock rising abruptly from the gentle outlines of the plain, and of similar dimensions to the first. We now had a trek of five or six miles back to our base. It was a very tired but well satisfied party who returned finally to Lolim at about 4 o'clock, having noted a third mound not very far from the road. This was visited next morning by the boys who had not been on the first trek.

CONCLUSION

We had planned to spend four days in the Aswa river region and had allowed for the possibility of excavation in some of Pitman's mounds. The early finding of the mounds and their unexpected nature made a change of plan necessary, and gave us two extra days in the field before our return to Kampala. This was a great opportunity for the party to see more of the country.

The Paraa party was able to spend a day at Wadelai, visiting Emin's fort and seeing something of West Nile province, while the Wadelai party visited the Karuma Falls on the Nile. Then on 22nd August, a day earlier than planned, the whole party moved from the camp at Lolim to the Sir Samuel Baker School at Gulu, where the Headmaster had kindly offered us hospitality for two nights. This enabled us to spend a most interesting and enjoyable day at Patiko, north of Gulu. Here, a vear before, Ioan Thomas and members of the first Brathay Uganda expedition had surveyed Sir Samuel Baker's Fort, and collected information which has been used to form the basis of the official guide book to the Fort and its history. Armed with Ioan Thomas's paper we explored the well preserved remains of the Fort, and climbed Ajulu, the inselberg which dominates the scene.

Next morning we all returned to Kampala, again with the much appreciated help of the British Council and Coca Cola Ltd., who provided transport for members and equipment for the 200 mile journey.

On our return the African members of the expedition dispersed to their homes, but for another ten days close contact was maintained between individual members, with the Uganda Museum as the focal point. The three English boys were guests during this time of the African boys, and there were frequent reunions and excursions in and around Kampala.

Brian Ware and Ron Mottershead had been invited to talk about Brathay to the Uganda Society, to students at both the Departments of Education and of Geography at Makerere University, and to members of Youth Organisations. The Exploration Group films were widely used and appreciated. The leaders also met many of the supporters of the idea of an Exploration Group in Uganda and attended before leaving Uganda the inaugural meeting of the committee set up to form such a group.

It had been a memorable expedition for all of us for underlying the fascination of fieldwork in a tropical setting had been the very real sense of friendship and co-operation, which grew steadily stronger as African, Indian and British came to know and respect each other. Such expeditions have a value beyond any technical successes they may achieve, and this was well expressed in the words of the High Commissioner for Uganda in London, who wrote in a letter of good wishes for the expedition:

> "The expedition - among other things - gives a chance to the young people of the different races to live and work together in conditions which put them off their guard and this, perhaps, brings out the inherent qualities of each which cannot fail to show that fundamentally we are all the same."

ACKNOWLEDGEMENTS

We are indebted to many individuals and organisations for assistance, and would like to express to them all our sincere thanks and appreciation.

To The Royal Geographical Society, The Brathay Trust, The Noel Buxton Trust, the C.H. Foyle Trust, in England, and to the Ministry of Information, Tourism and Broadcasting, in Uganda, for financial assistance.

To E.B. Hamel and Co. Ltd., the Local Education Authorities of Kent, Lancashire and Manchester, and Christ's Hospital, Horsham, for assisting individual members to meet their expedition fee.

To The Curator and Staff of the Uganda Museum for their many kindnesses and for allowing the Expedition to use the Museum as a base.

To Dr W.W. Bishop, as Leader of the Baker Centenery Expedition, for arranging the use of camping and survey equipment assembled.

To The British Council, Coca Cola Ltd., The Uganda Museum and an anonymous Kampala Contractor, for providing vehicles for transport.

To The Warden of the Murchison Falls National Park for advice and for allowing us to use the Education Camp, and to his Park Rangers, who patiently and cheerfully guarded and guided us in our treks in the Park.

To The Headmasters of King's School, Budo and the Sir Samuel Baker School, Gulu, for hospitality for the whole party at the beginning and end of the expedition.

To Mr and Mrs Marsh, of the British Council in Kampala, who entertained us all on arrival, and Mr R.A. Astles, Professor S.J.K. Baker, Mr and Mrs M. Calogeropoulus, Mr and Mrs P.R. Gibson, Mr and Mrs D. Latter, Mr and Mrs B. Macourt, Mr H. Osmaston, Mr D. Pasteur, for their interest and hospitality.

To Dr and Mrs W.W. Bishop and Dr and Mrs M. Posnansky, in Uganda, and Mr I.F. Thomas, in England, without whose vision, encouragement and technical advice the expedition would never have taken place.

FIELD WORK REPORTS

Foula Bird Report

The Coastline of Foula

Foula Field Mouse Survey

The Beetles of Foula

Moth Studies on Foula

Recession of the East Hagafell Glacier, Iceland.

FOULA BIRD REPORT

by E. E. Jackson

Once again a very good coverage was maintained on Foula during the summer. Angus Doulton arrived on the island in early May and two groups from Cambridge took over until the arrival of the advance party on 16th July. This was followed by the usual three Brathay parties, with observations continuing until 9th September.

Every year turns out to be exceptional for something, even if only for bad weather, but 1963 was probably our most exciting. It was a year in which the weather was particularly kind to us (as far as the Shetland weather is ever kind) and in which there were prolonged suitable conditions for bringing migrant birds to the island. Four species were recorded for the first time on Foula - Velvet Scoter, Little Stint, Collared Dove, and Icterine Warbler, and for periods, particularly during the stay of the second party, there were far more of the commoner migrants about the island than have ever before been recorded at any one time. Such an abundance of migrants, coupled with the somewhat exacting task of identifying them all, inevitably led to the neglect of some of the less enjoyable parts of the ornithological programme. Consequently the total of Shags ringed in 1963 is very much lower than the usual. In spite of this the grand total of birds ringed is well over 2000 and every credit is due to the many helpers who gave up nights (and days) of sleep to aid in achieving this very creditable result. The ringing programmes for Petrels and Great Skuas were particularly successful and we have so far been rewarded with twenty recoveries of the latter species in various parts of Europe.

A full ornithological report for the season has been prepared, and anyone who would like further details should write to:

E.E. Jackson, Market Place, Masham, Nr Ripon, Yorks.

Please include two 3d stamps if a copy of the report is required.

RINGING ON FOULA - 1963

Species	Advance Parties	First Party	Second Party	Third Party	Total
Red-throated Diver		3			3
Leach's Petrel	1	2	4	2	9
Storm Petrel	48	285	124	141	598
Manx Sheerwater		5	1		6
Fulmar	24	1	112	2	139
Shag	17	146	107	1	271
Eider	1				1
Oystercatcher	2				2
Ringed Plover			1		1
Snipe			4		4
Purple Sandpiper			1		1
Dunlin			2		2
Arctic Skua	79	1			80
Great Skua	524	280	17		821
Great Black-backed Gull	3			1	4
Common Gull	1	1			2
Arctic Tern	82				82
Black Guillemot	1		3		4
Puffin	1	6			7
Cuckoo			1		1
Wryneck				1	1
Wren			5	1	6
Blackbird	1		10	2	13
Wheatear			28	2	30
Whinchat			1		1
Redstart			1		1
Icterine Warbler		1	1		2
Blackcap				3	3
Barred Warbler			2		2
Garden Warbler			29	10	39
Whitethroat			1		1
Willow Warbler			13	9	22
Wood Warbler			3		3
Pied Flycatcher			1		1
Meadow Pipit			15	7	22
Tree Pipit			1		1
Rock Pipit			8		8
White Wagtail				3	3
Starling	3		9	1	13
Twite			1	4	5
Crossbill			14	1	15
House Sparrow			6	10	16
	788	731	526	201	2,246

SUMMARY OF RECENT RINGING RECOVERIES

Since the publication of the 1962 Report there has been a considerable increase in the recoveries of Foula-ringed Great Skuas, and space cannot be given to detail every recovery. The increase is due first of all to a much more thorough ringing programme in recent years, and secondly to the very severe gales of early October 1963 in the North Sea which resulted in many of the birds being driven inland.

A summary of recoveries reported since the 1962 Report is given below:-

RECOVERED	YEAR RINGED			
	1960	1961	1962	1963
Greenland		4		
Faeroe Islands	1			
Shetland	1			
Orkney			1	
Scotland			1	
Denmark				4
Netherlands				4
Holland			2	
Germany				4
France			1	
Austria				2
Poland				1
U.S.S.R.			1	
Spain			1	
Portugal			2	
Tunisia		1		

Details of some of the more remarkable recoveries are as follows:-

GREAT SKUA

Date Ringed	Date Recovered	Details of Recovery
1/8/61	16/6/63	Jakobshavn, Greenland 69°10'N,51°00'W
14/7/62	1/9/62	Nr Cherven,Minsk,U.S.S.R. 53°41'N,28°30'E
27/7/63	2/10/63	R.Odra,Nr Glogow,Poland 51°40'N,16°06'E
6/8/63	18/10/63	Hard,Lake Constance,Austria 47°29'N,9°42'E
26/7/63	9/11/63	Aix Les Bains, France 45°41'N,5°55'E
1/8/61	10/5/63	Gabes,Tunisia 33°52'N,10°06'E
6/8/63	10/10/63	Jochenstein,Obernzell,Germany 48°31'N,13°43'E

This last bird was released and caught again on the same day at Niederkeppel,R.Danube,Austria. 48 22'N,13 53'E.

Other Recoveries.

SHAG - There have been a further eleven recoveries in Shetland and one at Lybster, Caithness (130 mls.S.S.W.)

FULMAR

Date Ringed	Date Recovered	Details of Recovery
4/8/56	10/6/63	Ringed and recovered on Foula
29/8/60	18/9/62	North Sea 54°36'N,0°12'E.

SNIPE

9/9/61	27/11/62	San Miguel de Meruelo,Spain 43°28'N,3°34'W

WHEATEAR

6/9/62	18/10/63	La Teste de Buch,Gironde,France 44°34'N,1°09'W.

THE COASTLINE OF FOULA

by D. H. B. Pirkis

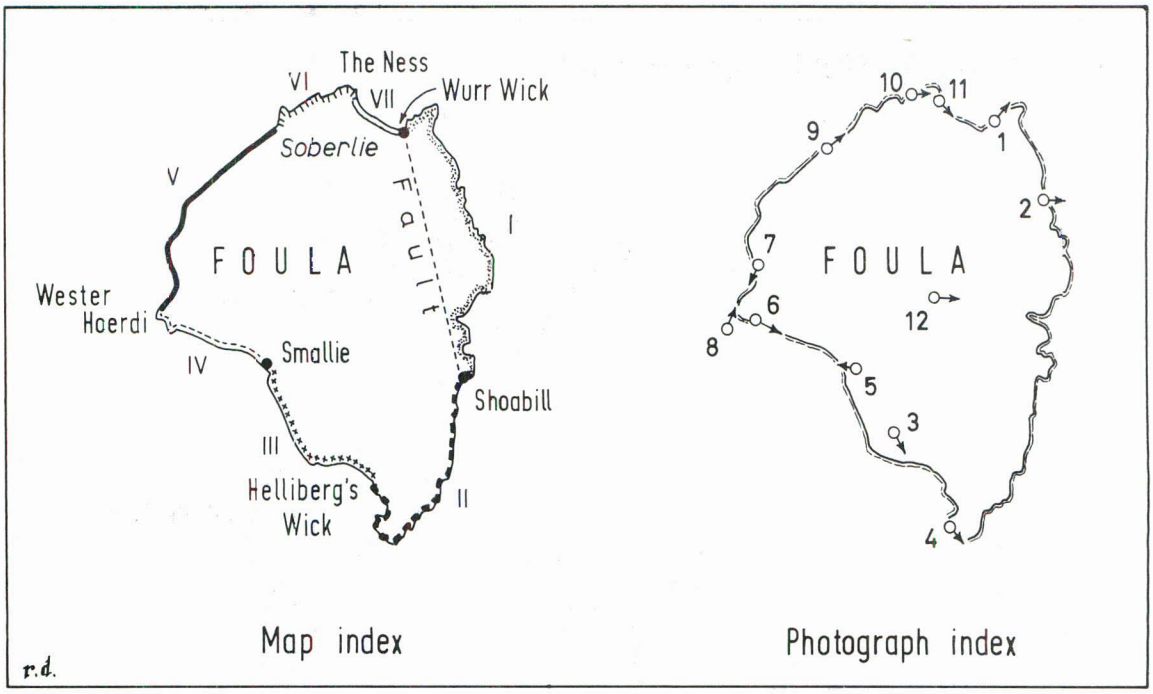
Much of the attractiveness which Foula holds for the geographer lies in its rich fund of coastal geomorphology. There, the field worker finds features which by their physical grandeur and stark beauty, cannot fail to arouse within him the most intense interest.

Foula's coasts are the product of an incessant struggle between tough, ancient rocks and storm ridden seas with fetches thousands of miles in length in which the mightiest of waves are propagated. But even the toughest rocks have weaknesses - their faults, their joints, their softer strata. It is these which the sea seeks out, steadily, slyly, circum-eroding the more resistant rocks, eventually delivering the coup de grace to narrow headlands and natural arches, reducing them to stately stacks or insignificant isles of rubble and rock.

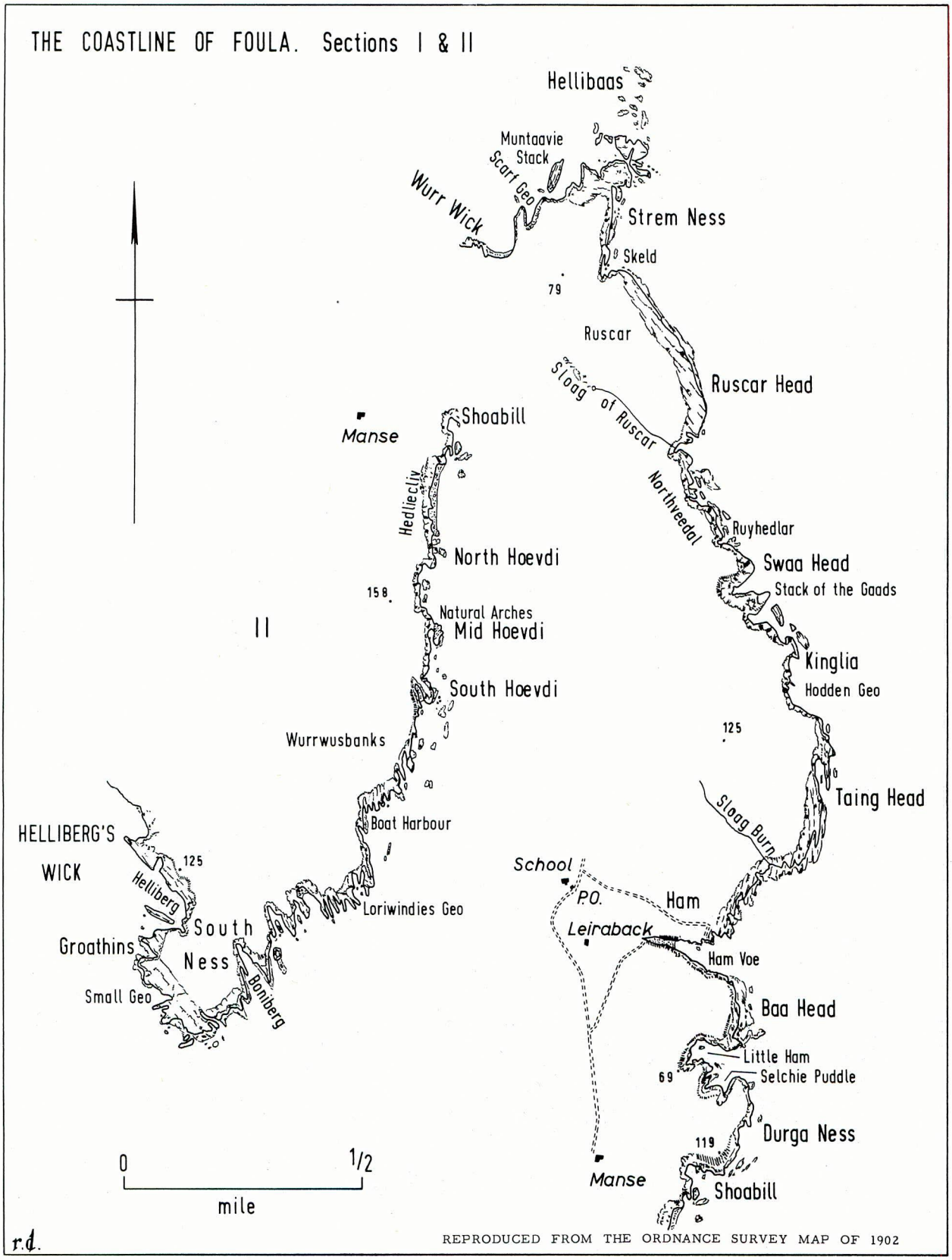
But Foula is not likely to give up the struggle easily, for height is on her side: after St Kilda she can boast Britain's highest cliffs. The sheer drop of over 1,200 feet at The Kame and the lesser cliffs of over 700 feet at Soberlie and 500 feet at Wester Hoevdi, all in ancient Devonian sandstone, are proof enough of the island's resistance. Yet the outcome of the struggle is known in advance: the coastal form is constantly, yet imperceptibly, changing at the hands of the bandit waves which take virtually all and return very little.

The coasts of Foula, then, are the expression of the sea's influence on resistant rocks weakened by softer strata and by strong jointing-rocks which dip fairly uniformly southwards. The coasts illustrate, too, the effect of the sea's incursions into a topography which in the west is still very high, but in the east and south rarely rises above 200 feet; a land surface which is the outcome of long continued sub-aerial erosion and short-lived, but drastic, glaciation. Thus, within this small island there are being cast coasts of considerable diversity and all, except the boulder beach from the Ness to Strem Ness in the north east, are the product of erosion.

In dividing the coast into seven sections of unequal length several criteria have been employed.
Section 1, from Wurr Wick to Shoabill, is entirely in igneous and metamorphic rocks - no other part of the coast exhibits these rocks.
Section 11, from Shoabill to Helliberg's Wick, in sandstone principally, illustrates well the influence of jointing.
Section 111, from Helliberg's Wick to the Smallie, in sandstone, is largely dominated by the height of The Noup.
Section 1V, from The Smallie to Wester Hoevdi, in sandstone, is fairly close to the line of strike and shows clearly the influence of the dip.
Section V, from Wester Hoevdi to Soberlie, in sandstone, is selected



From Taing Head to Baa Head, with the only harbour at Ham Vce.
Photograph taken from Hamnafield.



for its great height, generally greater than 500 feet, for its relationship to dip and for its general simplicity.
Section V1, from Soberlie to the Ness, perhaps the most complex, with its caves, natural arches, stacks and its glacial moraine.
Section V11, from the Ness to Wurr Wick, is unique in the island in being very low and the only part of the coast resultant upon accumulation.

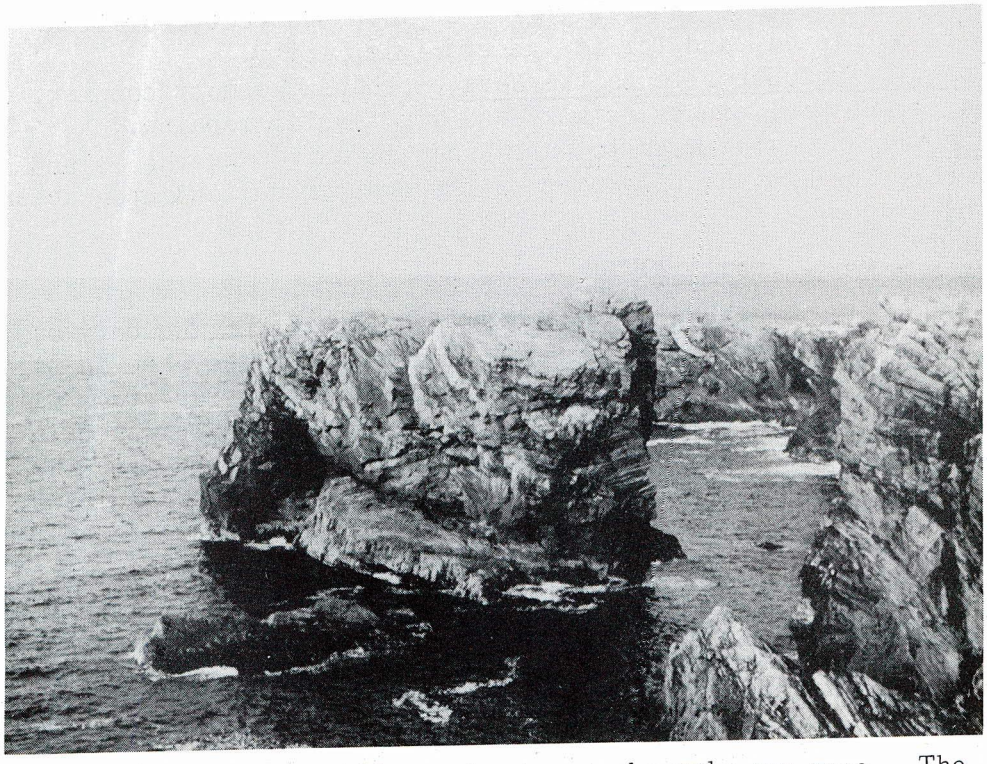
1. Wurr Wick to Shoabill.

These small inlets mark the extremities of the only major faults on the island. It seems credible that they are in part due to this weakness at the junction of the Old Red Sandstone with the granite-gneiss and felsite instructions. At Wurr Wick a small gully runs down to the sea from the Wurrwick Knowe along the line of the junction. Between this and Scarf Geo a headland of granite gneiss with felsite intrusions is penetrated by a long natural arch. Scarf Geo itself is open to northerly gales and the full effect of waves compressing air in the tunnel can be appreciated. Various forms representing all stages of development from the widening of joints to the formation of stacks (e.g. Muntaawie Stack) are found around Strem Ness as far as the Skeld, and the final remnants of a larger ness are to be seen at Hellibaas ("the reefs"). The surface topography is relatively flat, sloping gently from about 90 feet at the base of the headland to about 30 feet at the seaward extremity. The inner parts are grass-covered and the cliff edges of shattered rock.

From the Skeld to the Sloag of Ruscar, where the cliffs fall in height, is Ruscar Head (Ruscar = red) composed in the main of pink felsite. The cliffs are not prominent and at their foot the felsite slopes at a low angle to a rocky edge. Erosion occurs along lines of weakness and there is a succession of very small headlands and geos.

The coast from the Sloag of Ruscar as far as Taing Head again illustrates extremely well all stages of development from sea caves (e.g. Hodden geo) to natural arches at the Stack of the Gaads, and the many stacks such as those north of Ruyhedlar. The cliffs, of garnet mica schist and granite gneiss with felsite intrusions, are near vertical, but the surface topography slopes steeply down from about 100 feet and finally slumps to the cliff top. The felsite intrusions are generally harder and stand out on low rock exposures as below Northveedal.

From Taing Head to the north side of Ham Voe the influence of jointing parallel to the southward dip is clearly seen. Narrow inlets cut in weaknesses are parallel to lines of harder rock. The foreshore is very rocky and shows the resistant felsite intrusions well. The sea has cut small caves into the granite



The north side of Strem Ness, showing stacks and a sea cave. The rocks are gneiss with felsite intrusions.

Resistant felsite intrusion in garnet mica schist near Ruyhedlar Head.

gneiss and mica schist, which is frequently shattered, and in a storm the booming effect of air being compressed is commonly heard. Nearer Ham Voe the coast is backed by low cliffs of glacial sands and boulders; some erratics are native to Foula but others, such as deep red sandstone and quartzite, are almost certainly from further afield. The surface topography slopes gently southwards from Taing Head to Sloag Burn and then rises slightly before falling again towards the edge of Ham Voe, where there is a sudden drop to the harbour.

Ham Voe is the only significant river estuary on Foula and it represents the drowned valley of the lower Ham Burn. Its inner end is composed of boulders and sand, with mud nearer the tidal limits. No raised beach remnants have been traced, so far, at the head of the Voe. On the south side of the Voe the cliffs are steeper, but are made of the same rocks. This difference in slope may simply be due to the fact that at the time of drowning the Ham Burn was undercutting the southern bluff.

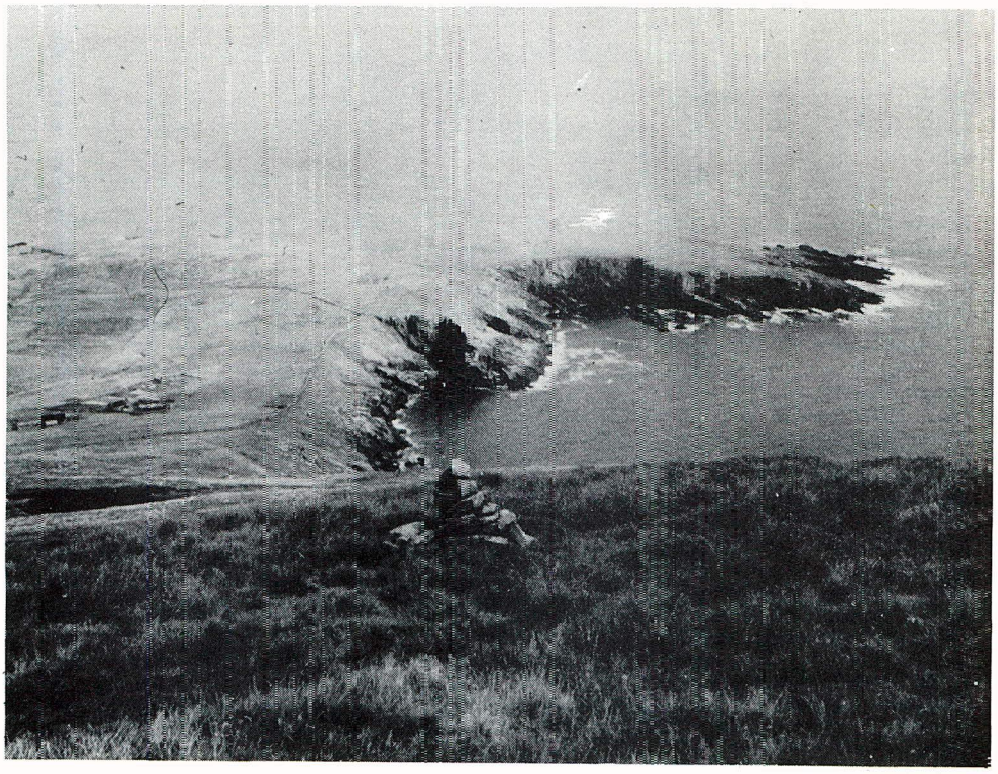
The flat surface topography of Baa Head, rising from about 25 feet in the north to 50 feet in the south, is composed of peat lying on red boulder clay. The cliff edge has slumped and there is a low cliff down to a mass of tilted blocks and rock pools.

Between Baa Head and Durga Ness are the inlets of Little Ham and Selchie Puddle. It is felt that these represent more advanced stages of coast erosion where the sea, having caused sea caves and the collapse of their roofs, has eroded in similar manner further and further inland, possibly in weaker rocks. The process can be seen in the innermost parts of the two inlets, especially on a stormy day.

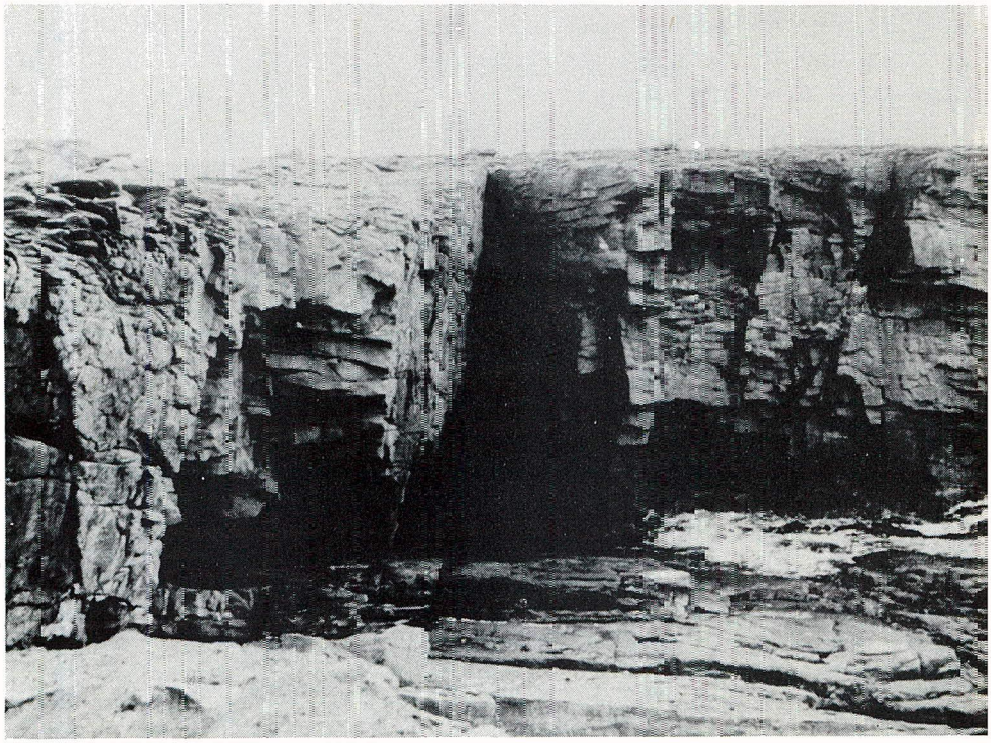
Durga Ness is similar in most respects to Baa Head, but higher and rising from about 60 feet in the north to 125 feet in the south. On its southern side the Ness shows signs of severe slumping. Here, at Shoabill, the igneous and metamorphic rocks are confronted by sandstones and shales. The latter are soft and their erosion is the probable cause of the bay.

II Shoabill to Helliberg's Wick

Apart from the shale between Shoabill and North Hoevdi, and a certain amount of quartzite in South Ness, the whole section consists of Old Red Sandstone which ranges in colour from grey and yellowish grey to brown. The surface topography is amongst the flattest in the island and, apart from the depression in the coast by the stream flowing south-east from Hametoun, and minor variations near North, Mid and South Hoevdi, it slopes gently from about 150 feet inland from Hedliecliv to about 100 feet at the South Ness. It drops away more rapidly at the extreme south



South Ness viewed from the Noup.



Marine erosion along horizontal and vertical joints in Small Geo.

end of the Ness to about 45 feet before the rocky foreshore is reached. This surface topography shows the influence of the Sandstone's southward dip. The cliffs on the west side of Shoabill and the upper cliffs between the headland to the south of it and N. Hoevdi are composed of easily weathered grey and red shales and sandstone capped by glacial deposits. In the latter, glacial striated pebbles are to be found. The cliffs are covered in scree which is so unstable that it is easily sent cascading down to the boulder strewn beach.

From N. Hoevdi to Mid Hoevdi and S. Hoevdi the coast is composed of harder grey-brown sandstone with a thin veneer of glacial debris. The cliffs are sheer and deeply indented and illustrate well the gradation from widening of joints (the tough sandstone is well jointed) to sea caves between N. and Mid Hoevdi, to natural arches at Mid Hoevdi and finally to stacks. The inlets on the south sides of the three Hoevdi suggest erosion control by jointing and this feature is constantly repeated for the remainder of the coast to South Ness. In the brown and yellow sandstones one finds a succession of small rock headlands flanked by deep inlets - this is very well illustrated at Loriwindies Geo and Boniberg. Some of the geos are headed by deep caves and, clearly, the process of cave formation is still going on very actively. The southerly dip is frequently seen in side views of the headlands and its influence is apparent on the cliff top surface topography where there is only a very thin superficial covering. Everywhere the foreshore is very rocky although some of the geo heads are approachable on foot, e.g. the low part near "Boat Harbour".

The coastline from the west side of South Ness as far as the headland to the north of Helliberg exhibits jointing influence very well indeed - not only in the dominant, generally southerly, orientation, but also in an east-west strike direction, e.g. Small Geo, Groathins & Helliberg. Whole cliff faces abut one another in these two dominant directions. The dip, too, has a marked influence here; headlands are high on the north side and low on the south. The sea enters these bays with considerable force and is undercutting and forming caves in many places. Yet the South Ness, the first part of Foula to receive southerly and south-westerly gales, remains a prominent mass. This might, in part, be the result of the sandstone having been partially converted into tough yellow-white quartzite in places.

III Helliberg's Wick to The Smallie.

Here the coast bears a very close relationship to the surface topography. Near Biggins and the old church the cliff

top begins to rise steadily from about 125 feet to about 200 feet near Quirvidle. The east-to-west section on the south side of The Noup, orientated closely to the strike, is composed of vertical cliffs of grey-brown sandstone alternating with less steep but unstable slopes covered with scree. Reaching 700 feet, they stand out prominently against the south-west storm waves, the force of which can be appreciated from the jumbled mass of huge sandstone slabs at the cliff foot. In this section the dip is seen very clearly and, in places, erosion along the jointing parallel to the dip causes broad rock faces to be exposed.

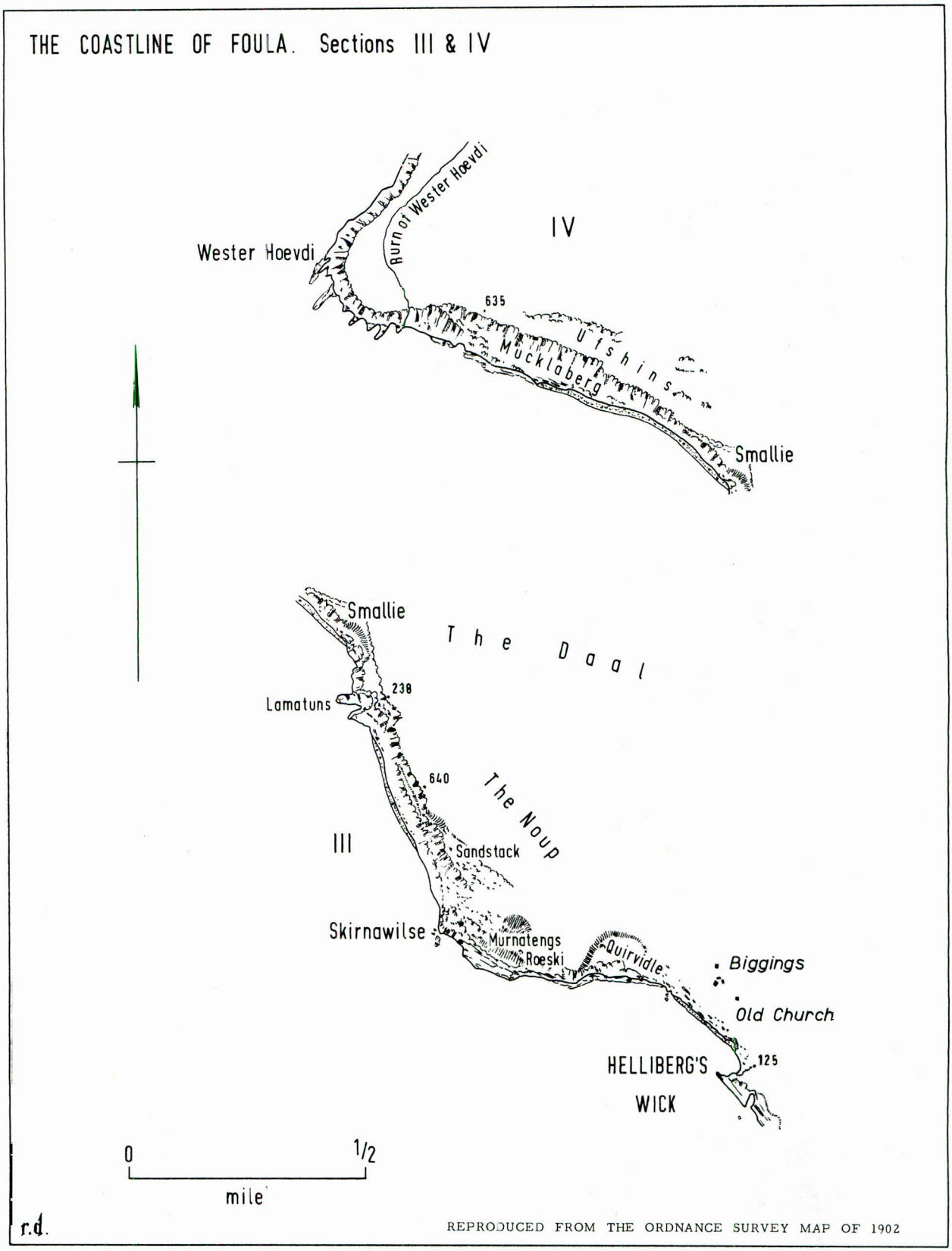
The feature known as "Quirvidle" is interesting. A large armchair-shaped hollow, its form is probably due to cliff slumping, but it is conceivable that it might once have been a corrie (of Gaelic "coire"). Quirvidle and Murnateugs form depressions in the surface topography on either side of Roeskie (about 400 feet).

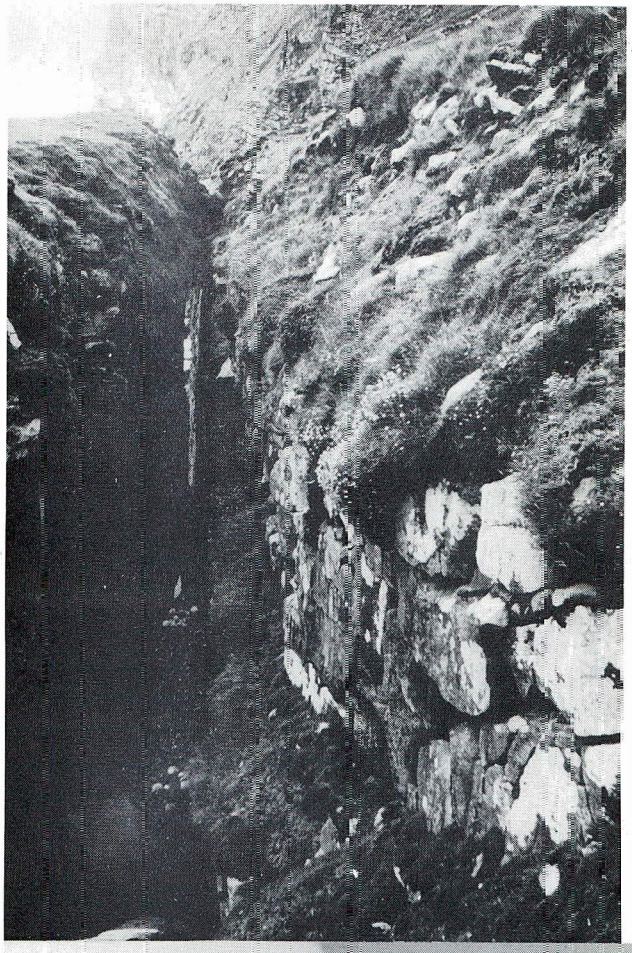
The west side of the Noup coast exhibits the same alternating vertical faces of well jointed grey sandstone with slightly less steep unstable scree faces; and at the cliff foot there is a similar mass of jumbled sandstone slabs. The Lamatuns promontaries show the influence of jointing and dip well; indeed, this whole stretch of coast from Skirnawilse to the Smallie approximates fairly closely to the line of dip. Unlike the south side of The Noup, the north slopes evenly. From 800 feet at Sandstack the grass covered topography declines steeply yet smoothly to the west end of The Daal at 240 feet. This slope is the south side of the one-time glaciated valley of which The Daal is the remnant. The cliff-top surface from above Lamatuns to the Smallie represents the very flat floor of the valley.

IV The Smallie to the south side of Wester Hoevdi.

This prominent section, with its 600 foot cliffs of Mucklaberg, faces the south-west gales and presents extensive surfaces of flat sandstone slabs formed by marine erosion along joints parallel with the dip. These probably present a more difficult face for the waves to attack than that presented by the upstanding "scarp" face rocks at the northern end of Foula below Bloberg. Nevertheless, the abundance of giant sandstone blocks lying at all angles at the foot of the cliffs is evidence of the sea's effectiveness.

The slopes of Mucklaberg are unstable, consisting of a succession of hard, well jointed grey-brown sandstone cliffs separated by scree slopes or steep grass-covered sections. It is especially unstable above Ufshins, where landslips are common. The surface topography, which is very steep, represents the north side of the once more extensive glaciated valley, the Daal. Indeed, where the Burn of Wester Hoevdi runs in at 400 feet with a high





The Smallie -
a fault in sandstone.

From left to right: Mucklaberg, showing southward dip: the glaciated valley of The Daal, with the Smallie The Noup.

waterfall there might have been a tributary glaciated valley. Unravelling the geomorphological history of this section of the coast should provide an interesting study in the future. For instance, one cannot help noticing the possible line of continuation of the Smallie fault and the Mucklaberg coast's possible retreat from such a fault-determined coast.

V. Wester Hoevdi to Soberlie.

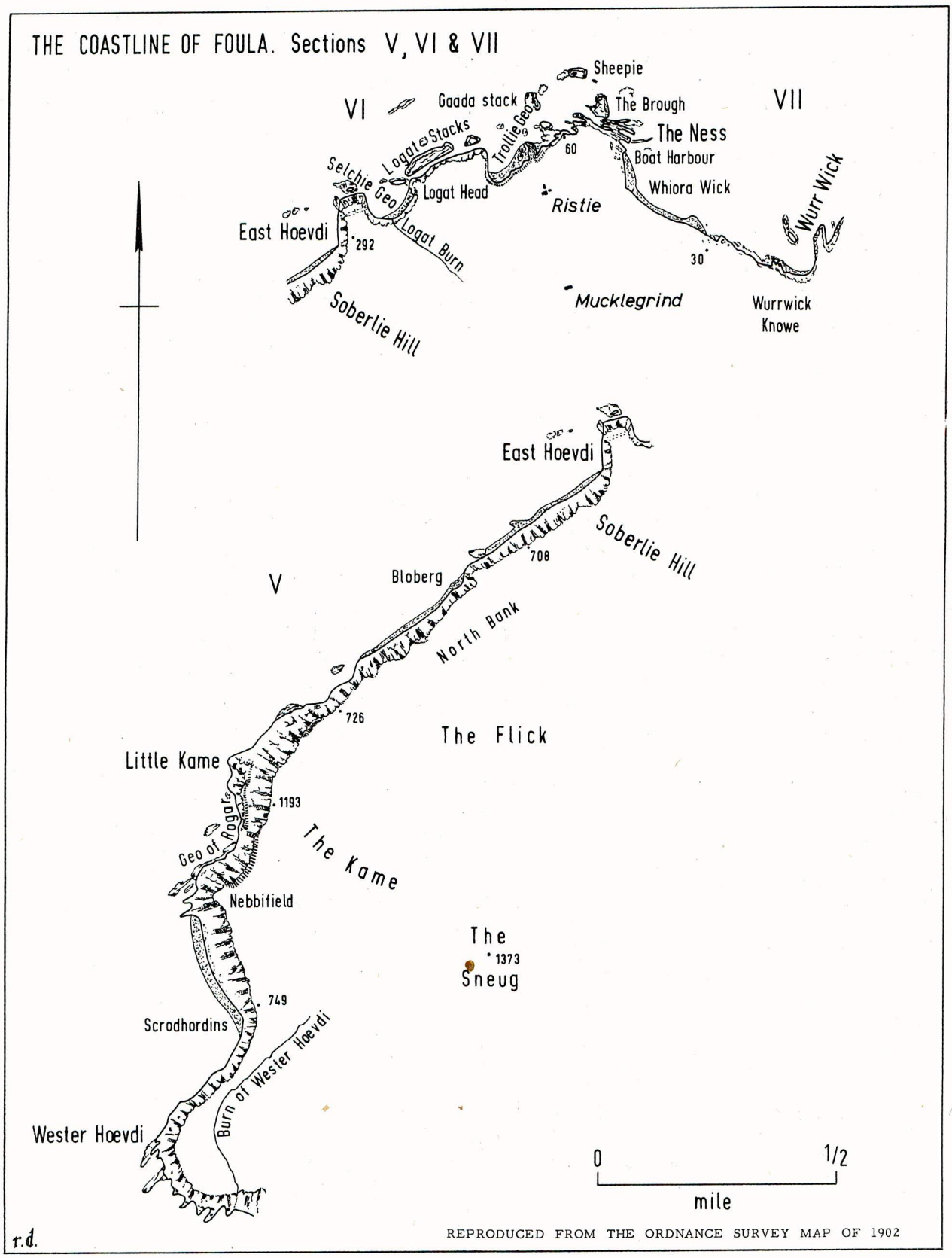
This is the most spectacular part of the island's coast-line - giant, multi-coloured sandstone cliffs tower vertically above the deep waters of the Atlantic in a succession of breath-taking headlands and bays to give what must surely be one of the finest cliff sections in Europe.

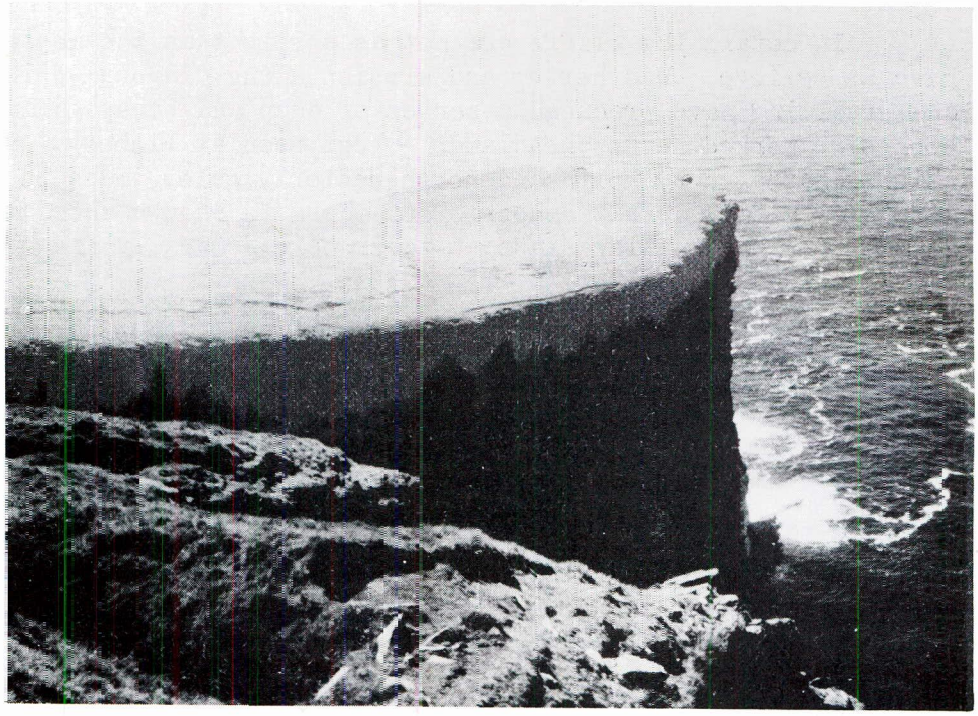
Though lowest of the headlands, Wester Hoevdi is one of the most beautiful. 500 feet of grey-brown sandstone. with occasional bands of orange, white and pink sandstone, stands out in defiance of storm waves from all points between south and north-west. The sea is penetrating and widening joint planes to produce several small sea caves on the south and south-west sides, and, as at Mucklaberg, the sandstone presents flat slab faces to the waves.

The grass-covered, smooth topography declines gently towards the Burn of Wester Hoevdi from about 500 to 450 feet, but after Scrodhordins, at about 600 feet, it rises at first gently (often with slumping) and then steeply towards the Kame at about 1300 feet and Nebbifield at 1000 feet. The cliffs, in multi-coloured sandstones, approximate in direction to the dip, which can be seen from the sea or from Wester Hoevdi. As elsewhere, westerly gales lashing their base cause the undermining of the cliffs and the accumulation of gigantic rock slabs.

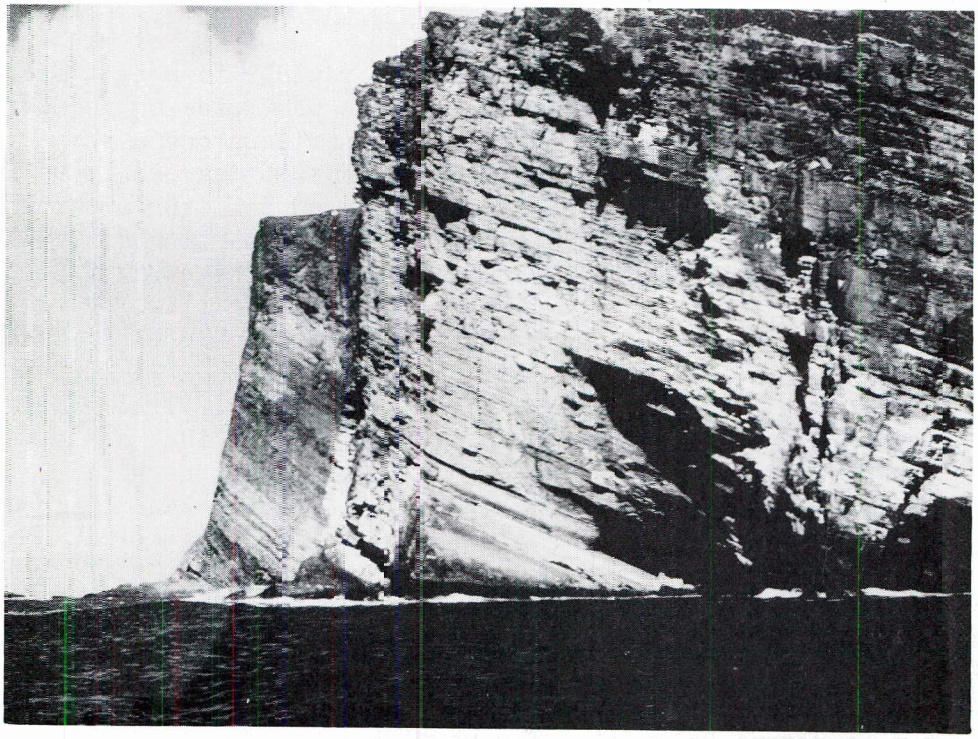
After Nebbifield headland this cliff form continues to rise and it reaches its back at The Kame (1,220 feet). After slumping at the cliff top edge, the surface topography rises towards the Kame ridge and the Sneug (1,373feet), the highest point in the island. In a small boat, within the Geo of Rogar, one is over-powered by the immensity of the cliffs towering above. Yet, they do not convey to the viewer the impression that one is confronted with rock faces higher than the Eifel Tower. The dip and jointing are abundantly clear and probably influence the alignment of the two sides of the Geo of Rogar.

From the Kame to Soberlie, the largest straight stretch of cliffs on Foula, the height drops rapidly from 1220 to 700 feet and remains more or less at that height as far as Soberlie. Along the North Bank the topography falls off inland towards The Flick until, at its eastern end, it rises up the Soberlie ridge.





Wester Hoevdi viewed from the slumping cliff top to the south of Nebbifield. The Burn of Wester Hoevdi is seen in the upper left of the picture.



Wave erosion at the foot of Wester Hoevdi. The southward dip of the sandstone is clearly seen. Beyond Wester Hoevdi is the headland of Nebbifield.

In detail the cliffs are not as straight as the map would have us believe. Weathering and erosion along diagonal jointing and faulting have produced a series of deep and steep gullies alongside marked narrow headlands - best seen at Bloberg. The cliffs, battered by north and north-westerly gales, must be receding very slowly for, despite their size, there is only a moderate accumulation of angular slabs at their base - locally known as the 'hondins'.

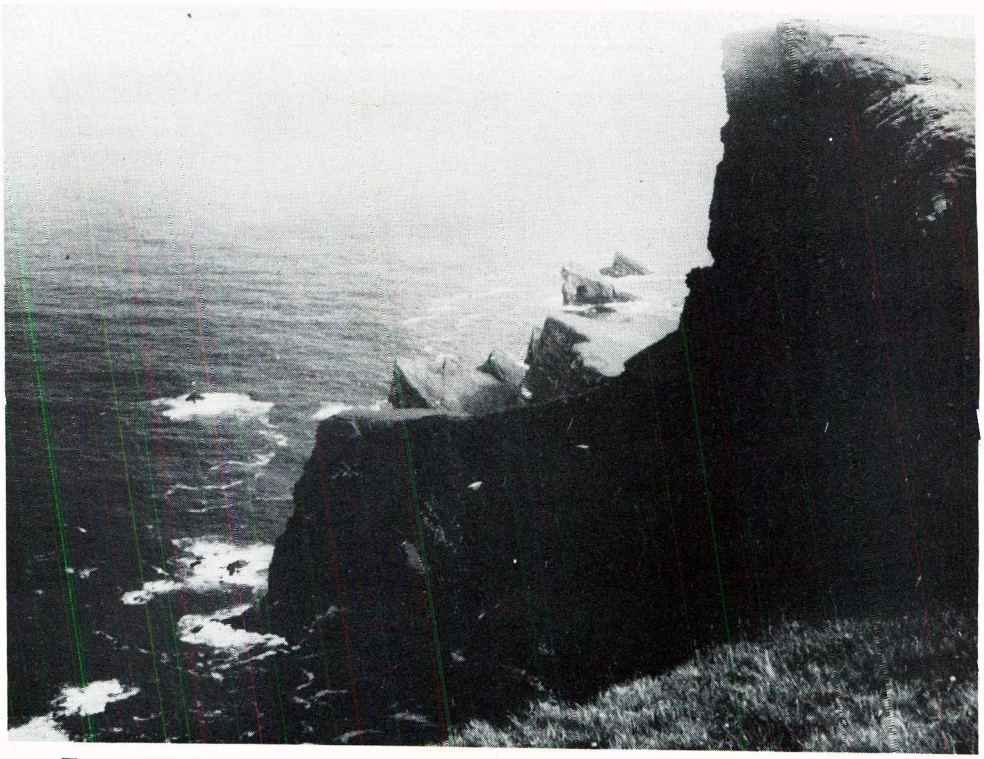
One interesting feature of the cliffs at Soberlie, seen from East Hoevdi, is a red "staining" which is possibly due to iron-saturated waters draining down from haematite higher up the cliffs.

VI Soberlie to The Ness.

The previous section is certainly the most breathtaking, but for the geomorphologist the coast onwards to The Ness has many more features of interest. Indeed, one might go as far as to claim that it is the most interesting part of Foula's coastline.

Represented here are all stages in the development, from sea caves through natural arch to stack and reef. But adding further interest are the glacial morainic deposits lying on the grey-brown sandstone.

After Soberlie the cliffs fall rapidly in height from 700 to 250 feet at East Hoevdi. On the west side of the latter are several sea caves and towards its northern end a very fine natural arch. The southward dip of about 45 degrees is well illustrated and the two factors of dip and jointing are constantly in evidence in stacks and headlands and are particularly well seen when viewed from Bloberg or from the sea to the east of Strem Ness. It is especially the case at Logat Stacks, Sheepie, The Brough and Gaada stack. East Hoevdi will one day resemble Logat Head with Logat Stacks. Selchie Geo is a deep inlet with a boulder beach at its head and a few minor caves at its sides. Trolli Geo is very similar and the surface topography behind it, like that of Logat Head to the west and the area to the north east of Ristie, slopes inland from about 70 feet towards the low lying land to the west of Ristie. In part this slope is due to the long morainic deposit which begins near Logat Burn and continues near the cliff edge as far as "Boat Harbour". The moraine is responsible for the upper surface of the small headland forming the eastern side of Trolli Geo. It has weathered easily and presents a slope very different from the vertical and even overhanging brown and grey sandstone below it. The moraine contains boulders and pebble erratics from more southerly parts of Foula, together with some from further afield.



From Bloberg are seen successively the north cliffs of Soberlie, East Hoevdi, Logat Head, Gaada Stack and Sheepie. The southward dip of the sandstone is apparent.

Moraine lying on well-jointed sandstone above the south-east corner of Trolli Geo.

VII The eastern side of The Ness to Wurr Wick

This, too, is an exceptional stretch of the coast. Not only is it the lowest (19 feet at Whiora Wick), but it is also the only relatively extensive area where steady building of a boulder beach is proceeding. Rocks eroded from The Ness and the west side of Strem Ness are transported to the boulder beach, which runs from 'Boat Harbour' to the west side of Wurr Wick cliffs. Since most of the material is grey sandstone a southerly drift would seem to predominate. Only at the extreme south end are igneous and metamorphic rocks found.

This beach is open to northerly gales and in winter boulders are thrown several yards inland, since the surface topography remains flat for some distance from the sea, except at Wurrwick Knowe where low sandstone cliffs abut against the older rocks of strem Ness along the line of the major fault.

The Boulder Beach from the Ness towards Wurr Wick - the lowest part of Foula.

SUMMARY

Foula's magnificent coasts are the product of:

1. The hardness of its rocks - both Old Red Sandstone and the igneous and metamorphic ones - not overlooking the fact that they have weaknesses in their faulting, strong jointing and soft bands.

2. The nature of the surface topography. From East Hoevdi in the north to The Noup in the south most of the land on the east side lies below 150 feet, whereas down the west side, from Soberlie to The Noup, the Daal is the only stretch of any length which is below 500 feet. The slope of the surface topography is also important, e.g. towards the interior in the case of Logat Head and North Bank, towards the sea at Ruscar and Ufshins, and horizontal behind the boulder beach and between the Manse and Shoabill.

3. The dip of the rocks is undoubtedly important: the Kame cliffs are markedly different from those at Mucklaberg.

4. Fetch and exposure. The 10 fathom line is everywhere close inshore, so that large waves can attack the cliff base. The fetch is least to the east and north-east, but waves from these directions are still very affective agents of erosion.

Yet, despite the fury of the seas, nowhere along the coast is erosion going on at more than a very slow rate and significant changes cannot be expected within a life-time.

FOULA FIELD MOUSE SURVEY

by B. J. K. Tricker

1. INTRODUCTION

The first survey on the Foula Field Mouse undertaken by Brathay was in the 1961 season. Work has since progressed in 1962 and 1963, using the same methods as those formulated in 1961, and covering the eight areas into which the island was then divided. In 1963 pilot work was done on localised surveys which promise to reveal interesting results of a different nature from those of the main survey. Stephen Tompkins was on Foula as early as June 12th in 1963, and pursued many of these lines of attack. Now that the main survey is completed, it is time to assess the results and look to the future.

Field Mice of the genus Apodemus spread from Central Asia into Europe. In Britain distribution is widespread and includes The Mainland, the Hebrides, St. Kilda and Shetland. The main interest lies in the slight differences which exist among specimens from different isolated islands. Illustrating this, Delaney made an elegant three dimensional graph of the characteristics of individuals from several Hebridean islands. The 'centre of gravity' of points representing mice from one island tends to differ from those for other islands, but the ranges overlap to a great extent. This is what would be expected from populations which have been breeding separately for some time.

Distinguishing features have been catalogued giving claim to ten subspecies from the Hebrides alone, but Harrison Matthews (1) comments that diagnoses of many have been based on insufficient numbers of specimens to show the range of variation in each deme, or population.

Three different specific names have been used to refer to Apodemus from Shetland: A. flavicollis, A. sylvaticus and A. fridariensis. Collections from Fair Isle were described by Kinnear in 1906 and by Delaney and Davis (5) in 1963; from Yell by Hinton in 1914; and from Foula by Hinton (3) in 1919 and Delaney (4) in 1963. These authors have described these collections as belonging to sub-species of the species A. sylvaticus or A. fridariensis, and those from Foula have been given the sub-specific adjective 'thuleo', those from Fair Isle having the sub-specific adjective 'fridariensis'.

Some habits of the Foula mouse are mentioned by Venables and Venables (2), and there are two papers on taxonomic aspects: Hinton 1919 (3) and Delaney 1963 (4). Observations on Apodemus in the field have been published from other localities e.g. Delaney and Davis, 1961, on the Fair Isle Field Mouse (5) and Jewell et al, 1963, on the Long-tailed Field Mouse on Skomer (6), but there do not appear to be any records of the ecology of the Foula population. Such studies demand more time than many can afford, and the continuity of Brathay parties gives us a unique opportunity.

The field work conflicts with taxonomic studies, for if, to satisfy the criticism of Harrison Matthews, a large number of mice are killed, the ecology of such small populations may be altered. It is not beyond the bounds of possibility that the remaining individuals would change also, thus defeating the aims of the taxonomist, for it is thought that the rate of genetic drift is inversely proportional to some function of the size of the population. It is hoped therefore that no one will see fit to collect a large number of the mice, but Brathay can cooperate by preserving any specimens found dead, following the instructions issued by the British Museum.

There is not space to include in this account a complete record of the weights and measurements of all known specimens taken from Foula, but table 1 will help to show what data exist.

When one set of data is compared with another the homogeneity of the material is often in doubt. Unfortunately the samples listed below have very little in common, and care must be taken before forming conclusions from them. Factors to be considered are:

1. The time of year of the collection. In a species whose life is short, and measurements show an annual cycle.
2. Different methods of preservation are very likely to cause different degrees of shrinkage or swelling.

Table 1.

CATALOGUE OF RECORDED WEIGHTS AND MEASUREMENTS									
AUTHORITY	TIME OF COLLECTION	METHOD OF PRESERVATION	SEX	NUMBER OF MICE IN SAMPLE	MEASUREMENTS RECORDED				
					HEAD & BODY	TAIL	HIND FOOT	EAR	WEIGHT OF WHOLE MOUSE
HINTON 1919	OCT.NOV.DEC. 1917	SKINS	M.	7	+	+	+	+	-
" "	NOV.DEC. 1917.	"	F.	7	+	+	+	+	-
" "	APR. & NOV. 1917.								
	JAN - APR. 1918.	SPIRIT	M.	12	+	+	+	+	-
" "	APR & NOV. 1917.	"	F.	10	+	+	+	+	-
DELANY 1960	AUGUST	MEASURED DEAD	M.	10	+	+	-	-	+
" "	"	"	F.	7	+	+	-	-	+
THOMSON 1963	JUNE-JULY	SKINS	M.	4	+	+	+	+	+
"									
"	"	"	F.	2	+	+	+	+	+
"	"	MEASURED LIVE	M.	12	-	-	+	-	+
"	"	"	F.	5	-	-	+	-	+

3. Measurements of nominally the same structure may not be taken between exactly the same points of anatomy.
4. Sex
5. The size of the sample. A mean and standard deviation are required to give an adequate picture of any factor.

For example, if the statistical test known as the 't' test (7) is applied to the males of Hinton's collections, some of which were preserved in spirit and some as skins, the test shows that there is less than 0.1% chance of obtaining the observed divergence from the same population. The females of the two batches show like dissimilarity and the following table shows that the standard deviation of the length measurements is so great that there is no significant difference between the sexes:

TABLE 2.

Measurement	Sex	Mean	Standard Deviation
Head and body length	Male	95.9mm	±8.9mm
	Female	92.2mm	9.9mm
Tail length	Male	94.4mm	8.6mm
	Female	91.3mm	8.6mm

Owing to the inadequate standardisation of sufficient records, there is no reliable evidence of change in the Foula mouse since the first records of Hinton in 1919.

2. THE BRATHAY SURVEY: Methods

The aims of the three years survey were to discover how the field mouse was distributed over the island, and if possible to determine the factors limiting the spread. Information which might be of use in calculating the size of the population was also sought.

In order to be able to compare the data from each expedition, it was necessary to use a somewhat stereotyped record sheet. No doubt the continuity thus achieved comes at the expense of certain individualistic field observations which a good field naturalist would be qualified to develop. It is hoped that what has been lost on this score has been balanced by improved objectivity.

Traps, all Longworth catch-alive type, were laid in a variety of places with the object of catching as many mice as possible. Regular patterns of traps were avoided in the main survey. The siting of a trap was recorded with a description to aid its re-location, and was followed by a code giving the approximate distance in yards of the nearest

1. cattle or sheep pasture
2. inhabited croft
3. stone wall
4. ruined croft
5. home of dog or cat
6. territory of Bonxie, Allen, Fulmar or other bird colony
7. any other notable feature.

Traps were lined with dry grass and baited, including a little ground bait. The kind of bait used, and the type of weather, were also noted. Traps were then left with the door hinged up so that for one night the mice could leave them as well as enter: the catch on the door was released on the next round, and daily rounds were made for the next four days.

A code was used for the captures which include symbols for

1. First capture of a Field Mouse.
2. First capture of a House Mouse.
3. Recapture of a Field Mouse, with a note on its former area and identification marks.
4. Similar recapture data for a House Mouse.

The mice were marked with an ear clipping code which denoted the area first capture. For later works, where identification of individuals was required, toe clipping was used. These methods were recommended by the Bureau of Animal Population at Oxford as preferable to ringing, for mammals are prone to injure themselves in trying to remove rings and tags.

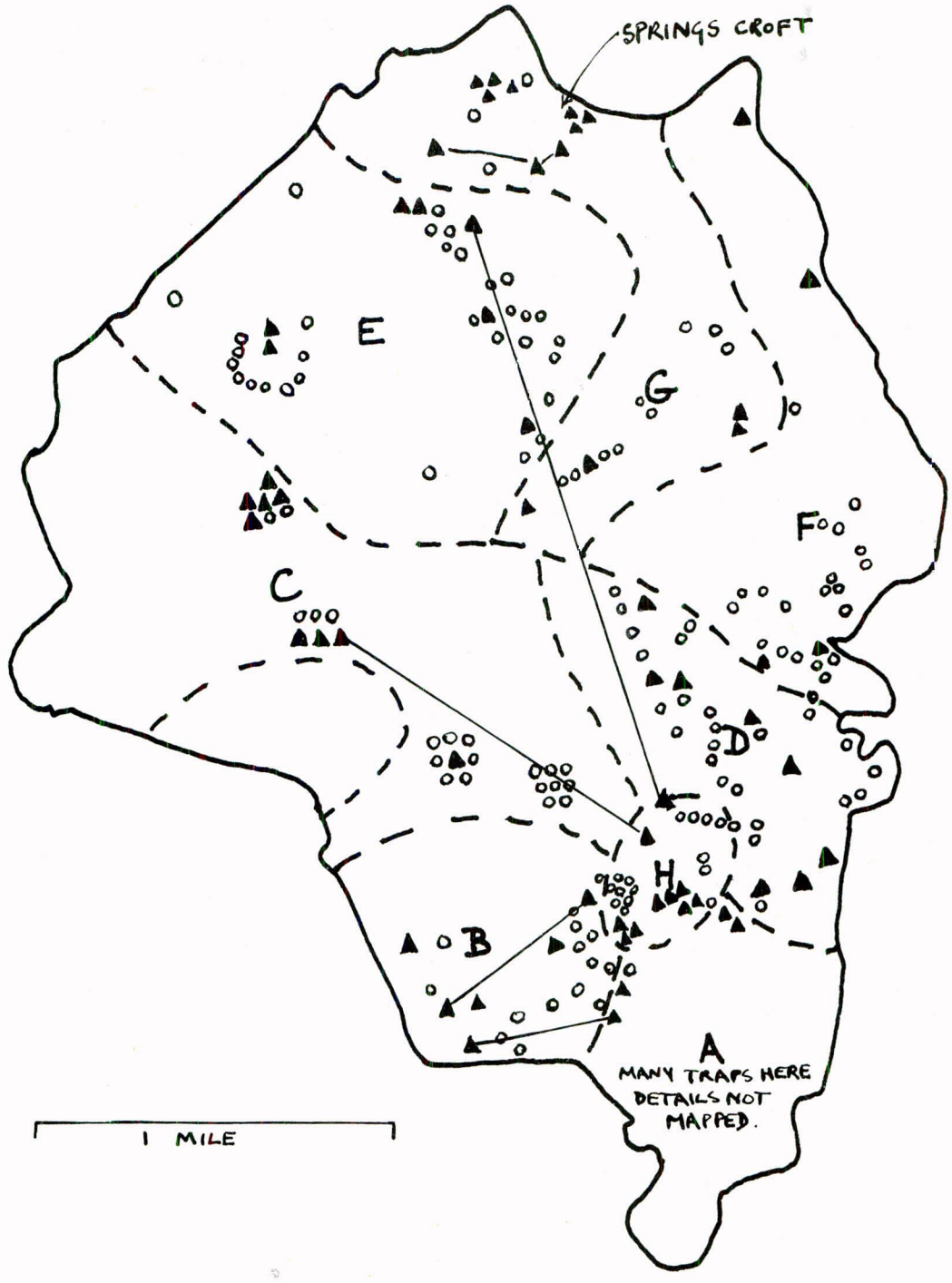
If a trap made a capture, it was usual to place a second trap close by it for the subsequent period.

The trapping results of all expeditions are summarised in Table 3, and the areas where trapping took place are shown on the accompanying map.

TABLE 3

SUMMARY OF THE 3-YEAR BRATHAY SURVEY

				FIELD MOUSE					HOUSE MOUSE		
AREA	YEAR	DATES	TRAP NIGHTS	CAP-TURES	RECAP-TURES	MINIMUM NUMBER OF MICE	T.NIGHTS / CART.	FEATURES OF AREA	CAP-TURES	RECAP-TURES	MINIMUM NUMBER OF MICE
A	'62	4.9-9.9	124	19	4	15	6.3	INHABITED & CULTIVATED	3	1	2
B	'63	27.8-11.9	99	14	6	8	7.1	ROUGH STONY HILL	5	1	4
C	'63	12.8-28.8	99	5	3	2	19.8	UNINHABITED PASTURE	0	0	0
D	'63	19.7-14.8	183	18	7	11	10.2	INHABITED AREA AND PEAT WORKINGS AND HILLSIDE	0	0	0
E	'62	15.8-26.8	180	25	7	18	7.2	SPARSELY POPULATED MOOR	0	0	0
F	'62	6.8-11.8	72	9	6	3	8.0	POPULATED LOWLAND	0	0	0
G	'61	5.8-12.8	180	38	22	16	4.5	OPEN HILLSIDE, SOME RUINS AND SOME INHABITED CROFTS	1	0	11
H	'61	12.8-9.9	270	9	1	8	30	DESERTED CROFTS	0	0	0
	TOTALS		1207	137	56	79	8.81		9	2	7



Map of Foula showing the places where trapping has been carried out.

O = Trap without capture. ▲ = Trap with capture.

A line joins points of capture and recapture of the same mouse.

There was no evidence that the mice avoided the traps to begin with. In 1961 (8) one individual was caught ten times in four days, and in 1963 Tompkins made thirty captures of three mice in sixty hours. (See fig.9). But fewer mice were recaptured on the fourth day than was expected, which suggests that if the traps are tended only once in twenty-four hours, the mice eventually learn to avoid the temptation of the bait.

3. ANALYSIS OF RESULTS

A. Ecological factors affecting distribution of the mice.

(1) Proximity of stone walls.

Table 4 shows the proportion of traps which caught mice when they were placed at various distances from the nearest stone wall. The distribution was fairly constant all over the island, except in the area B, which was stony, and the lower chart of table 4 shows that in this area traps placed away from walls caught relatively large numbers of mice. When the area B is excluded from the total results and the Chi squared test (7) is applied, it shows that there is a strong positive correlation between field mice and walls. It is so strong that the results of a grid trapping experiment gave a low resolution map of the walls in the area, as shown in fig.9. These findings limit the use of grids to determine home ranges of the mice.

TABLE 4

Effect of proximity to stone walls

Distance from nearest wall (in yards)	0	5	10	20	40	80	160	320	over 400	Total off wall
Trap nights										
(a) with capture	116	-	-	1	-	-	3	4	20	28
(b) without capture	439	4	16	15	76	12	89	81	208	501
Total	555	4	16	16	76	12	92	85	228	529
% with capture	21%	-	-	6.2%	-	-	3.3%	4.7%	8.8%	5%

The difference between the results for the stony area B and those for the rest of the island is shown below.

	Area B		All areas except B	
Distance from nearest wall (in yards)	0	Total off wall	0	Total off wall
Trap nights				
(a) with capture	3	10	113	18
(b) without capture	29	51	410	450
Total	32	61	523	468
% with capture	9%	16%	21.5%	3.9%

(ii) Proximity of inhabited houses

The results are shown in table 5. No obvious correlation emerges, even if the results are grouped to give larger numbers, and there is thus no evidence of aversion to inhabited houses. Ristie, the Group's croft, has been counted as an inhabited house although it is only occupied from June to September.

Table 5

Effect of proximity of inhabited houses

Distance from nearest inhabited croft in yards	0	10	20	40	Total 0 - 60	80	160	320	over 400	Total over 60
Trap nights with capture	7	14	7	3	31	16	16	22	50	94
Trap nights without capture	16	51	39	35	141	26	76	102	401	605
Total	23	65	46	38	172	32	92	124	451	699
% with capture	30	22	15	8	18%	19	17	18	11	13%

(iii) The influence of the House Mouse

Only a few House Mice have been caught, and it has not been possible to find out if they have any influence on the distribution of Field Mice. Two traps which caught House Mice also caught Field Mice within twenty-four hours.

B. Range

The map shows the range covered by the Foula Mouse. It is unrestricted by altitude, being caught at 1378 ft at the top of the Sneug, the highest point on the island, and it has been caught in every area of the survey. Recaptures reveal that the mice may move fairly large distances, as is shown in table 6. But the data from recaptures is not entirely reliable, as one individual has been found which had toe joints missing although it had not been marked by us. Another apparently healthy mouse was found by Thomson in 1963 which had part of its scalp missing: this sort of injury might be caused by a Bonxie.

From the few figures available, it seems that movements of several hundred yards may be quite normal in summer. It has not yet been possible to trap in the winter, when interesting migrations may occur.

Table 6

Some distances between capture and recapture

Date of first capture	Time before recapture	Distance travelled
9.8.61	1 day	440 yards
8.8.61	2 days	150 "
-.8.61	1 year	2750 "
2.7.63	50 mins	280 "
3.7.63	2¼ hours	190 "
3.7.63	4 hours	200 "
1.7.63	40 hours	600 "
-.8.61	2 years	2250 "
30.8.63	1 day	100 "
30.8.63	1 day	50 "
30.8.63	2 days	200 "
1.9.63	1 day	600 "
1.9.63	4 days	880 "
31.8.63	7 days	750 "

C. Data from Recaptures

Table 7 shows the number of mice recaptured on successive nights of the standard four-day period. It is clear that it is unlikely that all the mice near the trap are caught by it within four days.

Recapture of marked mice in successive years will give information about their longevity. The longest period of time so far found between the first capture of a mouse and its recapture is two years, and the next longest is one year. But none of the mice marked in area G in 1961 were found there in 1963 and more trapping should be carried out in this area in the summer of 1964, to try and recapture some of the many mice marked with individual markings in 1963.

Table 7

CAPTURES AND RECAPTURES ON EACH OF THE FOUR NIGHTS

YEAR	EXPEDITION	AREA LETTER	1st NIGHT			2nd NIGHT			3rd NIGHT			4th NIGHT		
			CAPT.	RE-CAPT.	TRAP NIGHTS	C.	R-C	T-N	C.	R-C	T-N	C	R-C	T-N
61	I	G	11	0	45	1	7	45	4	9	45	1	10	45
62	I	F	1	0	17	2	0	18	0	3	18	0	3	18
62	II	E	5	0	40	2	3	42	4	2	45	5	1	45
62	III	A	3	0	24	5	0	29	3	3	33	2	1	33
63	I	B	3	0	24	1	2	24	4	1	24	1	2	24
63	II	C	1	0	24	0	1	24	0	1	25	1	1	26
63	III	D	2	0	44	1	1	45	5	2	46	2	4	48
TOTALS			26	0	218	12	14	227	20	21	236	12	22	239
Total captures			26			26			41			34		
Recaptures / Previous captures			-			$\frac{14}{26}$ = .54			$\frac{21}{38}$ =.55			$\frac{22}{58}$ = .38		

D. Size of the population

With some animals it is possible to estimate the size of a population by the correct mathematical treatment of capture/recapture data, but this method requires that the animals should be randomly distributed and that their recapture should not be in any way related to their previous capture. Field Mice certainly do not meet either of these requirements and it is notoriously difficult to estimate the size of a population of this kind. Table 3 shows that 79 individuals have been caught.

E. Miscellaneous observations

(i) Tompkins has given evidence that there is a peak of activity in these animals in the middle of the short night.

(ii) M. Hardstaff has described the excavation of a nest.

(iii) Tompkins weighed the same female mouse on several occasions over a period of 16 days and the results are given in Table 8.

Table 8

Weights of a pregnant female mouse caught on several occasions

Date	June 15 a.m.	15 p.m.	16	17	20	25	30	July 1
Weight in gms.	33.5	33.1	34	34	37	30	30.5	30.5

It was creditable to note the weights each time instead of assuming they would be the same. The weight of the litter cannot be estimated accurately owing to the uncertainty of the date of parturition.

(iv) Tompkins trapped a deformed individual at Logat and again at Mucklegrind. It is worth noting its characteristics in case they are part of its genotype. It was a sexually mature male, but weighed only 29.5 gms. The hind foot was 21.8mm, in contrast to the normal range which is between 23 and 25mm. The ear was 11.6mm, where the average is over 16mm, and those with under 15mm are rare. The tail was somewhat more than 70mm, but as the specimen was alive it was difficult to determine accurately.

(v) Three surveys have been made with the traps arranged on a grid. They have yielded data about capture/recapture frequency, though in one of the surveys the line of traps was advanced by a hundred yards each day and only one mouse was recaptured, which suggests that this rate of advance was too rapid. Tompkins used a grid in which the traps were only five metres apart. Figure 9 shows the results. The survey was carried out between 21.00 hrs. on 26th June and 9.00 hrs. on 29th June (1963). As only thirty traps were available they were first located in the south eastern part of the area, then in the north-western end: later they were spread between the two. Thirty captures of three mice were made in the sixty hours of the survey.

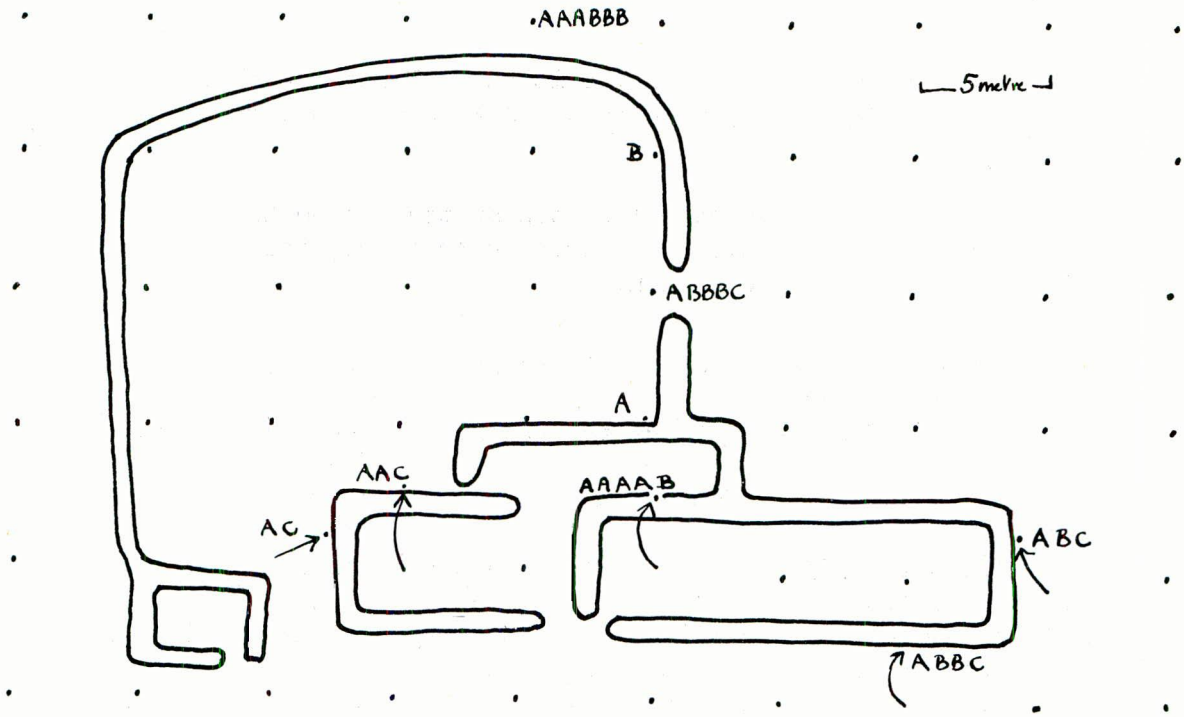


Fig. 9 Recaptures of three different mice (A, B, and C) at Springs Croft. 21.00 hrs., 6th June - 9.00 hrs., 29th June, 1963. Each dot marks the position of a trap.

4. FUTURE WORK

Observations will be made with the following aims

1. To determine the home range of the mice.
2. To determine longevity.
3. To determine times of activity over the twenty-four hours.
4. To investigate further the distribution of the House Mouse.
5. To collect parasites and investigate burrow fauna.
6. To continue to collect specimens found dead.

5. SUMMARY AND REFERENCES

The weights and size records of the Foula Field Mouse are reviewed, and the factors affecting each sample are noted. No significant size difference between the sexes has been found.

In the field, a strong positive correlation with walls was demonstrated, and there was no significant aversion to inhabited crofts. No conclusions were reached regarding the House Mouse and its relation to the Field Mouse. The Field Mouse ranges all over the island, and several mice have been shown to move over several hundred yards. 79 individuals have been trapped in the three years survey, but it is not yet possible

to estimate the number of mice on the island. Further work is suggested and some pilot surveys along different lines have been carried out.

I should like to acknowledge the loan of traps from L.C. Comber, Esq., H.M.I., M. Bingham, Esq., The Nature Conservancy, Edinburgh, and Eton College Biology Department.

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6. P. Jewell et al; 1963: The Skomer Vole and Long Tailed Field Mouse on Skomer Island, Pembrokeshire. Proc.Zoo.Soc.Lond 140 p.295.
7. Bailey, 1959: Statistical Methods in Biology. E.U.P.
8. Brathay Report for 1961. (Please note two errata in this reference: for 'Frigidariensis' read 'Fridariensis': for 'no white spot on chest' read 'no spot on chest').

THE BEETLES OF FOULA

by M. Bacchus

The distribution of the insect fauna of the Shetland Islands is of great interest, both inter-island and for the islands as a whole compared with the North Atlantic Islands and North Europe. As the islands lie so far north, and near the land bridge thought to have existed at one time between Europe, Iceland and Greenland, species may be found occurring in these areas which have not, as yet, been recorded from the British Isles. The inter-island distribution of some of the species that have fully-winged and short-winged flightless forms is also worth investigation. As yet however there is insufficient material available.

Apart from that which I made last summer no collection of beetles from the Shetlands is known to exist in Britain. Foula has never been worked before. Of the two old collections recorded, one is in Helsinki; the other should be in Adelaide, but cannot be found. This makes it difficult, or impossible, to check the more doubtful of these records, but such checking is very necessary, because changes in nomenclature have made some of the names ambiguous, and also because of possible inaccuracies in the original determinations of difficult genera.

Apart from the records from Fair Isle, all those available with precise localities in Shetland refer to Mainland. A recent paper has collated all the Fair Isle records and added the results of some other small collections: the species recorded from Fair Isle number 70 whereas those collected on Foula amounted to 102. Only 34 species are common to both islands, but the smallness of this proportion may be due to insufficient and less intensive collecting on Fair Isle, as it is unlikely that such similar islands would have such different fauna. Foula, Fair Isle and Mainland each have species, some of which are large and conspicuous insects (e.g. Geotrupes stercorosus Scrib. and spiniger Marsh. found on Fair Isle) which have not yet been found on either of the other islands. Much more field work on Foula and all the other islands is required before a true picture of the fauna can be built up: this of course applies to all other families of insects as well.

The beetles of Shetland now known amount to 263 species, mostly ground-living predacious types that are found in moss, dung and under stones. There are few water beetles and very few plant feeders: this is the normal pattern for northern latitudes.

References:

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Carpenter,G.D.H. — Some Insects (excluding Lepidoptera) from the Shetland Isles. Ent.Mon.Mag. 1950:86:268-269.

Sage,B. — Notes on the Coleoptera of Fair Isle Scottish Naturalist 1963:71:1-12.

LIST OF COLEOPTERA COLLECTED ON FOULA, JULY 1963

CARABIDAE

Carabus problematicus Hbst.+*
Cychrus caraboides L. +*
Nebria degenerata Sch. +*
" gyllenhali Sch. +*
Pelophila borealis Payk.+
Notiophilus biguttatus F.+*
Loricera pilicornis F. +*
Clivinia fossor L. +
Dyschirius globosus Hbst. +
Trechus obtusus Er. +*
Patrobus assimilis Chd. +*
Harpalus latus L. +*
" quadripunctatus Dej.
Bradycellus harpalinus Dej. +*
Dichirotrichus gustavii Crotch *
Amara aulica Panz. +*
" vulgaris L. +
Feronia nigra Schall.+*
" nigrita F. +*
" oblongopunctata F. +
" strenuus Panz. +*
Calathus fuscipes Goeze +*
" melanocephalus L.+*
Agonum ruficorne Goeze +*

GYRINIDAE

Gyrinus natator L.
s.sp. substriatus Steph.

DYTISCIDAE

Deronectes griseostriatus Deg.+

Hydroporus erythrocephalus L. +*
" nigrita F. /
" obscurus Sturm +
" palustris L +
" pubescens Gyll. +*
" tristis Ill. +
Agabus arcticus Payk.
" bipustulatus L.+*
" chalconotus Panz. */
" guttatus Payk. +*
Rhantus bistriatus Berg. +

HALIPLIDAE

Haliplus confinis Steph. /

STAPHYLINIDAE

Megarthrus depressus Payk. +
Omalium rivulare Payk. /
Olophrum piceum Gyll./
Lesteva heeri Fvl.
" pubescens Mann. +
Oxytelus rugosus F. +
" sculpturatus Grav. +
Stenus brunnipes F. /
" impressus Germ. /
" nitidiusculus Steph. +
Lathrobium brunnipes F. /
" fulvipenne Grav.*
Gyrohypnus melanocephalus Grav. +*
" myrmecophilus Kies. +
Philonthus fimetarius Grav. +
" varius Gyll. +
Staphylinus olens Mul. +*
Quedius fuliginosus Grav.+*
" nitipennis Steph.+
Tachyporus chrysomelinus L.+
Tachinus rufipes Deg.+*
Myllaena brevicornis Matth.+
Autalia puncticollis Sharp+
Sipalia circellaris Grav.+
Atheta atramentaria Gyll.+
" hygrobia Thoms.
" ischnocera Thoms.
" islandica Kr. +
" longicornis Grav.
" monticola Thoms.+
" mortuorum Thoms.
" pertyi Heer +
" vaga Heer +
" vestita Grav. +
Aleochara lanuginosa Grav.+
" sparsa Heer *

SILPHIDAE

Catops morio F.
Sciodrepa watsoni Spence +

CRYPTOPHAGIDAE

Cryptophagus pilosus Gyll.

BYRRHIDAE

Simplocaria semistriata F.+

HYDROPHILIDAE

Limnebius truncatellus Thunb.+

Helophorus flavipes F. +

Cercyon haemorrhoidalis F. +

" melanocephalus L. +

Megasternum obscurum Marsh. +

Anacaena globulus Payk. +

Enochrus quadripunctatus Hbst.
F. fuscipennis Thoms.

Chaetarthria seminulum Hbst.

PTINIDAE

Ptinus tectus Boield. *

ELATERIDAE

Hypnoidus riparius F. +*

Dalopius marginatus L. *

GEOTRUPIDAE

Geotrupes stercorarius L. *

SCARABAEIDAE
APHODIINAE

Aphodius ater Deg. +

" borealis Gyll.

" contaminatus Hbst.+*

" lapponum Gyll.+

" rufescens F. +

" rufipes L. +

CHRYSOMELIDAE
DONACIINAE

Donacia discolor Panz. +

CHRYSOMELINAE

Hydrothassa marginella L.

HALTICINAE

Psylloides picina Marsh

CURCULIONIDAE

Otiorrhynchus arcticus F.
v. blandus Gyll. +*

" nodosus Mull. /

_____ New to Shetland list.

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\+ Recorded from Shetland Mainland by M.B. or record checked.

/ Recorded from Shetland Mainland. Not found by M.B. and record unchecked.

* Recorded from Fair Isle.

MOTH STUDIES ON FOULA

by Malcolm Hardstaff

These studies were carried out by members of the second Brathay Expedition, which was on Foula during the second half of August 1963. The object of the work was two-fold: first to collect as many different species of moth as possible and second, to determine the frequencies of the moth Amathes glareosa Esp. (Autumnal rustic). This work was suggested by Dr. H.B.D. Kettlewell of the Sub-department of Genetics, Department of Zoology, Oxford, who very kindly lent to the expedition a mercury vapour moth trap, a portable electric generator and other necessary equipment.

Amathes glareosa is widely distributed throughout the Shetland Isles and Dr. Kettlewell has established that at the north end of the islands 97 percent of the population is of the melanic form edda. This contrasts with the situation on south Shetland Mainland, only about 50 miles south, where 98% of the moths are of the light form typica. In the intervening region there is a decline in the proportion of the light type, with a marked fall in the Tingwall valley area just north of a line drawn between Lrewick and Scalloway. Possibly this region, which consists of fertile farmland, an unsuitable habitat for the moth, acts as a partial barrier and limits mixing of the two forms. It is certain that conditions in the north favour one form and in the south the other. Dr. Kettlewell has shown that the dark form is difficult to see on a background of peat and that this camouflage is likely to give the moth a distinct advantage in the northern regions, where there is intensive bird predation during the day and in twilight conditions. The moths emerge during August and early September, when bird predation in north Shetland is particularly severe owing to the concentration there of migrating flocks. Common gulls, in particular, feed on the moth in the north. Migrating birds also tend to concentrate in south Shetland, awaiting favourable winds, but here there is less peat and more sand-dune, which may not favour the dark f. edda. The normal disruptive pattern of the light form is, to the human eye, better camouflaged.

Recent work has shown that there is a habit difference between the northern and southern populations in Shetland. The northern population of both forms flies less frequently than the southern, appearing only on one night in two or three. Although flight each night (the normal pattern) confers advantages for finding a mate and for feeding or ovipositing on suitable plants, on windswept headlands flight must indeed be hazardous.

Little or nothing is known of the moths on Foula. The island is isolated, being some 20 miles from the main Shetland group, and is of

the same latitude as the Tingwall valley, where the most rapid change occurs in the frequencies of the two forms of Amathes glareosa. It is small, windswept and largely covered with heather and peat.

The method used to collect moths makes use of the fact that they are attracted towards light, particularly ultra-violet rays. The trap is an 80 watt mercury vapour lamp fixed above a metal cylinder about 2'6" in diameter and 3' deep. A perspex funnel rests in the cylinder and has several radial vanes fixed to it. The power supply is a converted W.D. petrol-driven genorator and one filling of fuel is sufficient for 8 to 10 hours operation. The generator is started at dusk and runs until all the petrol is used. Moths fly around the light, hit one of the metal vanes and fall into the cylinder. They crawl into the cavities of egg boxes stacked within the cylinder and "go to sleep", to be collected from the trap in the early morning, when they are usually lethargic and easily handled.

We ran the moth trap for a total of seven nights in two localities at the north end of the island: pressure of other work prevented us from trying the south end. The results are given below.

The commonest moth was Cerapteryx graminis (Antler), 80%, followed by Amathes glareosa f. typica, 12%. In all, 24 specimens of A. glareosa were taken and all were of the light type. Apart from the moths we caught large numbers of Crane flies and a few Harvestmen.

The absence of the dark form of the moth, f. edda, is unexpected. Although the total catch is small the result certainly merits further investigation. The fauna of Foula may prove to be exceptional in yet another feature since no other part of the Shetlands is without f. edda.

LEPIDOPTERA CAUGHT ON FOULA, AUGUST 1963.

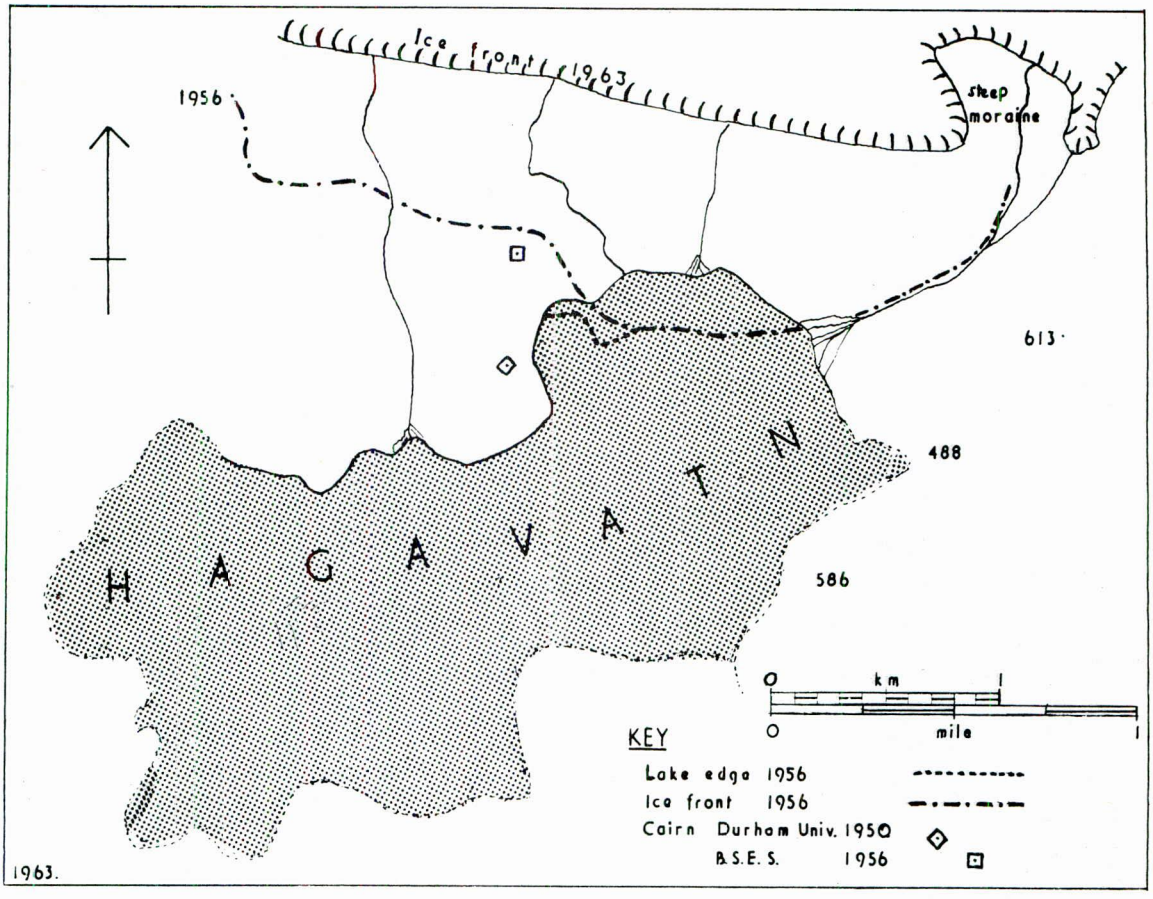
Amathes glareosa	(Autumnal Rustic)	24 f. typica (no edda)
Diarsia festiva	(Ingrailed Clay)	11 ssp. thulei
Amathes xanthographa	(Square Spot)	2 "intermediate"
Tripnaera (Noctua) pronuba	(Yellow Underwing)	1
Cerapteryx graminis	(Antler)	170
Gortyna micacea	(Rosy Rustic)	1
Dysstroma truncata	(Common Marbled Carpet)	1 (worn)
Ammogrotis lucernea	(Northern Rustic)	1

RECESSION OF THE EAST HAGAFELL GLACIER, ICELAND

by Martin D. Kamm

The second Brathay Iceland party in 1963 visited the East Hagafell Glacier, a tongue from the Langjokull icecap in Central Iceland. This glacier has been visited a number of times by British parties, many of which have mapped the glacier snout and the melt-water lake, Hagavatn. These parties have included ones from Cambridge University (1934), Durham University (1950) and the British Schools Exploring Society (1956 & 1961). In addition, Icelandic scientists, including Dr Sigurdur Thorarinsson and Jón Eythorsson, have done detailed work in the area.

The recession of this glacier has been rapid, and previously described in detail 1. The margins of the lake have altered and the position of its outflow changed three times in recent years leaving spectacular clefts such as the one at Leynifoss which was used from 1929 to 1939.



Recession of the East Hagafell Glacier

The 1963 Brathay party resurveyed the snout of the glacier by plane table and the map reproduced below shows the position of the ice front compared with that found by the B.S.E.S. survey of 1956.

In 1956 the front of the glacier abutted the lake, but in 1963 it was found to have receded 600 metres, leaving a gently sloping area of fine moraine dissected by melt-water streams between the ice and the lake, the letter being in much the same position as previously.

Reference: 1. The Recession of an Icelandic Glacier, by F.G. Hannell and I.Y. Ashwell. Geographical Journal Vol.CXXV, March 1959.

Other references are to be found in the reports of the various expeditions mentioned above and in Geographical Journal Vol. CXXVII Pt.3, 1961, page 385.

Snout of the East Hagafell Glacier from the south-east, showing:
in the background, Hagafell Ridge
left centre, Hagavatn Lake right centre, Glacier

APPENDICES

LIST OF THOSE TAKING PART IN EXPEDITIONS IN 1963

LEADERS (including Assistant and Junior Leaders) (53)

Astles, Bob	Uganda Boys Clubs Association	Uganda
Bacchus, Michael	Dept. of Entomology, British Museum	Foula Adv.
Barrett, Alan	Brathay Hall	Yugoslavia
Barringer, Christopher	Lancaster R.G.S.	Lakes 1
Bell, Mike	Tynemouth Priory School	Foula I
Boys, John	Canford School	Foula III
Burnet, James	Clifton College	Yugoslavia
Chapman, Adrian	Central Electricty Authority	Iceland I
Cox, Bob	Sir Samuel Baker School, Gulu	Uganda
Daniel, John	St. Edmund Hall, Oxford	Easter II
Dawe, Dickie	Sedbergh School	Foula II
Day, Norman	Brathay Hall	Foula III
Dickens, Bob	Castleford School	Iceland I
Doughty, John	Barlow Hall Secondary School	Easter I
Elvins, Brian	Rugby School	Yugoslavia
Ford, Dennis	Oundle School	Lakes IV
Gee, Michael	Hertford College, Oxford	Lakes IV
Gilchrist, Robert	Shenfield, Essex	Foula III
Gill, Bob	Birmingham Corporation	Norway
Gittins, John	Dept. of Zoology, Liverpool Univ.	Foula Adv.
Grant, Ruari	Rugby School	Lakes II
Green, John	Ellesmere College	Lakes II
Hardstaff, Malcolm	Marlborough College	Foula II
Hooker, Tim	Canford School	Foula II
Houghton, David	Ministry of Agriculture	Easter I
Howarth, Philip	Pembroke College, Cambridge	Norway
Hughes, Ted	Irlam Alfred Turner School	Lakes III
Huse, George	Oundle School	Lakes II
Jackson, Edward	Queen Elizabeth G.S., Darlington	Foula I
Jackson, Michael	Sedbergh School	Foula II
Jones, Eddie	Skerton Sec. Sch., Lancaster	Easter I & Lakes I
Kamm, Martin	Backwell Co.Sec.Sch., Bristol	Iceland II
Knight Barry	College of St. Mark & St. John	Foula I
Land, Tony	St. Christopher School, Letchworth	Easter II
Lorimer, Ron	Christ's Hospital	Norway
Lowe, Graham	Stanton Ironworks Co. Ltd	Iceland I
McCarthy, Cedric	King's School, Peterborough	Lakes IV
Moffatt, Peter	Ramsden Tech. Coll. Huddersfield	Easter I & Iceland I
Mottershead, Ron	Nicholls Sec.Sch., Manchester	Uganda

Mylechreest, Peter		Foula Adv.
Nesbitt-Hawes, Sir Ronald	English Electric Co. Ltd.	Foula Adv.
Parry, David	University of Sussex	Lakes III
Pirkis, Don	St. Paul's School	Foula I
Pollock, Charles	Brathay Hall	Iceland II
Rae, Bob	Christ's Hospital	Iceland II
Rayden, Alan	Oundle School	Lakes II
Richmond, Bill	Manchester University	Foula III
Robins, Michael	Rugby School	Foula III
Setuba, Edward	Ministry of Community Development, Kampala	Uganda
Stables, Douglas	Glaxo Ltd.	Lakes I
Ware, Brian	Uppingham School	Uganda
Watson, Peter	Rycotewood College, Thame	Norway
Weir, Ken	Pembroke College, Oxford	Yugoslavia

BOYS (167)

Alderslade, Peter	Central Electricity Gen. Board	Lakes III
Allott, Kenneth	Newcastle R.G.S.	Easter II
Archer, Clive	Dulwich College	Easter II
Baker, Glyn	Backwell Co. Sec.Sch., Bristol	Easter I
Barclay, Joseph	Harrow School	Easter II
Barlow, Nick	Dulwich College	Yugoslavia
Barnes, David	Rotax Ltd.	Iceland I
Barnfield, John	Central Electricity Gen. Board	Lakes I
Beal, Peter	A.W.R.E.	Easter II
Bennett, Michael	Allerton Grange Comp.Sch., Leeds	Easter I & Norway
Bishop, David	Sedbergh School	Lakes II
Blackburn, Kenneth	Victoria Co. Sec.Sch.,Morley	Foula Adv.
Boxley, Christopher	Christ's Hospital	Foula III
Braggins, James	Bedford School	Easter I & Yugoslavia
Brown, Andrew	Brewick, Roxburgh & Selkirk Police	Easter II
Brown, Colin	Rotax Ltd.	Easter I
Brownrigg, Donald	Provincial Insurance Co.	Iceland I
Bryan-Harris, Keith	Stewarts & Lloyds Ltd.	Lakes I
Buckley, David	Port of London Authority	Iceland I
Bullock, David	Christ's Hospital	Lakes III
Burrows, Roger	Drake & Gorham Ltd.	Lakes I
Cain, Roger	Bedford School	Lakes IV
Calam, David	King's School, Macclesfield	Lakes III

Calogeropoulos, George	Aga Khan School, Kampala	Uganda
Chambers, Alan	Ferranti Ltd.	Easter I
Chanani, Zulfika	Aga Khan School, Kampala	Uganda
Charlesworth, Bob	Provincial Insurance Co Ltd.	Norway
Cheesman, Nicholas	Bedford School	Easter II
Clutton-Brock, Timothy	Rugby School	Foula I
Clyne, Charles	St. Bees School	Lakes II
Collins, John	Isleworth G.S.	Foula II
Colver, John	St. Bees School	Lakes III
Cook, Charles	Christ's Hospital	Norway
Cooney, Kevin	Ford Motor Company Ltd	Iceland II
Copeland, Richard	Harrow School	Easter I
Cottrill, John	Birkenhead School	Foula I
Coulthard, Michael	Dulwich College	Foula III
Cowley, Ivan	E.B. Hamel & Son	Foula II
Crelling, Stanley	Distington Engineering Co. Ltd.	Easter II
Crisp, Richard	Bryanston School	Foula III
Cropper, Edwin	Colgate-Palmolive Ltd	Iceland II
Cropper, Martin	Storey Bros. & Co.Ltd.	Foula II
Davies, Richard	Manchester G.S.	Lakes II
Day, William	E.B. Hamel & Son	Uganda
Dobbin, David	Newcastle R.G.S.	Yugoslavia
Dorward, Kenneth	Sir James Laing & Sons Ltd,. Sunderland	Iceland I
Dotchin, Norman	Parsons Marine Turbines	Foula I
Downey, Steve	Manchester & N. Wales Electr. Board.	Yugoslavia
Duckett, Alan	Head Wrightson Ltd.	Lakes I
Duncan, Lorne	University of Sussex	Yugoslavia
Duncan, Malcolm	Christ's Hospital	Norway
Dyrmundsson, Olafur	Reykjavik G.S.	Iceland II
Edwards, Peter	Isleworth G.S.	Lakes IV
Ferguson, Alistair	Corby G.S.	Foula III
Ferry, Richard	St. Bees School	Lakes I
Forsteneichner, Gunter	Geschwister-Scholl-Gymn.,Dusseldorf.	Lakes III
Gee, Andrew	Birkenhead School	Foula I
Gilbertson, Michael	formerly of Radley College	Foula II
Gill, Michael	Feldon School, Leamington Spa	Lakes I
Gilliard, Jeremy	formerly of Bolton School	Easter I
Gomersall, Robert	King's School, Macclesfield	Lakes III
Goss, John	St. Bees School	Lakes I
Graham, Andrew	Oundle School	Foula III
Greenwood, John	Rugby School	Lakes I
Gulliver, Tim	Oundle School	Norway
Haigh, Roger	Birkenhead School	Foula II
Handley, John	Bootham School	Foula I
Harriss, John	Dr. Challinor's G.S., Amersham	Lakes III
Harrison, Christopher	Harrow School	Yugoslavia

Hart, Malcolm	Gosforth G.S.	Iceland I
Hartley, Martin	Leeds G.S.	Iceland I
Hawkes, Richard	formerly of St.Lawrence Coll., Ramsgate	Iceland II
Hazard, David	Sunderland Forge & Eng.Co.Ltd.	Norway
Hedley, Edward	Sunderland Forge & Eng.Co.Ltd.	Foula I
Hill, John	William Hulme's G.S.	Easter II & Yugoslavia
Hodson, Michael	St. Edwards School,Oxford	Lakes IV
Hogg, Terence	Richardsons, Westgarth & Co.Ltd.	Foula II
Homewood, Giles	Bedford School	Lakes IV
Hood, Robin	Ferranti Ltd., Edinburgh	Foula Adv.
Howlett, John	Parsons Marine Turbines	Foula III
Hutchinson, Gordon	King's School, Macclesfield	Easter I
Hutchinson, John	lately of King's Sch.,Macclesfield	Norway
James, John	Rugby School	Lakes I
Jawuke, Samuel	Busoga College, Mwiri, Jinja	Uganda
Jeffrey, Kenneth	Richardsons, Westgarth & Co Ltd.	Iceland I
Jones, Jonathan	Oundle School	Foula III
Kamanyi, Charles	Lubiri School, Kampala	Uganda
Kaye, Charles	Oundle School	Lakes IV
Kazungu, David	Sir Samuel Baker School, Gulu	Uganda
King, Geoffrey	Bedford School	Lakes II
Kisubi, W.K.	King's School, Budo	Uganda
Kiwana, Julius	Lubiri School, Kampala	Uganda
Knudsen, Gylfi	Reykjavik G.S.	Iceland II
Lake, Robert	Parsons Marine Turbines	Foula II
Liggins, Ted	Cadbury Bros. Ltd.	Foula I
Liversedge, Mark	St. Bees School	Foula II
Lockwood, Richard	St. Bees School	Iceland I
Lote, David	King's School, Macclesfield	Lakes I
Lundy, David	Isleworth G.S.	Lakes II
Macmillen, Malcolm	Ratcliffe College, Leicester	Easter II & Yugoslavia
Macree, Terence	Port of London Authority	Lakes III
Marquiss, Michael	George Stephenson G.S.,Newcastle-u-T.	Foula I
McDermott, Paul	Dulwich College	Foula I
McGregor, Graham	Heversham G.S.	Iceland II
Mead, Geoffrey	King's School, Peterborough	Lakes III
Melville, Timothy	St. Bees School	Lakes III
Midgley, David	Leeds G.S.	Iceland I
Morgan, Hugh	Marlborough College	Yugoslavia
Munro, Alan	Christ's Hospital	Easter I & Iceland I
Nicholls, Alex	London Electricity Board	Lakes II
Nicholls, David	W.D. & H.O. Wills	Easter I
North, Geoffrey	E.B. Hamel & Son	Foula II
Oliver, Alan	Hoffmann Manufacturing Co.Ltd.	Norway
Padmore, Peter	Malvern College	Norway

Pattin, Kenneth	British Insulated Callender's Cables	Lakes III
Patterson, John	Lancaster R.G.S.	Foula II
Peel, Tony	W.H. Smith & Son Ltd.	Yugoslavia
Peuleve, Stewart	King's School, Macclesfield	Lakes II
Platt, Howard	King's School, Macclesfield	Lakes II
Popay, Travor	Lancaster R.G.S.	Lakes IV
Proffitt, Geoffrey	Manchester Guardian	Easter II
Pugh, David	Stewarts & Lloyds Ltd.	Lakes I
Reay, Christopher	Whitehaven G.S.	Iceland I
Rees, Tom	Oundle School	Foula I
Richardson, Romek	Manchester G.S.	Lakes II
Richardson, William	Hookergate G.S.,Rowlands Gill	Foula I
Rigby, Keith	A.E.I. Woolwich	Easter II & Foula III
Roe, Stanley	Manchester Guardian & Evening News	Easter I
Rogers, David	Isleworth G.S.	Lakes IV
Rogers, Harold	I.C.I. Ltd, Northwich	Lakes III
Savill, Geoffrey	W.H. Smith & Son Ltd	Norway
Shagauri, Paul	Hargreaves (W.R.) Ltd.	Easter I
Shaw, Tom	Clifton College	Norway
Shepard, Graham	John Laing & Son Ltd	Norway
Shipton, Michael	Bryanston School	Easter I & Yugoslavia
Slater, Anthony	Central Electricity Gen. Board	Lakes II
Slatter, James	John Laing & Son Ltd	Easter II
Smith, Colin	Hardy Spicer Ltd.	Easter I
Smith, Leonard	George Angus & Co Ltd	Easter I
Ssali, Henry	Ntare School, Mbarara	Uganda
Storey, Philip	Kendal G.S.	Lakes III
Sugden, Christopher	Newcastle R.G.S.	Easter II
Summerton, Richard	Dulwich College	Uganda
Sutherland, Roger	Port of London Authority	Iceland I
Symes, James	Drake & Gorham Ltd	Lakes III
Talib, Iqbal	Aga Khan School, Kampala	Uganda
Thompson, Graham	Woodhouse Grove Sch., Leeds	Easter I & Foula
Thorsteinsson, Gisli	Reykjavik G.S.	Iceland II
Tinline, Edward	formerly of Oundle School	Easter II & Iceland II
Towns, Edward	Rugby School	Foula I
Tracey, Barry	E.B. Hamel & Son	Foula III
Underwood, Geofffrey	Pressed Steel Co. Ltd.	Lakes I
Wake, Richard	Ellesmere College	Foula III
Walker, Ray	Lancaster R.G.S.	Easter II
Wallis, John	Christ's Hospital	Uganda
Walsh, Roger	Isleworth G.S.	Foula II
Ward, Gordon	Sunderland Forge & Eng. Co.Ltd.	Yugoslavia
Waterlow, John	Marlborough College	Iceland II
Waters, Bernard	Christ's Hospital	Lakes III
Wedgwood, Adrian	Eton College	Lakes IV

Widgery, Roger	Joseph Lucas Ltd	Lakes II
Williams, James	Harrow School	Yugoslavia
Wood, Donald	E.B. Hamel & Son	Foula III
Wood, Peter	Ford Motor Company Ltd	Yugoslavia
Woolf, Inigo	Berkhamsted School	Lakes IV
Wright, John	Bolton School	Lakes IV
Young, Raymond	Lloyd's Register of Shipping	Lakes II

STATEMENT

for the year ended

EXPEDITION ACCOUNT

INCOME

LAKE DISTRICT EXPEDITIONS (Fee £7.10.0)		
Fees	534.18. 2	
Hire of Huts	5. 5. -	
		540. 3. 2
FOULA EXPEDITIONS (Fee £20)		
Fees	916. 5. -	
		916. 5. -
ICELAND EXPEDITIONS (Fee £45)		
Fees	1,081. 7. 6	
		1,081. 7. 6
NORWAY EXPEDITION (Fee £42)		
Fees	590. -. -	
		590. -. -
YUGOSLAVIA EXPEDITION (Fee £42)		
Fees	710. 5. -	
		710. 5. -
UGANDA EXPEDITION (Fee £100)		
Fees	1,145. -. -	
		1,145. -. -
Excess of expenditure over income		258.12. 3
		5,241.12.11

EXPENDITURE

Food	267. 9. 7	
General Stores	32.17. 7	
Fuel	14.13.10	
Transport	68. 5. 6	
Sundries (inc. Maps)	101.13. 5	
Insurance	21.13. -	
		506.12.11
Travel & accommodation	478.13. 8	
Food	258.14. 8	
General Stores	14. 6.11	
Scientific equipment	41. 7. 6	
Sundries	40.13. 1	
Insurance	52. 6. -	
		886. 1.10
Travel & accommodation	827.10. 8	
Food	223.19. 2	
Freight	51. 4.10	
Equipment & Sundries	16.15. 9	
Administration	7. 7. 4	
Insurance	34.15. -	
		1,161.12. 9
Travel & accommodation	481.13.10	
Food	139. 3. 7	
General Stores	3.18. -	
Administration	6.15. 8	
Insurance	18. 2. -	
		649.13. 1
Travel & accommodation	427. 5. 8	
Food	158.16. 8	
General Stores	16. 1. 2	
Administration	19.16. 8	
Insurance	25. 7. -	
		647. 7. 2
Air Fares	1,125. -. -	
Food	115. 3. 6	
Transport in Uganda	42. -. -	
Film Costs	57. 8. -	
Sundries	50.13. 8	
		1,390. 5. 2
		5,241.12.11

OF ACCOUNTS

31st December, 1963

GENERAL ACCOUNT

INCOME

Grant from Brathay Management Committee	700. -. -	
Supplementary grant from Brathay Management Committee	343.18. 2	
Members subscriptions	104.18. -	1,148.16. 2
Sale of Ties	29.15. -	
Sale of equipment	18. -. 5	47.15. 5
Hire of films		44.13. 6
Publishers fees		26. 5. -
Insurance payments for equipment losses		27.19. 9
Excess of expenditure over income		455.11.10
		1,751. 1. 8

EXPENDITURE

Deficit from 31.12.62.		230. 3. 4
Administrative Expenses		
Secretarial assistance	75. 7. 3	
Postage and telephone	86. 4. 5	
Travelling expenses	22. -. -	
Stationery	64. 7. 6	
Miscellaneous	14. 2. 6	262. 1. 8
Equipment		
Purchase of Camping Equipment	138.16. 2	
Purchase of Scientific Equipment	23.16.10	
Maintenance of equipment	13.10. 6	
Equipment for huts	55. 3. 9	231. 7. 3
Films		
Completion of Foula film	104.14. 6	
Processing Uganda film	197.16. 5	
Insurance	1. 8. -	303.18.11
Printing		
Annual Report 1962	94.12. -	
Supplement on Uganda	72. -. -	
Duplicated "Account of Expeditions in 1963"	27. 1. -	193.13. -
Miscellaneous		
Bursary Grants	125. -. -	
Purchase of building materials, Foula H.Q.	70.18. 8	
Expenses of Iceland boys in U.K.	24. 6. 3	
Outstanding payments Uganda 1962 expedn.	33.17.10	
Insurance claims paid to boys	17. 2. 6	271. 5. 3
Deficit on Expedition Account		258.12. 3
		1,751. 1. 8

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