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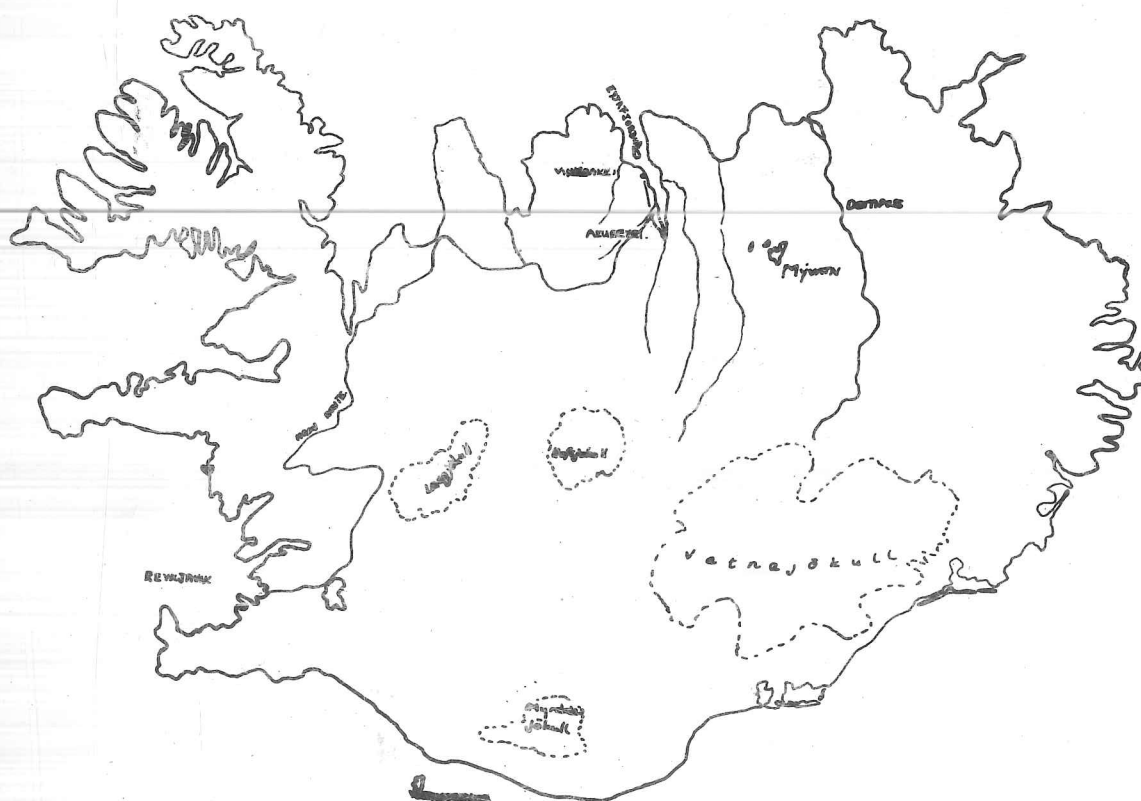
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SWANSEA

EXPLORATION SOCIETY



ICELAND 1969

(*35) : 91(08)
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Preliminary Report

ICELAND 1969

Preliminary report of U.C.S. expedition

Acknowledgements

We would like to thank everybody for their help in making this expedition one hundred percent successful. In particular we must personally thank Mr. Helgi Hallgrímsson and Mr. Paul Gunnor Olafsson for placing their research station at our disposal throughout our stay in Northern Iceland.

We are also indebted to the many firms, without whose help the expedition could never have taken place. In particular we must mention Messrs. Grieves & Longdin whose generous donation helped us over a very difficult period, and money from the Aluminium Wire and Cable Company. The Steel Company of Wales and Thyssens whose donations relieved some of the pressure on our own pockets. Further, we must thank the many firms that gave us free food and equipment and also those firms that made food and equipment available at reduced prices, full acknowledgements can be found at the end of the report.

Finally, thanks must be offered to the many people, too numerous to mention, both in the U.C. Swansea and in Iceland who contributed much advice towards our final preparations.

The acknowledgement however would not be complete without mention of Mr. Sven Johnsson, who provided entertainment and refreshment besides an unmatched humour, throughout our stay.

Members of the expedition

Dr. D. E. Cotton	Geography Post Graduate:	Driver and Administration
Steve Lawrence	Geography 2nd Year:	Chairman, Expedition Treasurer, and organiser.
Robin E. Pearson	Geography 2nd Year:	Equipment Officer, Medical Officer, and Sec.
Richard Webb	Botany 2nd Year:	Committee member
Clive Morgan	Zoology 2nd Year:	Committee member
Jeffrey Royden Jones	Economics 1st Year:	Photographer
Miss Pam Reynolds	Geography/Geology 1st Year:	Secretary
Miss Camille Walsh	Zoology 2nd Year:	Social Organiser
Miss Susan Rowe	Anthropology 2nd Year:	
Miss Susan Redding	Zoology 2nd Year:	
Miss Jane Hill	Sociology 2nd Year:	



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General Account

The idea was conceived in October, 1969, in the Union Coffee bar. Iceland was purely a chance decision but due to response, was accepted as a tenable venue. To begin with there were 20 potential members and so a block booking was made with Curry Lines on their M.S. Gullfoss. The first major problem was to try and get everyone together to discuss a plan of action. This proved impossible and so as a first step Dick began writing to firms to find out the response. This proved to be a minor success and so was adopted as a major operation. Robin and myself then proceeded to write in the region of 300 letters, though many of those were in the form of a stereo-typed copy, as this proved most efficient. This was followed by a series of more personal letters to such places as the Royal Geographical Society, Gilchrist and the Ford foundation. Having done this we then sat down to the task of sorting out the necessary equipment.

By Christmas, the list had been amended to 12 potential members and these now included Dave Cotton and landrover, an invaluable combination. Thus, armed with some form of transport and a destination we attacked the financial side of the problem. At first we had many major setbacks because the major foundations were unable to help us, but this disaster was averted by some very generous help from local firms.

Meanwhile, it took until the first week of the easter vacation term to determine just who in fact was going on the expedition. Last minute drop-outs had at one stage reduced numbers to nine but late arrivals managed to raise the final number to eleven. From then on it became policy to meet weekly but this seldom resulted in a full turn out and it is true to say that we were never all together as a team until we finally assembled to Leith docks on Friday, 27th June.

We had planned to take two landrovers as we felt this would be sufficient, however these plans fell through less than two weeks from departure date and nearly threw everything into chaos. At this stage it became necessary to borrow £100 from the Union to cover any absolute financial disasters and with this we were able to hire a vehicle from Godfrey Davis in Swansea, and transport much of our stores to Leith. This in itself became a major task and involved Dave in three days of almost continuous driving from Swansea to Leith and back and then to Leith again, but Jeff did act as an admirable co-driver. Finally, the remainder of the stores were ferried up to Leith dock by Land-rover and A35 van and all arrived safely at the allotted time, for once all together.

Having completed the expedition it is now felt that in many respects we made several mistakes which future expeditions of this nature would do well to avoid. To begin with we found it a constant problem to actually involve anybody. This largely resulted because at the time it seemed far easier to only have one or two people dealing with correspondence. However, this was nearly fatal for it meant a lot of hard work for those few, which apart from anything else took up valuable time that could have been spent studying. We also tried to write too many of our letters personally and it is believed that as most firms appreciate our problems, a duplicated letter is acceptable. In fact in some cases firms use the same methods themselves. Also, this is definitely a major task and should be tackled very early on in the proceedings as should the problem of applying to some of the authorities that give grants.

Travel is another major issue. Fortunately, we booked passage very early in the year. But even so at first we were only able to reserve first class births until later in the year, 3rd class accommodation became available. We were also fortunate in having a members' landrover at our disposal and in many respects this was essential. It may be advisable for members of future expeditions to acquire some form of cheap conveyance bearing the cost between them. Although this does mean increased costs it does give the team a saleable commodity on their return.

Land transport in Iceland is very efficient and for getting equipment to the north the local bus service was extremely helpful, accepting 3 very large cases of food. For more bulky goods the Icelandic Einskip steamship company are very good and we were able to send three more very large crates up to Akureyi for only £7, the only problem being a question of time. The boat takes only two days, but it only runs every 8, giving a time lapse of 10 days without most of our food.

Finally, with regard to transport in Britain it seems there is no really efficient way of getting food to any ports in time for departure day. B.R.S. and British Rail take far too long and as goods are often still arriving right up until the last minute this method is impractical. At short notice we therefore found the hiring of a 20 cwt. van from Godfrey Davis, the most practical. Admittedly it is costly but it did ship all our main stores, 6 crates, to Edinburgh, without any difficulty and was made available at short notice. This would not have been necessary however had we received the landrover we had been promised, but lack of finances made this no longer available and an alternative had to be found with only two days notice.

Perhaps the most controversial aspect of a small expedition of this nature is just who should be allowed to go and who shouldn't. In terms of numbers we found that to make a scientific success of an expedition numbers are probably best kept to a maximum of eight. However, our results have been encouraging and it seems well worth the effort to take more people, depending really on the area to which one is going. We can consider ourselves extremely lucky to have had a house placed at our disposal complete with electricity, running water, lavatory and a radio. Had we been restricted to camping for the entire time I feel that our medical officer may well have had his work cut out. It is very easy with such large numbers to get people splitting up into factions and we did tend to suffer from this at odd times. It was suggested that it would be fatal to take such a high percentage of women on the expedition but on the whole this is a fallacy. I won't say it was the fatality of their feminine charm and grace that added to our complete success but it was nice to have someone to supervise the domestic side of the operation.

From the point of view of aims of expeditions of this nature in general it must be remembered that supporting organisations on the whole want to see some scientific results. By our very constitution we do not exist solely as a society for the advancement of science but for the general advancement of personal experiences. Therefore, it cannot be a policy to restrict the members to scientists but must include anyone who wishes to go. However, we did find from personal experience that to have a scientific purpose does tend to make the expedition more sound and does provide its members with a goal, both prior to and during the expedition.

As a result we find that we have two results, firstly, there is a general opinion of a new country from many scientific and non-scientific angles and it is the purpose of the preliminary report to portray those. Secondly, there are the more specialized results that individual workers have collected. These will take far longer to collect and finalize but it is hoped to produce a final report with these in by the beginning of 1970

One last point to make quite clear, it is essential that some sort of final figure of who is going is made very early. At the latest this should not really be left until after the Christmas preceeding the expedition (assuming this is during the summer vac.) At all times a firm line should be taken and anybody that does not turn up to meetings or does not offer to help, and they should not have to be asked, should be axed. This may seem harsh but in many respects it is the one thing which we really failed to do and consequently involved ourselves in hours of unnecessary work.

The expedition: a summary of events

Everyone finally assembled on Leith Docks at about 3.30 p.m. and after the preliminary necessities of tugging through customs everyone settled down in the 3rd class bunkhouse of M. S. Gullfoss. We left Scotland glistening in the wake, and settled down to our first meal at 7.30 p.m. Any complaints about the bunkhouse were soon lost over the most pleasant meal most of us had had in a long while.

The first night at sea remained calm but the following morning once through the straits between Duncansby head and the Shetlands things began to liven up. There was little to do on the boat, apart from watching the birds and playing chess and cards and once the sight of land was lost we settled down to doing just that, whilst we anxiously awaited each meal. Sunday was very much like Saturday spent idling away the hours, sometimes green sometimes murky, but nevertheless cheery. Iceland first appeared as a towering mass through the mist early Sunday evening and the remaining hours of daylight were spent marvelling at the coastline of sea caves, stacks, beaches and the ice-cap Myrdalsjokull, with a vague glimpse of Surtsey vanishing into the darkness. Finally, we slid through the Westerman Islands on into open sea.

At 6.0 a.m. on the following morning some of us had our first glimpse of Reykjavik in all its dismal glory. Customs were straightforward but we made the mistake of not clearing all our goods from the warehouse until after 5.0 p.m., when everyone goes home, and so we had to pay for overnight storage in spite of the help of one foreman docker who practically runs the length of Reykjavik to get us clearance on time.

That night was spent in Reykjavik youth hostel, a wonderful establishment and thoroughly recommended.

The following day Dave and I set off by landrover for the north to try and establish a base camp. Meanwhile, the others relaxed in the wonderful swimming baths of Reykjavik. By a series of well placed questions we eventually managed to locate Mr. Helgi Hallgrímsson at Víkurbakki and were invited to sample our first Icelandic meal, a mixture of skyr and oats and water. Skyr, for those who don't know, is very similar to yoghurt only much more bitter and is eaten throughout Iceland with virtually everything.

The first night we settled down in our new home and enjoyed the first of many midnight sun's. However, the arrival of the remainder of the party the following day was heralded by a complete break up of the weather and for three days they were not aware of the beautiful mountain scenery that engulfs Víkurbakki on both sides of the fjord.

Originally we had planned to use the research station as a temporary base before moving onto a camp site further into the mountains but facilities were so good and location excellent so we decided to stay.

The research station is part of a private venture thought up by Helgi Hallgrímsson and Paul Olafsson and is the only one of its kind in Northern Iceland. It is in an excellent position being only 20m from the Eyjafjörður and is therefore ideally situated for studying all branches of natural science including marine biology. Besides this there is the chance to study the social structures of village life once the difficulty of languages has been overcome. This house comprises of some twenty rooms and in the attic alone there is room for nearly 16 people in sleeping bags. At the moment facilities are restricted by lack of finances, as the Icelandic authorities seem reluctant to finance a venture such as this so far north. However, even those facilities that are available make it well worth while any English Expedition going if they wish to carry on any form of research. Mr. Hallgrímsson told us he would welcome any enquiries on this matter and will give all the help he can. At the moment there are three very good microscopes available in two laboratories upstairs whilst in the basement there are three laboratories, one of which was adapted for use as a zoo, specimens were kept alive throughout our stay. Ultimately, Helgi aims to introduce a permanent aquarium, with continuous running sea water.

We were allowed to stay in the research station absolutely free of charge and were also given free electricity provided we did not exceed 3 kilowatts. Helgi also provided us with a radio, which could pick up the English

stations from 11 p.m. onwards. Our only cost incurred during the stay was a mere 400 krona to cover the cost of excess electricity.

The first few days were spent establishing sites for the various projects but with the weather being so bad very little work could be done. But finally, on the Saturday the mountains revealed themselves, so a trip to a nearby glacier was planned. Meanwhile, preliminary investigation found a fairly easy path up the nearest mountain Kotlufjall 964m., and from then on there was a continuous stream of people climbing up and down it. Needless to say our supply of Kendal mint cake really came into its own at this stage. At first we felt like guinea pigs at the research station as more and more people come to view the station. Finally, the arrival of a coach load of visitors gave Robin such a start that he dropped all our spaghetti down the sink, after having eaten that we really knew that the expedition was underway.

The following day, 8 intrepid explorers set off to 'discover' a glacier. This involved a 3 ml. hike beside a furious mountain stream until eventually rather frustrated four of us decided to wade across. The water was fresh from a glacier and ice cold and I make no apologies for the nip of medicinal whisky that we had on completing the task. However, to our astonishment who should come strolling up but Jeff. He had gone on ahead and found a bridge about 400 yds up river. The others thus crossed! Eventually, four of us reached the glacier without further mishap. The glacier was typical of its kind for the area and consisted mainly of neve ice flowing out from a cirque, and was heavily laden with debris. Calamity then struck, for whilst it had been assumed we would assemble at the head of the valley before returning to the landrover we somehow managed to miss each other and the party of three left at the glacier snout then proceeded to make a strenuous 3 hr. search for an assumed missing member, meanwhile I had joined the rear party and we had made our way back to the landrover. Fortunately, the only thing that was lost was a few tempers but it did lead to some hasty reorganisation of plans with regard to mountain walking and we made it a policy that nobody should be out on the mountains without having left instruction to somebody as where they would be an appropriate time for returning.

Back at the farm, 3 frantic females sat with their delicious meal slowly going cold on them whilst they considered ringing the police. How, we don't know but the thought was there!

Monday saw the splitting of the party to go about our different projects. Jeff and Robin went to Akureyri to do morphological mapping and the girls departed for Hrisey, a small island in the fjord, leaving Pam to supervise cooking for those that remained. Eventually, the food arrived from Reykjavik so we set about the arduous task of eating even better food than we had already.

The week was entirely devoted to work with everybody reassembling for the first of our great social events, Robin's birthday. It was impossible to obtain beer in Iceland so were forced into buying spirits from the government store in Akureyri. The evening was very successful, testing our vocal chords until 2.30 a.m. We also celebrated by catching our first cod from the fjord. These soon became a regular addition to our diet and often weighed up to 5 lbs.

Once more work resumed and three girls returned to the Island and their tent. It had been planned by one member, of the expedition, who shall remain nameless, to spend 3 days on the mountain alone in a tent. However, having established the tent at 2,000 ft. weather decided to take control and a thick mist descended on the Eyjafjordur. Whereupon, the said camper had to escort one of his bearers down to the research station for fear she would get lost. Unfortunately, trying to locate the tent, in mist of visibility about 3 yds., was an impossible task and tent and equipment had to be abandoned. But, put it down to providence for that night there was the worst blizzard that locals could remember, even the girls on the island nearly froze to death. The following day the mist lifted to reveal a heavy snowfall capping the mountains, but fortunately the tent and all the equipment was safe and quickly retrieved with the noble help of Mr. Pearson, in the midst of a hailstorm. Further attempts to remain at 2,000 ft. were abandoned.

With the usual change in weather, that Iceland is so fond of, temperatures immediately rose to 78°F and three heroes Dave, Dick and Robin set a presidency by forming the Artic swimmers club, together with suitable adjectives to describe the event! That evening was memorable in that it produced the most spectac-

ular sunset that we were to see throughout our stay and we celebrated by helping Sven, an Icelandic farmer, to collect in his hay crop. The job was not completed until 1.30 a.m. and still it was comparatively light.

The American moonlanding almost passed without us noticing. We were out fishing on the fjord when it suddenly occurred to us that this historical event was happening so we hastily rowed for the shore and ran for the radio. Most people had gone to bed by then but the intrepid few celebrated with great gusto and a glass of Dick's whiskey, which he had hoarded for the occasion.

The following day the 'islanders' returned frozen stiff and oblivious to the past event, we also had a newcomer arrive, an acquaintance made on the boat. Nick, a New Zealander, was studying at Bangor University, so, as a fellow 'Welsh' student he was most welcome. Celebrations this time were in the form of a dubious game of football, followed by the most farcical three legged race ever performed in Iceland and somehow managed to end in a grand finale of bodies thrown into the haybarn. Certain remarks must be made of a certain other 'friend' whose acquaintance was also made about this time. He had an annoying habit of bouncing on one's tent at about 6.00 a.m. every morning and screaming to be fed. Then he decided to attack Camille, obviously attracted by her mop of "Irish" red hair. After about a week we had the raven fairly well trained and he took great delight in stealing anything small enough, but he was defeated when trying to capture an unwound tape. His reign ended when Paul arrived with his dog Guerti, who didn't take too kindly to such intrusions.

The social highlight of our stay occurred on Sunday July 27th when at the invitation of Sven Johnsson, we attended a farmer's convention. The proceedings began with a church service, in the Lutheran tradition, the entire service was sung, but overall it suffered from lack of audience participation. This was followed by a concert Icelandic style. It began with a series of speeches by local M.P.'s and mainly concerned the merits of E.F.T.A., or so we were told. The highlight was choir from Akureyri, all women. It provided a lighthearted contrast to the awful drone of the speeches. This was punctuated by what we thought to be an atrocious outburst of slow-hand clapping but it soon became apparent that this is merely an Icelandic way of calling for an enchanter. A girl-guide provided entertainment for the young members and the show was closed by an alleged comedian, who somehow failed to raise a laugh even amongst the Icelandic audience.

The evening was spent at a dance. We had expected a form of barn dance so imagine our surprise when we were greeted by a beat group that could play anything from 'pop' to traditional dance music. The whole evening was improved enormously when Sven invited us all to coffee. This consisted of a complete supper of sandwiches, cakes and coffee and was a wonderful surprise. Finally, we ended up serenading the local people to our very own brand of 'welsh' singing and the response was so good that a group of them joined us and we harmonized together for almost three quarters of an hour.

From then on plans were made to go to Myvatn, and two days later the advance party, Dave, Jeff, Sue Redding, Camille, Jane, Robin and Dick set off for the lake. Those that stayed behind at last had a chance to do some serious work. The Myvatn trip was entirely devoted to site seeing and as they had the landrover with them they were able to make an epic journey across almost lunar country to visit Dettifoss, the largest waterfall in Europe and also see the wonderful gorge of the Jokulsa fjollum.

The stay in Myvatn actually tested our ability to endure a camping existence. This was made more of a task by the frequent dust storms and the presence of literally millions of midges, the name Myvatn means lake of midges. We again joined forces on the Saturday and Sue, Pam, Clive and myself saw the more localised sites on foot and by the celebrated Reykjahlid bicycles. We all managed to visit the sulphur pits at Namaskard and the hot springs, where one is able to enjoy a hot bath absolutely free and with constant hot water, an experience which if nothing else has made us one of the cleanest expeditions in existence. Visits were also made to the Black Castles, a collection of natural arches and battlements composed entirely of lava and for as long as we could bear it we visited the lakeside to see similar features within the lake.

Whilst the final party had been lasting out their stay at Myvatn the others back at the research station, began to pack for home. On our return the landrover was packed and Dave and Jeff set off back for Reykjavik, to complete some scientific research. Further work at the research station was continued up until the Friday before we left for Reykjavik.

Moving out was a major operation but the girls made an admirable attempt at spring cleaning the research station. We were again indebted to Paul for loan of his Bronco to transport the luggage to the bus stop and after our farewells we left for Akureyri on the local bus. The poor bus driver nearly had a heart attack when he saw nine bodies plus rucksacks and crates waiting to clamber aboard his bus, but in the Icelandic tradition, he managed to cram us all on.

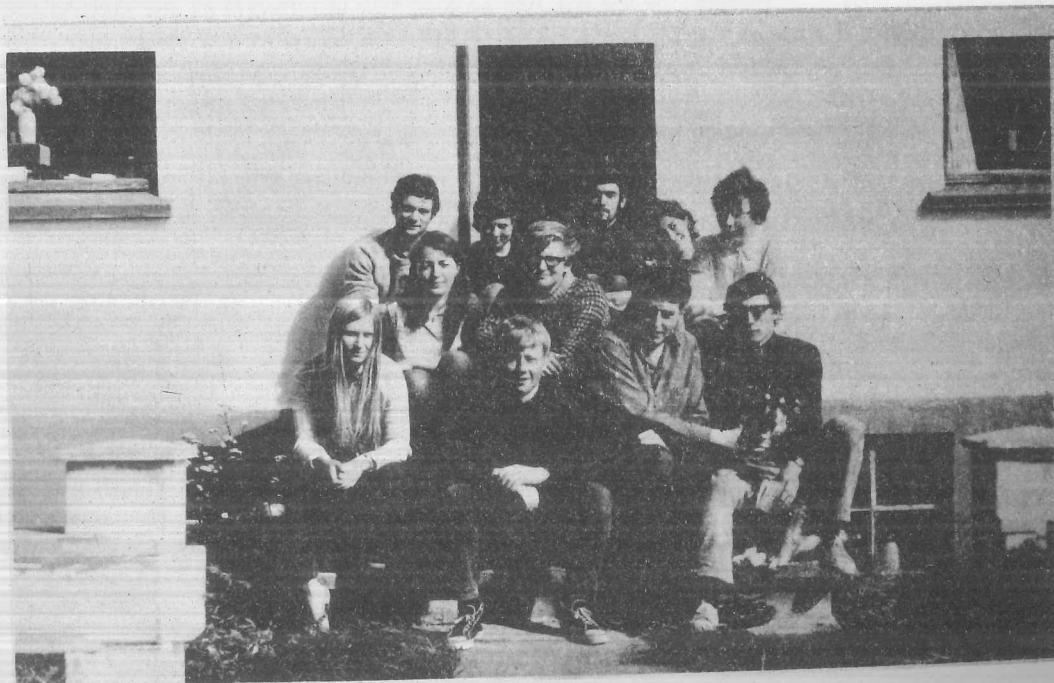
The Sunday evening was spent in Akureyri youth hostel, which again was an excellent establishment, and at 9.30 p.m. we set off for Reykjavik.

The welcome in Reykjavik was typical, it was raining and Dave informed us that it had done so for the past 6 days. However, undaunted we awoke to brilliant sunshine the following day and most of us spent the time shopping or lounging in the wonderful outdoor pool where for 15 krona or 1/4 one could enjoy a hot shower, a swim in a warm pool plus the added attraction of hot baths beside the pool and ice cold showers. All this and no time limit.

On Wednesday 13th August, we boarded the M. S. Gullfoss and bade a very fond farewell to what we all agreed is a really beautiful country.

S. Lawrence, based on a
diary kept by R. Jones.

The eleven members of the expedition at Vikurbakki



SCIENTIFIC REPORTS

Ornithological Report

Ornithology did not have an official place in our programme of work but as two of us spend much of our time birdwatching on Gower we decided to make a note of everything we saw and the location. This is by no means a complete list for we feel sure that there are many species that we were unable to identify however, in this respect the birds identified on the outward journey were all confirmed by Mr. Bobby Tullloh of the Shetland R.S.B.B. who gave us considerable help. Perhaps for me the highlight of the outward voyage was the sighting of a flight of red throated divers, but neither of us had seen manx's sheerwaters, brunichs, gullimots or storm petrels before so all in all the whole crossing was very profitable.

Once on our own, in the north, life became rather more difficult and actual positive identifications became less and less common. Perhaps most annoying was the fact that we both thought we identified a kestrel near Blonduos in the north, on separate occasions yet this seems most unlikely as most books put them as vagrants, especially so far north.

The Eyjafjordur was particularly interesting for besides its residents such as arctic terns, eider ducks, black headed and black backed gulls it also had quite a few visitors, which although not rare were unusual for this latitude. Examples of these include fulmars which usually only come into the fjord in the late evening and tended to accompany storms, and also oystercatchers. For us the best sighting on the fjord was a glaucous gull, again not particularly rare but certainly unusual to the Eyjafjordur.

Among the birds on the slopes of Kotlufjall perhaps the most spectacular sight was a dog fight as it were between two arctic skuas and some whimbrel. Whenever these birds appeared there always seemed to be something sinister about their presence.

I personally had the good fortune to witness a full display by a golden plover of the broken wing act. It happened after having nearly crushed a golden plover chick, I picked him up to see if he had survived. His mother swooped in low and proceeded to roll about the floor for a full ten minutes until she was absolutely sure that her chick was safe.

Ptarmigans, usually abundant in the area, were virtually absent and apart from a flight of six on the summit and one at the foot of Kotlufjall none were seen. Also we had been told to look out for red necked phalaropes which were supposed to be common but I only saw two and Robin didn't see any.

Our trip to Myvatn can hardly be classed as a major success for we saw comparatively few species. This was largely due to the lack of time available and the discomfort caused by midges. The most rewarding sight was probably a flock of 67 whooper swans gently gliding across a secluded lake, but apart from these, and the Barrow's golden eyes, we were relatively disappointed.

The complete absence of birds of prey, apart from our dubious kestrel, was more than a little disheartening but it is worth mentioning that Dr. Hallgrimsson has a complete collection of Icelandic birds in his museum, of natural history, Akureyri, and this is well worth the visit.

On the return journey there was one spectacular incident when I had the good fortune to witness a young and an adult great skua hound a kittiwake for at least 10 mins. before the adult finally pounced and killed the kittiwake, in the wake of the M.S. Gullfoss.

All in all we saw 48, species which doesn't amount to very many but for us most of these were the first ones we have ever seen, so from that point of view it can be counted a success.

A complete list of the birds, and where they were seen will follow.

S. Lawrence, R. E. Pearson.

	Myvatn	Eyjafordur	Vikurbakki top	Akureyri	Reykjavik-Akureyri	Leith-Reykjavik
1. Artic terns	x	x	x	x	x	x
2. Lesser Bl. back						x
3. Greater Bl. back		x	x			x
4. Red throated divers						x
5. Manx Shearwaters						x
6. Guillemots						x
7. bl. guillemots						x
8. Brunnichs						x
9. Puffins						x
10. Shags						x
11. Cormorants						x
12. Herring Gulls		x		x	x	x
13. Common Gulls					x	x
14. Blackheaded		x				x
15. Kittiwakes		x				x
16. Fulmers		x				x
17. Eider Ducks	x	x		x	x	x
18. Storm petrels						x
19. Redwings	x			x	x	
20. Oystercatchers		x			x	
21. Redshanks	x	x	x	x	x	
22. Golden plovers	x	x	x	x	x	
23. Kestrel					x?	
24. Redpolls				x		
25. Whooper Swans	x			x		
26. Mallards	x			x		
27. Dunlin			x			
28. Rednecked pharl.			x			
29. Ringed plovers			x			
30. Ptarmigans			x			
31. Artic Skuas		x	x	x		
32. Great Skuas		x	x			x
33. Ravens		x	x		x	
34. Glaucous Gull		x				
35. Wheatears			x			
36. Snowbuntings		x	x			
37. White Wagtails		x	x			
38. Scaups	x					
39. Tufted ducks	x					
40. Garganeys	x					
41. Slavonic grebes	x					
42. Barrows goldneye	x					
43. Goldneye	x					
44. Teal	x					
45. Whimbrel	x		x		x	
46. Meadow Pipits	x		x			
47. Shoveler	x					
48. Blackbird				x?		

Vikurbakki is situated on the old shore line some 10 m. above the present shoreline of the Eyjafjörður. The region in general is one of extensive glaciation and the fjord is bounded on both sides by steep sides basalt plateaus reaching 900 - 1000 m. The dominant features are the huge U-shaped valleys, exhibiting small cirque glaciers some pyramidal peaks and arrets. The valley floor has a number of small features, the most prominent being large hummocks of glacial debris which form kame terraces and eskers. The shore itself has very good examples of small outwash plains that are now fed by well braided streams and in several places these have formed haffs or sand-bars along the coast.

The main purpose of my study however was not these macro-features but the abundance of micro-periglacial features that dominated the surface. The main feature of this type to be seen throughout Iceland are thufur or earth hummocks. These are literally mounds of earth that have presumably been caused by frost activity which has led to up-heaval of fine soil material, which in this area is comprised almost exclusively of loessial deposits, including tephra or volcanic ash. In no examples were these found to contain any stones and are thus classified by Washburn as non-sorted polygons. However, the main part of my work was not concerned with these as this is dealt with more fully by Dr. D. E. Cotton elsewhere in this report.

My main field of study was that branch of patterned ground phenomena known as stone polygons. In the area in general, there are two main types. Firstly, what I describe as micro-polygons or 'floating' polygons and secondly macro-polygons or 'anchored' polygons. I use these terms purely for this region because in other regions the term macro- would be more appropriate for tundra or frost wedge polygons, which compared with those studied here, are much larger.

Polygons were studied in four main areas. Three of these were below 100m. and consisted only of 'floating' polygons and the remaining site, Kotlufjall summit 964 m, had examples of both 'anchored' polygons and 'floating' polygons in association. At all sites notes were made on the development of stone stripes from the polygons on slopes.

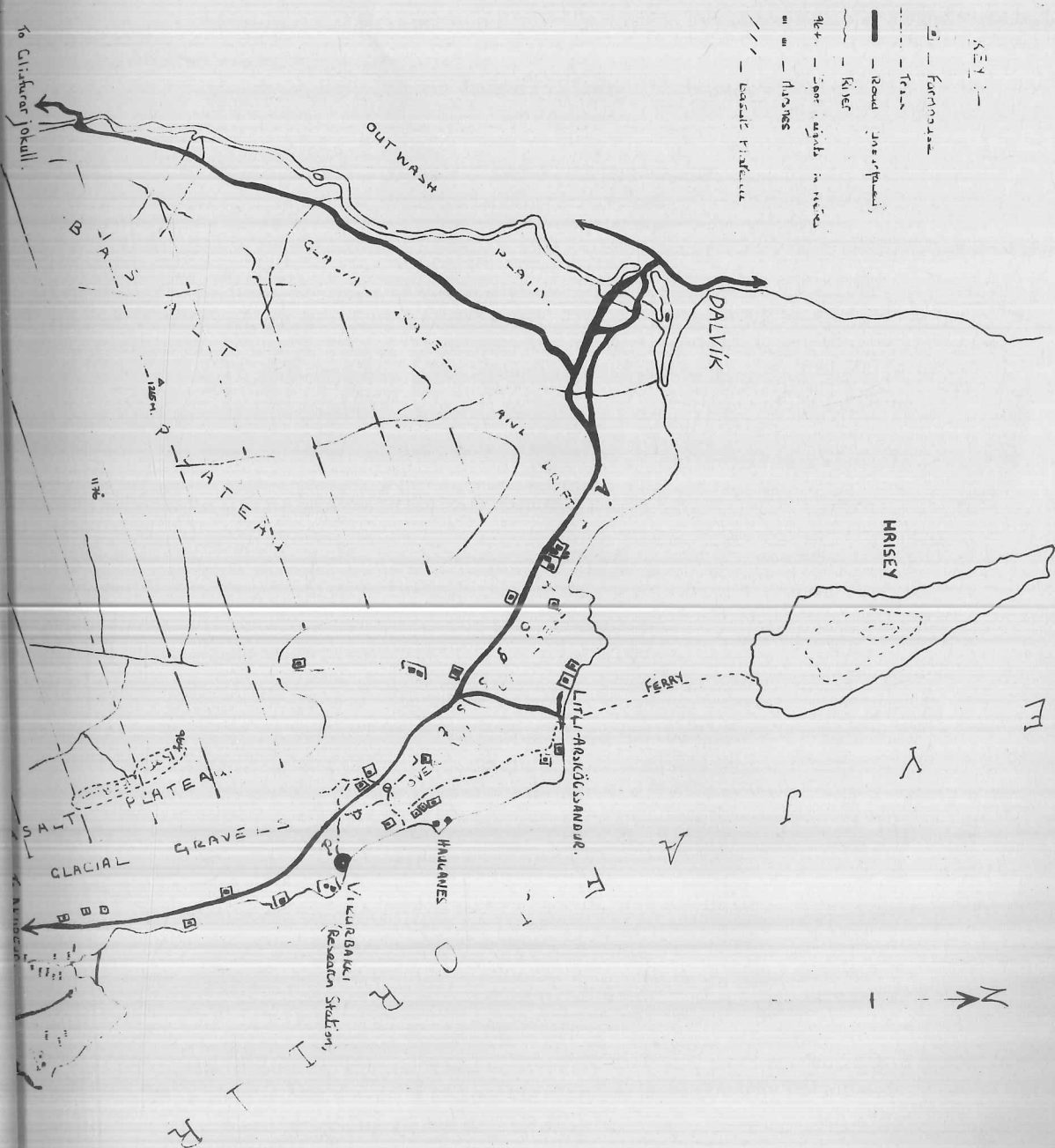
Of the three lowland sites studied there seemed to be a close correlation between size at each site and the respective feature on each slope. In general the pattern that emerges is that thufur dominates the flattest land and more especially the hollows where soil has been able to accumulate. It therefore seems obvious that quite a depth of soil is necessary before these will develop and a depth of at least 1 m seems likely. Where the ground begins to slope there is immediately a decrease in the amount of soil present, due primarily to the processes of solifluction. At this point the earth hummocks give way to non-sorted mudpolygons, and to all intents and purposes these resemble mud cracks, the average diameter of the polygons being about 15 cms. As slope increases 1° - 2° the soil depth becomes thinner and stones from the gravel deposits below are brought to the surface by the mechanics of frost heave and begin to collect in these cracks and form borders to the polygons. Ultimately, this results in the formation of sorted stone polygons. These average about 25 cms. in diameter with central fines of about 10-15 cms. The depth of the stone borders are usually in the order of 2-5 cms. hence the name 'floating' polygon. Where large stones are present on the surface these may become fragmented by frost cracking and the resultant debris become part of the material found in the stone border. The fines themselves in most cases were found to be virtually stone free and reached a depth of some 400 cm. before the underlying rock was reached. The underlying rock material in this case being the deposit of glacial debris.

Once slope reaches about 5° the polygons become noticeably elongated and begin to form sorted stone stripes. Very little work was done on these but they were found to have an average 'fines' of 10 cms. in width and stone borders are about 8-10 cms. Again the depth of these borders was never more than 5 cms. But the soil and the fines were usually only 10-15 cms. deep, illustrating the decline of depth of soil with the increase of slope.

On the summit of Kotlufjall, 964m the pattern was somewhat different for here the polygons are much larger and, in most cases, averaged a diameter of 1-2 metres. They are referred to as 'anchored' because the borders reach a depth of at least 25 cms. and probably more. Little excavation was possible at this height due to the impossibility of transporting the necessary equipment to such a site for the short period that it was impossible to work there.

There were basically three types of 'anchored' polygons present. All are well sorted and consist of heavy blocky stone borders and central fines with a large amount of stones scattered over the surface. The basic distinguishable features of the three main types are that one has raised borders and depressed 'fines', another type has raised borders but the 'fines' are also raised and the third, and most distinctive, has raised fines and depressed borders, with vegetation usually growing upon them. All are found on slopes not exceeding 5° and anything above this immediately resulted in the formation of stone stripes. These stone stripes all eventually coalesced to form a huge outflow to the nest of the mountain. It is difficult to comment further on these features because the work has not yet been fully sorted out but from some preliminary observations it seems that there may be a case for suggesting that these features are in fact fossilized and therefore no longer developing. This could only be confirmed by much deeper excavation and analysis of climatic statistics in association with experiments to show the circumstances under which the features are likely to occur. A full discussion of the features studied and the conclusions reached will be found in a B.A., thesis to be completed, in the U.C.S. natural sciences library.

NORTHERN ICELAND — THE LOCATION OF THE EXPEDITION



THE URBAN MORPHOLOGY OF AKUREYRI

R. E. Pearson

The main purpose of the project was to morphologically map the town of Akureyri. That is map it in relation to its form and function and trace its development. This could then be compared to similar work done on British towns of a similar size to Akureyri.

Akureyri is interesting in the fact that though only a small town by British Standards (10,000 population) it is the regional centre for northern Iceland and thus it displays many of the function and characteristics only found in Britain in much larger towns such as Swansea. Its situation on a deep fjord enables it to carry out important port functions, which has obviously encouraged its growth.

Maps of Akureyri showing the position of every building in the town were obtained and every building numbered.

Then a system of classification was devised to illustrate the form, function and status of each building.

For the form the following were used:—

1. Number of storeys the building has
2. What the building material was
3. What the roofing material was
4. Whether the building was detached, semi-detached or terraced.
5. Whether a large, medium or small garden was present
 - (a) large garden being 900 sq. metres plus, a medium garden being between 100 metres sq. and 900 sq. metres, and a small garden being any cultivated plot of land less than 100 sq. metres.

The function of each building was then categorized as one or more of the following:—

1. Single family dwelling
2. Flats
3. Retail establishment
4. Factory
5. Warehousing
6. Offices
7. Religious Establishment
8. Education
9. Recreational
10. Catering and Hotels
11. Miscellaneous

The status of the building was then classified on its condition as:

1. Good
2. Fair
3. Bad

This was, of course, very subjective in that no definite criteria could be used except overall condition, state of paintwork, brickwork, windows etc.

This system was used on every building in the town. The maps were found to be extremely up-to-date. This is probably accounted for because the long, dark winter means that there is only a short building period.

However, the town is expanding and much of the residential area has been built within the last 15 years. In all the areas, except the oldest and poorest, (the two being normally synonymous), housing was extensively planned with large gardens and large single or two storey building, which were often maisonettes, industries mainly found in the poorer areas near the waterfront, though a new industrial estate had been built on the outskirts of the town close to the new housing estates.

Much of the data collected has yet to be analysed and it is hoped that when it is certain patterns will become apparant, such as the stratification of upper and lower class houses, and the location of a central business district as a distinct area.

It is also hoped to observe whether any of the classical town development theories such as Burgess's concentric zonal theory or Hoyt's sector theory or Harris and Ullman's multiple nucleir theory, are applicable in the case of Akureyri.

At the moment it can be stated that the poorer areas of housing are to be found in two distinct areas either side of the town centre, close to the waterfront. From one of these, the sector north of the town centre, housing can be seen to improve gradually towards the new modern estates. The other however was separated from the rest of the town by the hospital and public gardens.

In all a modern fast growing town of interest to the urban geographer because of its small size and diverse character.

PRELIMINARY REPORT ON THE RESEARCH CARRIED OUT ON THUFUR AND POLYGONS
IN NORTHERN ICELAND – JUNE – AUGUST, 1969

Dr. D. E. Cotton

The primary object of this visit to Iceland was to obtain quantitative data concerning polygons and thufur and to examine a series of soil cores which had been planted in thufur in southern Iceland in 1967. It was hoped that the cores, which were originally straight insertions of black volcanic sand, would show evidence of movement. This hope was based on the fact that the winter of 1968 was the most severe of the last decade. Despite this, however the cores were found to be intact and no displacement was discernable. This, though disappointing, is of considerable interest, for as the cores were both vertical and horizontal, no material has moved into the mounds in this two year period. As it is widely known that such thufur form within a decade movement might have been expected in a severe two year period. Absence of movement suggests that the large thufur, which were impregnated, may well be in equilibrium with the environment and currently experience no movement. This would accord with the simple flexures found in the more recent tephra bands. In order to determine if there is a growth and maturity stage which the mounds experience, many more cores have been installed in thufur of a whole range of sizes. These will be exhumed in about five years time. About 30 of the cores put in, in 1967, are still undisturbed and will also be available for further examination.

The work in the north was mainly concerned with the effect of slope, water table and aspect on thufur and their vegetation, work was concentrated on a particular arrangement of thufur which displayed a "catena" arrangement. The hilltops are bare and often show signs of incipient polygon development. Abruptly beyond this there was a small depression which marked the point where thufur commenced. The mounds on the upper portion of the slope were of fairly small amplitude and were well vegetated with *Dryas*, *Empetrum*, *Vaccinium* and *Calluna*. Downslope the mounds became progressively larger and in the mid-portion of the slope some possessed eroded crests. On the lower slopes the mounds were even larger, attaining elevations of 60 cm. and lengths of up to 3 m. and became progressively more eroded as their size increased. Immediately below this zone thufur are completely absent and there is a band of bare soil following the contour of the slope. This band is usually about 2–3 m. in width and is locally known as flag. Below the strip of the flag there was usually a sharp break of slope with large elongated mounds apparently forming a lobe, which enclosed the flag. Beyond this marginal lobe the mounds rapidly diminished in size and within a distance of only 5–6 m. only small marsh thufur (about 15 cm. in height) were present. Extensive measurement and surveying of these lobes was undertaken. The dimensions of the mounds in different parts of the slope were recorded and subjected to simple statistical analysis. This demonstrated that the mounds immediately above and below the flag cannot be differential as regards their amplitude. ($t = 1.96$ with 48 d.f. and significance is not obtained at the 5% level). Significant difference were however recorded for the mounds at the top and base of the slope. ($t = 4.23$ with 65 d.f. giving significance at 0.001 level).

Measurement of the degree of erosion and its aspect were also made on this section of slope to determine how much the apparent erosion of increased downslope, and whether the type of erosion was random, gradational or attributable to some elementary factor as exposure, vegetation or water table. The long and short axes of the mounds were measured all over the slope and elongation ratios will be worked out to see if the mounds become more elongated as the slope increases in steepness.

Besides surveying the flag and establishing a network of fixed points, about 100 sand cores were emplaced and surveyed. These were located at strategic points throughout the lobe. It is hoped that these will allow the rate and type of movement within the flag to be determined.

A moderately detailed survey of the vegetation over this slope was made using line transect, and belt transect with a 25 cm. sq. sampling area. An estimate of cover was made using the Braun-Blanquet scale. The limitations of this method are appreciated but it is thought that it should be sufficiently accurate to enable meaningful differences to be established. The data will be also subject to association analysis. An interesting preliminary observation was that the *Betula nana* at the top of the transect was significantly older than that present in the lower sections. (Age was determined by counting the growth rings).

Eight soil sections were taken at various points along the transect. It was found that the upper areas had orange/yellow soils, the lower marsh zone grey/black waterlogged soil, whilst over a short section which nearly coincided with the flag a strong red tinge was present. As yet no scale sections have been drawn of this transect but the change from ferric to ferrous iron correlates strongly with the type of thufur present and this would seem to confirm that there is a strong correlation between the form of the mounds and the underlying ground water conditions.

The spatial distribution of mounds on one sight was also determined and this data will be analysed by the Clark-Evans point distribution technique, a dozen soil cores were also emplaced in this spatially survey area of mounds to enable comparison studies to be made with the cores in mature mounds in southern Iceland.

PRELIMINARY REPORT IN BOTANY

R. Webb

Two major botanical projects were undertaken during the expedition, these were the collection of plant material and an ecological investigation of thufur.

Plant collecting was carried out for the arctic herbarium at Lancaster University, under Dr. G. Halliday, this consisted of flowering plants only. Bryophytes, lichens and marine algae, as well as flowering plants, were also collected for the herbarium at the University College of Swansea, under Dr. Q. O. N. Kay. The collections were supplemented by numerous plant photographs.

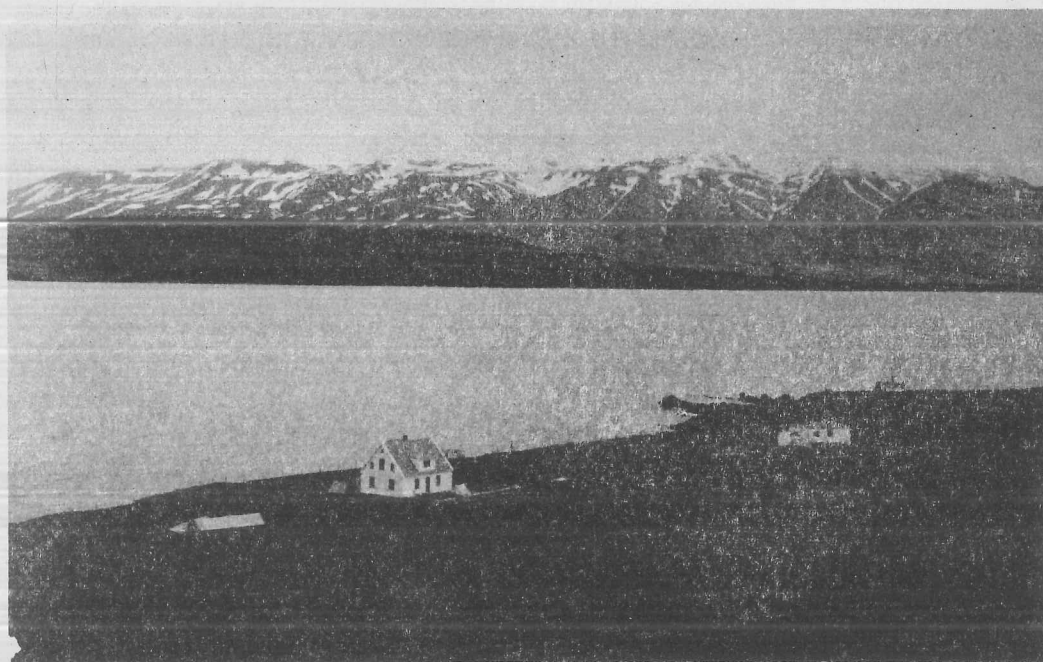
Collecting was carried out on as wide a variety of habitats as possible. These included basalt sea cliffs, thufur heath, boulders scree, high altitude scree, streams and bogs, lava flows and sulphur springs.

Over sixty species of vascular plants were collected, as well as thirty lichens and over thirty five bryophyte species.

The ecological investigation of thufur, or frost mounds, which are an important factor in Icelandic agriculture, consisted of making plant association tables, vegetation and micro-contour maps and transects in order to find the more characteristic and dominant species in the community. Soil profiles and sections enabled the structure and morphology of the thufur to be worked out, together with possible hypotheses as their origin and development.

Similar data was collected at high altitude, so that comparisons could be made.

Some of the work on thufur was carried out with Dr. D. E. Cotton of the department of geography at Swansea.



A general view of the research station looking east across the Eyjafjörður

ZOOLOGY REPORT

C. I. Morgan

Work during the first few weeks was concentrated on compiling a sp. list for the area of fjord in front of the field station. Collections were made at mid and lower shore levels, following the tide down the beach to lowwater. The main sampling areas were directly outside the station, 200 metres along the beach towards the village, and on the point. Some specimens were also obtained from the shores of Hrisey.

After a period of exceptionally stormy weather, followed by high on-shore winds, much debris accumulated on the strand line and produced quite a diversity of animals. Some caminaria holdfasts were also dragged up from 20 – 25 metres and subsequently preserved in sea water in the lab. to yield more animals. In conjunction with the collecting, specimens were kept alive throughout the period of our stay in a bath of sea water in the basement.

58 sp. of animal were identified; about 20 sp. were brought back to Britain as preserved specimens. At the time of our departure 31 sp. of animal were to be found in the bath.

Transects were carried out on the shore, outside the field stn., at two places on the point, and on Hrisey shores; shore profiles were also made along the point transects. Transects are able to give quantitative values of abundance of sp. and also indications of their distribution.

From the end of July onwards I spent most of my time collecting moss samples. These were quickly dried of excess moisture and sealed in polythene bags. I intend carrying out studies on the moss interstitial fauna.

Samples were collected from:-

1. Top of Kotlufjall (960 metres)
2. Kotlufjall – ski slope (750 metres)
3. " – thufur (300 metres)
4. Kotlufjall – rough grazing (250 metres)
5. Kotlufjall – transect, 170 metres long incorporating rough grazing, thufur and sphagnum bog area. (175 metres)
6. Cliff Top – 150 metres from field stn. towards village (3–4 metres above sea level)
7. A 5m square in thufur on hill above field station. Samples taken from on top of Thufur and between them.
8. Samples from Cliff face, Eyjafjordur.
9. Lava desert at Myvatn – result of the most recent eruption, circa. 1700.

I also intend collecting samples from localities in Ireland, Pembrokeshire and the Gower Peninsula during the coming months. I intend to carry out counts on Protozoa, Rotifers and Nematodes and will also consider Tardigrads.

Results I hope will show whether or not differing frequencies of abundance of the different groups occurs between different habitats and regions. Dr. P. King of the Zoology Dept., U.C.S., is supervising my project.

Shore work carried out in conjunction with Miss. C. Walsh, Miss. S. Redding.

REPORT ON WORK CARRIED OUT BY

Pam J. Reynolds

Iceland is situated on the North Atlantic Ridge which runs up the centre of the Atlantic Ocean, and on which is also situated some more recent volcanic activity, of Surtsey, and little Surtsey. Present day Geologists, are very interested in this ridge, for convection currents within the earth's mantle are gradually pulling at the ridge on either side, movement along this ridge has accounted for the position of Iceland. Thus newer rocks are found in the centre, than at the east and west of Iceland, and it is believed that eventually Iceland will split into two: Iceland therefore is almost entirely volcanic in origin, with only narrow coastal areas of recent sediment.

Most of my time was taken up with work on thufur (with Dr. D. Cotton). However I did find time to examine some of the geology of the area around Vikurbakki, and to collect samples of rock found there and at Myvatn. I was mostly interested in examining mountain and coastal outcrops of rock, most of which were fine-grained basalts of varying ages. The most recent rocks were found in the lava desert of the interior, and to the northern east of Myvatn. Here too, some interesting minerals were found in particular sulphur, calcium sulphate, oxidised and reduced iron bearing rocks, But most work was concentrated on the older basaltic rocks close to the research station. These showed excellent examples of columnar fracturing and weathering and also various environments of cooling.

Although my investigation was somewhat limited, it has shown that there is a great scope for keen geologists to work in Iceland, and feel that they are at least formulating primary ideas, and not disproving someone else's.

SOCIOLOGY/ANTHROPOLOGY REPORT

Miss. J. E. Hill and Miss. S. Rowe

During the period of this expedition, fieldwork was carried out related to a project which is an essential part of our degree course. This fieldwork met with considerable difficulty in the first few weeks, primarily because of the lack of English-speaking persons in the area.

This problem was overcome by the discovery of 2 key informants, the schoolmaster, at the village of Hauganes, and the priest on the Island of Hrisey. Two separate pieces of fieldwork, were carried out with the help of these two men, one on the extent to which the social structure on a small land was centred round the fishing industry, and the other on the role of the various community social organisations and the relative participation of the population within these, in the district around Hauganes.

Apart from these two key informants, the population of the two villages studied did not seem eager to help us or to be friendly towards us. There was a few notable exceptions in that the people with whom we came into close contact did lose some of their reserve, and some of the children proved susceptible to bribery and corruption, in the form of chewing gum.

We came to the conclusion that we had undertaken a nearly impossible task in attempting to study the social structure of a people with whom we could not communicate, and that we had been very lucky in obtaining as much cooperation as we did.

FOOD REPORT

Due to the tremendous response from food firms we feel it is vital that we give an accurate summary of the food used and its value. Firstly, I would like to make it quite clear that everything taken has its value and we were short of nothing, though in all fairness we did have too much of some things but this is far better than being left short.

Firms that gave food will be reviewed first, and then food that was obtained at cost price or otherwise.

The British Egg Marketing Board supplied 14 lbs. of dried egg and this proved to be more than enough, in fact 7 lbs. would have been adequate. This was used in many things especially pancakes and our own very special form of omlette, and proved a good substitute for fresh eggs, which were not really obtainable.

Although not a food product Bryant and May matches were of vital importance and all put to good use. and their lifeboat matches really do light under any conditions.

Cerebos beef currys were particularly useful for field work as they can be easily cooked in their packets and all were therefore used.

Empire dairies provided 20 lbs. of prepacked cheese and this kept surprisingly well, though we ensured that it was eaten within one week of arrival. It was extremely useful during fieldwork as a lunchtime snack. Fardons chutneys were a firm favourite with everybody, and if we bought any back it was because we didn't have enough time to eat them all. Like Flag sauce, these tasty chutneys graced every meal. The tomato chilli, though usually found to be rather warm, found a favourite home in Mr. Morgan's curries, which have a very special claim to fame. Glaxo's complan and ostermilk were intended primarily as emergency rations and also in case of illness. In the first case they were not used, in the latter case complan was used to relieve a vitamin deficiency that developed in one member. Towards the end of the journey ostermilk became a substitute for other dried milk that had been exhausted but on the whole was found rather difficult to mix. It is probably that a small quantity of both items would have been sufficient but then it is impossible to see beforehand that circumstances will not necessitate their inclusion.

Glengettie gave us 30 lbs. of tea. Unfortunately, nearly 20 lbs. too much, mainly because we had such a wide choice of beverages. I personally found it a splendid brew but as I drank virtually nothing else, I may be a little biased.

At first it was considered that Heinz tinned food may have been too bulky but having consumed our first meal of christmas pudding, opinions soon changed. Disregarding personal tastes the only thing we regretted taking were the tomato soups and these only because we had so many packet soups and could have had more christmas pud.

Hugon supplied us with 24 lbs. of suet pudding which regrettfully was not taken full advantage of. Pam's suet pud. was excellent but we only really needed 1 tin. Again, this was because we had so much of everything that we were able to choose our meals freely.

McDougals flour was a great asset and found its way into omlettes, fritters, pies and birthday cake, but in spite of all was more than enough. Our only complaint about Nabisco breakfast cereals was that there wasn't enough. We usually had a choice of porridge, weetabix, omlettes, and cereals every morning and the cereal soon then became consumed.

Nestle's provided coffee free besides countless things at cost price, but 6 lbs. was only just enough and had to be rationed towards the end and unfortunately some people took to drinking my tea.

Oxo cubes were widely used in nearly all our meals for stock and Clive even managed to put them in his curries. Obviously a gross was sufficient but if we had more we could have used them.

Strangely, no one thought we would need washing powder, but without our Daz and Fairy Snow, supplied by Proctor and Gamble we would have been lost. We could have managed with half the amounts given however, but no one's complaining about that.

Both Shippam's and Sutherlands gave us paste spreads but it would be unjust to separate them as both provided ideal additions to the lunch pack in the field, as well as adding to the taste of Ryvita at breakfast and evening meal. Shippam's also provided some chicken pie fills of different types and these inevitably found their way into Clive's memorable curries.

Tate and Lyle provided sugar and this had many uses and although it seemed rather a lot of the 120 lb. taken only 10 lbs. came home. Unfortunately the golden syrup never reached us, but probably because it was delivered to the college canteen and mislaid.

Unigate supplied 28 lbs. of dried miracle milk powder of all which was consumed, but needed careful mixing in warmed water, otherwise it was very good.

Uniliver's contribution must necessarily be an asset to any expedition. The consignment of 7 doz. curries were used chiefly in the field, at the youth hostel, and made life very easy. Surprise peas and beans were exceptionally good and had we not brought supplementary dried vegetables we could have used more and ended up rationing them. Batchelors soups were ideal for camping, in the field, and 10 doz. were just about sufficient. Finally, we all used Lifebuoy and Gibbs S.R. to their full extent.

A. Wander provided us with 12 lbs. of Ovaltine and 7lbs of drinking chocolate and anyone who didn't drink these before soon found out that they made an excellent nightcap and more could have been used. As could the instant non-fat milk, which while it lasted, was simple and speedy to use.

Weetabix were excellent at anytime and 36 pkts. were only just enough.

Surprisingly, we didn't all grow beards as Wilkinson sword razor blades were an ideal addition and give an excellent shave.

Finally, perhaps the most successful of our possessions was Wrigley's chewing gum. Not only did we chew all day long, especially in the field but it also made an excellent currency with the kids. Icelandic children that we encountered soon found they had miraculously learnt how to speak English when a packet of chewing gum was produced. At first 36 boxes seemed too much but we feel that no expedition should do without it, and we ate the lot!

That about sums up the free food but we still had quite a lot to obtain which we considered essential. Thus, we bought the following: from Kavli we bought 3 x 48 x 8 oz. tins of cheese and those proved a very good buy though 2 x 48 tins would have been enough but at 1/6 per lb. it was well worth it.

Virtually all our vegetables were supplied by F.M.S. products Ltd. at 15% discount. As usual we overestimated and could have probably managed with 15 lbs. of diced carrot instead of 20 lbs. 4 lbs of cabbage instead of 8 lbs. 20 lbs. of chicken and vegetable pie filling instead of 24 lbs. and 20 lbs. of potato powder rather than 40 lbs. On the other hand 16 lbs. of apple slices were sufficient but we could have had used more, and the potato flakes were far easier to prepare than the powder and so 42 lbs. of flake would have been best. All these foods were very good when reconstituted and we thoroughly recommend them.

Ryvita provided an excellent alternative to bread but bread was available cheaply, otherwise more would have been necessary.

Butter would have been expensive but Van den Burghs expedition margarine 3/6 for 2 lbs. was a good substitute and 50 lbs. was just sufficient to be extravagant. 10lbs. of cooking fat at 2/- per lb. was only just enough but again very good.

Having thus selected the main food requirements we then went on to select a number of goods which were mainly intended as emergency rations but due to circumstances became luxuries. For example we chose 7 x 7 lbs. at 18/6 per 7 lb. bag of Percy Daltons peanuts for their food value, but we could easily have managed with 5 x 7 lbs. Secondly, Lloyd Rakusen and Sons, at 50% discount, we bought 24 x 1 lb pks. of whole rice for 18/6 and due to the number of curries we ate all this. Also 36 x 1/2 lb. paks. of sultanas at £2. 6s. 6d. but we could have probably managed with 18 x 1/2 lb. pkts.

From George Romney Ltd. we bought 10 doz. bars of Kendal mint cake for £7. 4. 0 but we could prob-

ably have managed with half that amount, though had circumstances been more severe then the amount required would have increased accordingly.

Nestles supplied at discount 36 x 12 x 6d bars of fruit and nut chocolate at £6. 19. 2 essential if only to keep up a balanced diet where fresh milk was hard to obtain and chocolate far too expensive. Butterscotch 6 x ½ lbs. at 12/3d and barley sugar 1 x 5 lbs. at 17/2 were both useful additions for field rations and more could have been used. We also bought one or two essentials from Nestles such as 3 x 24 lb. oz. Crosse & Blackwell Baked Beans for £3. 10. 9d all of which were used, 12 x 12 oz. fullcream custard powder at 10/9 virtually all used and 12 x 1 gall pks of Maggi soups for £1. 19. 4 which meant with our Batchelor soups we had more than enough and could probably have done without buying.

Last in the line of emergency rations were Carr's Lifeboat biscuits at full price. We took 24 x 2 lb tins of these, costing £15. 0. 0. and although very useful in the field or just as a snack we had far too many and 12 x 2 lb would have been sufficient under these conditions.

Once all this was purchased we found that we still had some considered deficiencies. All this was made up by a visit to Harold Kardov's cash and carry store after an introductory letter from Robertson's Jams and the final purchases there came to £32. 0 0. There are a large number of articles so I shall summarise them thus :

6 x 6 lb tins corned beef	Very useful but 4 x 6 lbs. sufficient
12 x 4 lbs. tins luncheon meat.	Good especially fried in batter 8 x 4 lbs sufficient.
7 x 6½ lbs. tinned fruit.	3 pears
	2 apricot
	All very much welcomed and all used.
	2 pineapple
24 x ½ lbs. pks instant whip.	Too messy to mix with powdered milk.
12 x 3 oz. pkts gravy mix.	Very useful though 6 x 3 oz. sufficient.
24 x lbs. tins of stewing steak.	Virtually a must, especially curries, and all used.
1 lb mixed herbs for curries etc.	Quite useful and nearly all used.
24 x 24 oz. pks porridge oats	Too much, 12 x 24 oz. sufficient, otherwise useful
24 oz. curry powder in our case	a must (ask Clive), and all used.

Although this is somewhat lengthy and in many respects patronizing account of our food requirements I have included it in the hope that it may provide a guide to future expeditions of quantities and types of foods which we found useful and an indication of costs. In all we spent £118. 18. 8d on food before we left and about £4. 10. 0 on fresh food whilst we were there, together with the generous donations we received the food bill is estimated to have been valued at £300. 0. 0. after discount.

Finally with respect to donations by firms I was asked to comment on the oil, kindly supplied free by Duckham's. Unfortunately, we were only able to obtain gear box oil from our Swansea suppliers but this was sufficient to last us throughout the journey. As we had no bother from the land-rover in respect to gearbox trouble, or engine trouble for that matter, as it was an old landrover, then I feel it is safe to say that we can thoroughly recommend Duckham's oil which at all times contributed to the smooth running of our vehicle.

S. Lawrence.

ACKNOWLEDGEMENT OF FIRMS THAT BACKED OUR VENTURE

FIRMS	DONATIONS
British Egg Marketing Board	14 lbs. dried egg
Bryant and May	8 dozen matches and 4 boxes Lifeboat
Cerebos Foods	3 cases x 12 x 2 beef curry
Duckhams	Gearbox oil and engine oil
Empire Dairies	Anchor cheese, 20 lb. pre-packed
Fardons	72 assorted chutneys, 2 dozen flag sauce
Glaxo	3 dozen Ostermilk, 3 dozen complan
Glengettie	30 lbs. Tea
Heinz & Co., Ltd.	12 tins baked beans and sausages
	12 tins spaghetti bolognese
	12 tins beef ravioli
	12 tins tomato soup
	12 tins christmas pudding
Hugon and Co., Ltd.,	24 lbs. suet.
Ind. Coope Ltd.	72 cans long life beer
McDougalls	24 lb. flour
Nabisco foods	3 pkts. shredded wheat, 4 pkts. cubs., 4 pkts shreddie
The Nestle Co., Ltd.,	4 x 1½ lbs. coffee
Oxo	144 cubes
Prestige	Pressure Cooker
Proctor and Gamble Ltd.,	24 pkts of Daz 36 pkts of Fairy Snow
Shippams	4 dozen assorted spreads 2 dozen chicken products
Sutherlands	6 dozen assorted spreads
Tate & Lyle refineries Ltd.,	120 lbs. of sugar, 24 lbs. golden syrup.
Unigate	28 lbs. dried milk. Miracle milk powder.
Unilever Export Ltd.,	10 doz. batchelors soups. 7 dozen Vesta currys
	6 doz. boxes suprise peas, 4 doz. boxes suprise beans
	4 doz. pkts. lifebuoy toilet soap 4 doz. pkts S.R.
	Toothpaste.
A. Wanders Ltd. (Ovaltine)	12 lbs. Ovaltine, 7 lb drinking chocolate, 1 doz. 12 oz
	tins instant non - fat milk.
Weetabix Ltd.	36 x 12 weetabix
Wilkinson Sword	36 x 5 razor blade pkts.
The Wrigley Co., Ltd.	36 boxes of Chewing Gum assorted.

REDUCED RATES

F. M. S. (Swell) products Ltd.,

4 x 4 lbs. dried, sliced apple
4 x 6 lbs. chicken, vegetable fill
4 x 5 lbs. diced carrots
4 x 2 lbs. dried cabbage
1 x 40 lbs. powdered potato
1 x 14 lbs. potato flakes.

Kavli Ltd.,

Primula cheese 3 x 48 x 8 oz. tins

Lloyd Rakusen & sons

36 x 8 oz. sultanas

24 x 1 lb. rice

Nestles

10 x 36 x 2 oz. bars fruit and nut chocolate

24 x 6 pints custard powder

6 x ½ lb. Butterscotch

1 x 4 lbs. Barley sugar

3 x 24 x 16 oz. Baked Beans

2 x 6 x 1 gal. maggie soups

Percy Dalton's Famous Peanut Co.

7 x 7 lbs. peanuts.

Romney's

6 oz. brown 4 doz. white kendal mint cake

Ryvita

24 x 14 oz. Tins Ryvita

Van den Burghs Ltd.,

20 x 2 lb. Margarine

5 x 2 lb. Cooking fat.

EQUIPMENT

Black and Edginton

Prestige

Youth Hostel Association

Medical Supplies

Bencard

May and Baker

Bengue

Upjohns

Boot's the Chemist

EQUIPMENT

The equipment we took with us comprised of six tents. Of these, two, a Black's storm-haven and a niger were used as store tents. Neither tent had a fly sheet but both stood up well to conditions, being continuously erected throughout our stay, and there are no complaints, though it did seem apparent that the niger was the more rigid of the two. Two of the remainder were essentially mountain tents but only one was put through any test. The Black's mountain was left at 2,000 ft. overnight unattended in a full scale blizzard and was none the worse for wear. It had no fly sheet but is made of ventile and at no time did it show any signs of letting in water. Although, perhaps rather expensive this tent is fully recommended and can easily be erected under the worst conditions in five minutes, with practice. The Vango, a cheaper tent with built in flysheet is not of good quality material but withstood all weathers and comfortably takes two persons and equipment. It took a little longer to erect and suffers from the use of cheap runners and rubber guys which after 6 weeks were almost worn out. Otherwise, it is a very good tent for general use but was not tested under mountain conditions and so cannot be really recommended for this use by us until it has been tested. The other two tents were very old and not used for any specific job and so need not to be commented upon.

As a group we mainly used a framed rucksack by Karimore supplied by the Y.H.A. The totem is a thoroughly useful sack if it is remembered that it is cheap and therefore some attention should be made to the weak points. Two members, Robin and myself, took the precaution of strengthening points where the sack was attached to the frame. This was done by sticking leather backing to the nylon attachments. This proved a success for some members experienced breakages at these points. Also, the webbed backing proved to be a weak point and tended to work loose over time. This again was overcome by sticking the nylon attachments to themselves to keep the webbing continually under tension. Although, this served its purpose where adopted, it did not prevent the webbing from tearing in most cases, and it is felt that this point needs attention. The frame itself is faultless and stood up to any amount of rough treatment. Finally a word of praise for overall capacity and excellent quick release straps which were a great asset, together with an enormous cover, which could comfortably accommodate a Black's mountain tent on top of all other essential equipment.

Other equipment was mainly of a personal nature but it is worth mentioning that most people used Peter Storm anoraks and these were invaluable as they kept out even the heaviest rainstorm.

Cooking equipment was of little importance as electricity was available at the research station. However, Optimus paraffin primmi were used in the field at Myvatn and were excellent, provided care was taken to keep them well cleaned. The pressure cookers, provided by Prestige, were invaluable both as a large communal cooking pot as well as their normal usage, but for individual cooking nearly everybody found the Gilwell was light, cheap and efficient and therefore most practical when out hiking.

SCIENTIFIC EQUIPMENT

The scientific equipment in use varied from survey instruments, for which we are indebted to Mr. Tomlinson of U.C.S. Geography department, to glass jars from the zoology department U.C.S. There are far too many things to mention individually as each person had his or her own equipment necessary for individual projects. All equipment was in fact supplied by the various departments of U.C.S. concerned and without their help much of the work completed would not have been possible.

PHOTOGRAPHY

Throughout the stay, we took photographs of virtually everything we saw and had some excellent results. The two photographs included are some examples and we are indebted to Kodak Ltd. for supplying us with over £70 . 0. 0. of film at a considerable discount.

STATEMENT OF ACCOUNTS

Incoming Finances

£715 0s. 0d.

£100 0s. 0d.

£25 0s. 0d.

£10 0s. 0d.

£10 0s. 0d.

£3 3s. 0d.

£863 13s. 0d.

Personal contributions

Union Loan

Grieves and Longdin

The Steel Company of Wales

Thyssen (Great Britain) Ltd.,

Aluminium Wire and Cable Company

Outgoing Finances

£118 18s. 8d.

£376 2s. 11d.

£4 15s. 7d.

£66 7s. 6d.

£10 0s. 0d.

£9 14s. 0d.

£61 0s. 0d.

£30 0s. 0d.

£2 0s. 0d.

£3 10s. 0d.

£40 0s. 0d.

£10 14s. 0d.

£5 10s. 0d.

£738 13s. 0d.

Food

Ship

Repair Equipment

Akureyri return

Freight to Akureyri and local bus fares

Misc. postage films, etc.

Petrol and insurance (in Iceland)

Insurance

electricity

Exhaust

Hire of vehicle to Edinburgh

Medical Equipment

Food in Iceland

Cash in Balance

£863 13s. 0d.

£738 13s. 0d.

£125 0s. 0d.

Cash in Hand

£44 10s. 0d. Bank

£70 0s. 0d. Unused travellers cheques

£11 10s. 0d. Unused Insurance

£25 0s. 0d.
