

MINGULAY II 1975

Leader: Nicholas Deeley

Members:- Tim Ball, Nick Brown, Ben Buxton, Paul Coleman, Andy Stone, John Taylor, Ian Wright.

If on the departure of some of my friends from Mingulay I was in a way sad this was more than made up for by the arrival of John, Andy, Nick, and Paul. They turned up to a ready made camp, and it must have been strange for them to come into a place that had so obviously been lived in. Yet we were determined to make them feel at home, and started off by carrying all the tinned food for Mingulay II round from the landing point to the Priest's House. We showed them with pride the little adaptations that made the house home to us, and smiled as they regarded them with curiosity. It was an odd thing to know a lot of Mingulay when they knew nothing. But we kept the secrets well, and let them discover the delights themselves.

The weather was not as good on MII as on MI for although it didn't rain much it was often misty which tended to spoil the fun of going on the cliffs. Yet while this may have deterred me it didn't stop them. John Taylor did the Three Peaks in 1hr 40 runs within a few hours of being there.

Perhaps I should mention that this is not the marathon that it seems as it consists of three hills, Carnan 891', Hecla 700', MacPhee's Hill 735', making it a pleasant little stroll. You feel you have accomplished something and can get back for dinner the same day.

We had many visitors on MII. There were the yachtsmen who played the bagpipes over the water to us, Mick and Barbara, and the Olympic canoeists. All were treated to the delightful fiddle playing of John Taylor who kept us amused for many hours with endless reels, laments, and jigs.... and the theme music of the "Archers."

It has to be said that Mil was more resourceful than MI. Within a few days our snaring technique had become particularly effective, and we all have good memories of rabbit pie. The weather may not have been as good but the project work continued. Ben continued his settlement survey, and Tim took to the gentle art of digging vast holes that he said were part of a soil survey. While all this was going on John Taylor was doing his own survey of the field system on the island, as well as some amateur archaeology.

One day Tim dug out of one of his holes an ordinary stone that John set about as if demented. Evidently the find was going to revolutionise all Mesolithic archaeological research. The full account of this will no doubt

be recounted elsewhere. For myself I am happy to say that the time I spent on botany was greatly enjoyed, and I managed to complete the survey started by Ian in the first expedition. Nick and Andy seemed absorbed by the ornithology, and Paul tried his hand at identifying freshwater invertebrates in the stream.

We also had two successful beach parties, and I don't think that I shall ever forget the eating of hot sausages in front of a large blazing fire, with the stars overhead, and John's fiddling picking out a lonely lament., an experience indeed.

Our departure from the island was, as you might expect, a sad occasion. Yet the disappointment that we felt was forgotten in the excitement on incoming waves driven by an on-shore wind with all the equipment having to be ferried to the fishing boat a few yards off-shore in a small dinghy. It was quite a tricky procedure, and I shall never forget the look on Tim's face as he watched several hundred pounds worth camera equipment being hurled through the air towards the boat. For a split second the camera case was heading for the grey water before a vast Hebridean hand grabbed the strap and hauled it to safety.

I must now thank Neil Sinclair for giving up his time, and transporting us to Mingulay. Thanks also to Mr Haggerty for bringing over letters and the bread. In addition the whole expedition would like to thank Lac MacLean of the Barra Sheep Stockholding Company for permission to camp on Mingulay. We were all very grateful indeed. I have not yet mentioned Ian Wright in the Report, and I feel that I must. His sound advice and good honour contributed much to the expedition's success, and his work as Camp Administrator on Mil made my job a delight.

Perhaps I should also record here my appreciation for the generous support provided by the Nature Conservancy Council. I hope very much that the help and advice with which they have provided us will stimulate further project research, and broaden the interests of the Society as a whole.

NICK DEELEY

(One can tell from the above that this was a very project minded expedition, and despite the fiddling and jigs no one wrote a spoof or poem. So despite the fact that Part II has not yet been reached into the projects we go., well some of the briefer ones. Ed.)

ARCHAEOLOGY ON MINGULAY

Although the specialist officers on Mingulay were concerned primarily with the natural sciences the island provided a magnificent opportunity for work connected with human settlement, and two such projects were carried out.

A summary of Ben Buxton's work was included under Mingulay I. My own work failed to reach completion, and was concerned with a survey of field systems to the west of the village. Equipment consisted of a 30 m tape, pegs, and compass. The broad lines of the survey were based on the Ordnance Survey map (1:10,000) and was aimed at correcting inaccuracies and filling in omissions. Ultimately the survey should be extended to include Skipisdale where widespread signs of human habitation exist, mainly taking the form of lazybedding. The village itself should also be eventually included. A survey of the latter begun by Alasdair Philips in 1971, was unfortunately not completed, and searches suggest that many of his reference pegs have since disappeared.

Surface Finds: In addition to the project various surface finds were made, although lack of knowledge precluded any attempt at excavation. Numerous fragments of iron age pottery were found among the dunes, in an exposed habitation stratum which also contained charcoal flecks, limpet shells, fish vertebrae and what was possibly a human tooth. Other worn fragments were scattered over an area of blown sand to the east of the main site. Significant finds of similar pottery (believed also to date from the Iron Age, though currently being tested in Edinburgh) in soil survey holes dug near the Priests House suggest that the pottery is distributed over a more extensive area than at first thought. The shards themselves were generally dark brown in colour (unlike those from the dunes, which were mostly grey or red brick) and showed signs of fire blackening. Most fragments were small and, apart from three sections of rim and some string markings, interesting mainly because of the position in which they were found. The fact that completely new sites may be discovered by pure chance in this way suggests the limited extent of knowledge about human habitation of the island in the past.

In addition to these finds, an extremely interesting discovery was made by Tim Ball, again while digging soil survey holes at 562833 in a field above the village. The object was identified as one half of a 'counter-sunk' pebble of the late Mesolithic Age (8,000 - 4,5000 BC) and may be associated with the Obanian culture. Apparently made of granite ifc was designed for use as a hammer stone and was probably some six inches long in its original form.

The stone was found about 16" down in a layer of soil directly above the glacial till; it was certainly one of the earliest signs of habitation on Mingulay that has ever been found, and as such represents an important and interesting discovery.

Other surface finds were much more clearly associated with the inhabited village at the turn of the century, and many pieces of clay pipe and fragments of highly patterned and glazed china, showed, at least in some ways, a surprisingly high standard of living. Future Work: There remain immense gaps in our knowledge, and clearly much more work is still left to be done on the past civilisations which inhabited Mingulay. Surveys, particularly of the village, could be extended, and much still remains to be gleaned from old records, books and maps. It is also worth remembering that two people born on Mingulay, now living on Vatersay, could still provide a unique opportunity to further our knowledge of the island's former community - if we do not leave it too late.

JOHN A TAYLOR

ORNITHOLOGY ON MINGULAY

The boat trip to Mingulay was enough to tell me what to expect. Gannets were diving all around us and Fulmars skinned the waves in front of the boat. A Storm Petrel seemed quite tame - not at all like the other birds. We arrived on the island each with our own interests and subjects to study.

I went to the west coast as soon as possible, for the birds were already starting to leave. There I found about a thousand Fulmars nesting on Biulacraig, the highest cliff. At that stage their young were large and downy, although while we were there they became smooth and streamlined like their parents. No Auks remained, but a few hundred Kittiwakes lingered on, waiting for chicks to fly.

On the grassy slopes above the cliffs, Greater Black-backed Gulls had apparently been nesting there, since there were a great many adult birds to be seen with their young. Near the campsite a Ringed Plover nested in the shingle by the beach, and I saw a Dunlin feeding in the stream. In the walls of the Old Village Wrens seemed happy to nest, and one even continued to inhabit an unlined nest in the walls of a ruin, while our loo tent was in use close by!

Buzzard, Raven, Peregrine and Eagle were all to be found on Mingulay - the Peregrine with a juvenile near Lianmul on the west coast. The ledges of these cliffs were plastered with Auk droppings and I tried to imagine the stack at the climax of the breeding season.

A Shag was still incubating three eggs at the northern end of the island, although when I looked a few days later they had all gone. A pair of Kestrels were seen with juvenile birds around MacPhee's Hill, presumably having nested on the cliffs.

Finally I found a cave near Solon Mor in the North, out of which flew seven rock doves. The floor was covered with droppings, although the only nest I found were two old Shag nests in a corner.

Wheatears and Rock Pipits were common around camp, as were Twite and Pied and Grey Wagtails with families. More shy were the Snipe, for there were many pairs, but they concealed themselves in the bracken very effectively.

This was truly a wonderful island for me as an ornithologist; I only hope my many friends on the expedition were as interested in their various studies as I was in birds; I'm sure that they were.

NICK BROWN



PART II ORNIITHOLOGY COLONSAYSAY 1975

Although there was a general interest throughout camp, it was to a nucleus of six boys that Bruin and I looked for the most active contribution - and we were not to be disappointed. We spent many hours studying the Island's bird life in the company of John Carey, Piers Hart, Graham Kramer, Simon Lord, William Macdonald and David Nichols. Dave Martin, on the rare occasions he was able to don his binoculars (for his duties as camp administrator restricted his movements), added strength to the fraternity.

It must have been apparent at an early stage that Bruin and myself were engaged in something of a competitive side-show - not, I hasten to add, for the numbers of species we each saw, but for successfully moulding the youngsters into our own styles of birdwatching. Coining a phrase from a well-known authority on Highland Birds, also named Thompson curiously enough, Bruin was an "arser", whilst I was a "legger", and ne'er the twain shall meet. As we did most of our watching in one group, a compromise had to be reached and the outcome was a curious mixture of "arsing" and "legging", which allowed us to cover more terrain as well as giving more time in which to study and note bird behaviour. I wish to stress, particularly for the benefit of my fellow officers, that contrary to opinion, "legging" is in no way synonymous with "ticking". I suggest that at this point the reader refers to the glossary!

A total of eighty-six species were seen or reliably heard during the expedition, which I believe to be a record for SHS expeditions. Credit for this achievement must go to the boys, whose enthusiasm and alertness was a pleasure to see. I have selected for presenting data a method used by British Birds in their "Recent Reports" sunary, in which species are considered by families and in Wetmore Order. In the append: x. the day maximum and bird-day totals are given for many of the species recorded.

Bruin identified by their call-note Divers flying over the camp site on several mornings, but Red-throated was the only specific identification made over the entire period. In addition to five Little Grebe on Loch Fada, a Great Crested Grebe was seen flying out to sea westward. If anything, this sighting was the highlight of the expedition, since the species has only been recorded once before on Colonsay and is not particularly common on the mainland at such high latitudes. Of the sea-birds, small rafts of Manx Shearwater were just visible between the island and Mull, the occasional Gannet was seen from the camp site and Shag and Cormorant were abundant -the former far more so than the latter. Heron were regularly noted.

Five species of Duck were recorded - three Teal over the camp site, six Common Scoter (credited to the CA) in Kiloran Bay, and a Tufted Duck on Loch Fada were one-off sightings, but Mallard were regularly present on Loch Fada, and parties of Eider were scattered around the coast. According to an islander of sane years standing Otters have been responsible for a serious decline in the Eider population of Colonsay. As it happened we did not see a single Otter and one wonders to what extent this decline reflects the national trend for Eider Duck. A Barnacle Goose was among the feral population of Canada Geese in Kiloran Bay. Colonsay has a small winter skein of Barnacle Geese but this bird, for some reasons, had not travelled north with the flock in spring and awaits its return form the Arctic breeding grounds.

We were fortunate in the variety of Raptors seen. Besides the resident breed -ing species - Golden Eagle, Buzzard, Peregrine, Merlin, Kestrel and Sparrow-Hawk -we saw a female Hen Harrier on three days and recorded the first Honey Buzzard for Colonsay. Graham Kramer gives an interesting account of the bivvy to the north of the island, during which we saw the Honey Buzzard and were afforded superb views of adult and immature Golden Eagle at the eyrie.

Considering that we were at the height of the Autumn passage the variety and number of waders were disappointing. One exception was "Knot". Two "first year" birds spent a couple of hours on the high tide near the carp, and judging by their tameness they were very tired and hungry. It is feasible that we were the first humans that they had the pleasure of meeting some pleasure. Space prevents me from going into more detail on the waders, but suffice it to say that small numbers of Bar-tailed Godwit, Ringed Plover, Turnstone, Wimbrel, Curlew, Redshank, Greenshank, Cannon Sandpiper, and Dunlin were recorded in the shallow bays and inlets.

Little attention was paid to the gulls, although a flock of 250 kittiwake near Kiloran Bay was noteworthy. Auks were disappointing with one or two Tystie and a single Guillemot. Most of the Auks breeding on the Hebridean sea cliffs had left their nesting colonies, and on the sea crossing to Oban it would be no exaggeration to put the number of Guillemot at over a thousand, with a fair sprinkling of razorbill.

The most abundant passerine both numerically and in its distribution was the Meadow Pipit. Stonechat was also common but its range seemed slightly more restricted. Worthy of comment is the lack of Skylarks on the island. Only four individual birds were noted in all. Despite the large tracts of large woodland we had little time to study this type of habitat. Only on our way to the north of the island, when we passed through wooded glades, were we able to log such woodland species as; Blue, Great, and Coal Tit, Robin, Goldcrest, Treecreeper, and Spotted Flycatcher. On the whole the warbler family were poorly represented., just the occasional Willow/duff, and Whitethroat. Otherwise Songthrush and Wren were noted in disparate habitats. (Woodland, croft-land, open moorland, and cliff tops.)Pied Wagtail were common in the low lying areas, and Greenfinch flocked with Chaffinch and House Sparrow in the croft-lands...a sign of winter. Twite, a characteristic bird of open country in summer, tended to associate with Linnet along the coast as is their preference in the winter months. Yet two segregated flocks of over fifty were recorded during the expedition.

The most colourful passerine of the expedition, and the one that caused the most delight, and then controversy over its origin, was a male Red-headed Bunting at Balnahard farm north of Kiloran Bay. Until recently all British sightings of this Asiatic Bunting have been regarded as escapes, but the appearance of these birds on Fair Isle in autumn (the period most likely for stray migrants) have forced some reappraisal of its status in these isles. The Fair Isle birds have been immature, and the age of our bird, a male in full summer plumage, works against it being a genuinely wild bird from eastern parts.

In conclusion Bruin, David and myself should like to emphasise the enjoyment of birdwatching with such a keen and alert group of boys. There are one or two ornithologists in the making, be they 'arsers or 'leggers'...which in fact compliment each other..agree Bruin?

APPENDIX

Our table presents the 'day maximum' and, where applicable, the 'bird day totals' for 76 out of the 86 species recorded by this SHS expedition to Colonsay. Quantitative data for the remaining 10 species is inadequate for publishing as we failed to note their numbers at any time. Suffice it to say that they were all common and widespread.

Bird Day Totals; These give for the period August 14th-26th the total numbers registered for each species. This method is most suitable for passage birds when one ignores the possibility that sane individuals were present on more than one date in order to produce a figure which can be compared with other periods for the same species. Ideally, and provided that one knows the extent of differences in coverage over similar periods in different years, one can compare status on passage.

MINGULAY I

Several "bird-day totals" for resident birds (ie Moorhen) have been included because where the "day maximum" and "bird-day totals" are the same this indicates that the species was recorded only once during the expedition period.

SPECIES	DAY MAX	BIRD-DAY TLE.	SPECIES	DAY MAX	BIRD-DAY TLE.
Red-throated Diver	1	1	Rock Dove	5	24
Great Crested Grebe	1	1	Wood Pigeon	2	5
Little Grebe	5	8	Collared/Turtle Dove	1	1
Manx Shearwater	25	-	Skylark	3	5
Fulmar*	-	-	Swallow	10	16
Gannet	5	14	Raven	1	2
Comorant*	-	-	Hooded Crow	5	-
Shag	74	-	Jackdaw	8	-
Heron	3	11	Great Tit	1	1
Mallard	4	8	Blue Tit	1	1
Teal	3	3	Coal Tit	1	1
Tufted Duck	1	1	Treecreeper	1	2
Glider	20	(70)	Wren	2	16
Common Scoter	6	6	Mistle Thrush	1	2
Canada Goose	43	-	Song Thrush	1	9
Barnacle Goose	1	-	Blackbird	1	3
Golden Eagle	2	-	Wheatear	8	26
Buzzard	9	-	Stonechat*	-	-
Sparrow-hawk	1	2	Whinchat	2	2
Hen Harrier	1	3	Robin	1	4
Peregrine Falcon	2	4	Whitethroat	4	7
Merlin	1	1	Willow/Chiff	1	2
Kestrel	2	6	Goldcrest	1	2
Red Grouse	1	1	Spotted Flycatcher	1	1
Moorhen	2	2	Duncock	2	5
Oyster-catcher	15	(100)	Meadow Pipit*	-	-
Lapwing*	-	-	Rock Pipit	2	(20)
Ringed Plover	68	250	Pied Wagtail*	-	-
Turnstone	11	11	Starling*	-	-
Snipe	4	15	Greenfinch	(20)	(72)
Curlew	60	150	Linnet	(30)	(300)
Wimbrel	1	1	Twite	(50)	(150)
Bar-tailed Godwit	2	3	Chaffinch	10	-
Common Sandpiper	7	3	Yellowhammer	1	2
Redshank	40	60	Reed Bunting	2	2
Greenshank	3	9	Red-headed Bunting	1	1
Knot	2	2	House Sparrow*	-	-
Dunlin	5	9			
Arctic Skua	6	9			
G.B.S Gull*	-	-			
L.B.S. Gull	2	4			
Herring Gull	29	-			
Common Gull	25	-			
Black-headed Gull*	-	-			
Kittiwake	250	-			
Common/Arctic Tern	1	2			
Guillemot	1	1			
Black Guillemot	1	3			
Honey Buzzard	1	1			

Brackets indicate "estimate" only

No one who has ever visited this magical island will forget the incredible visual and aural

effect of the huge cliffs; seabirds whirling in their thousands over the boiling green sea hundreds of feet below. That, surely, is enough to stir anyone's blood - to think that one per cent of all Britain's seabirds nest on this small island gives some idea of its true scientific significance to the ornithologist.

As usual the time of year was not ideal for counting nesting birds - a task set by the Nature Conservancy Council - but an estimate of those birds still present provided some fascinating differences from the list prepared by SHS expeditions in the past, and the figures the Nature Conservancy Council had for June 1967.

Most of the ledge nesting Razorbills and Guillemots had left before our arrival, but judging by the condition of the most accessible ledges the number of Mingulay Auks has followed the general world wide decline over the past few years. The number of Fulmars and Kittiwakes appeared to have expanded slightly - a count in June would give higher numbers of attempted breeders than one taken in August, so it seems likely that the world wide slight increase in numbers of these two species has also been reflected on Mingulay. Without exception the Shags had finished breeding, so an estimation was impossible; the same was true for Herring- and Lesser Black-backed Gulls.

The most astonishing fact to come to light from the survey was the apparent vast increase in the number of Puffins. A letter from the Nature Conservancy Council in Inverness indicates that a survey in 1968 found 1,300 pairs on Mingulay alone. Our figure was, of course, far less accurate than that of the Council - nevertheless it was probably still an underestimate. Vast rafts of Puffin could often be seen in the sheltered bays, although by the second week of the second expedition they were all but gone far out into the Atlantic, ocean bound until next years breeding season.

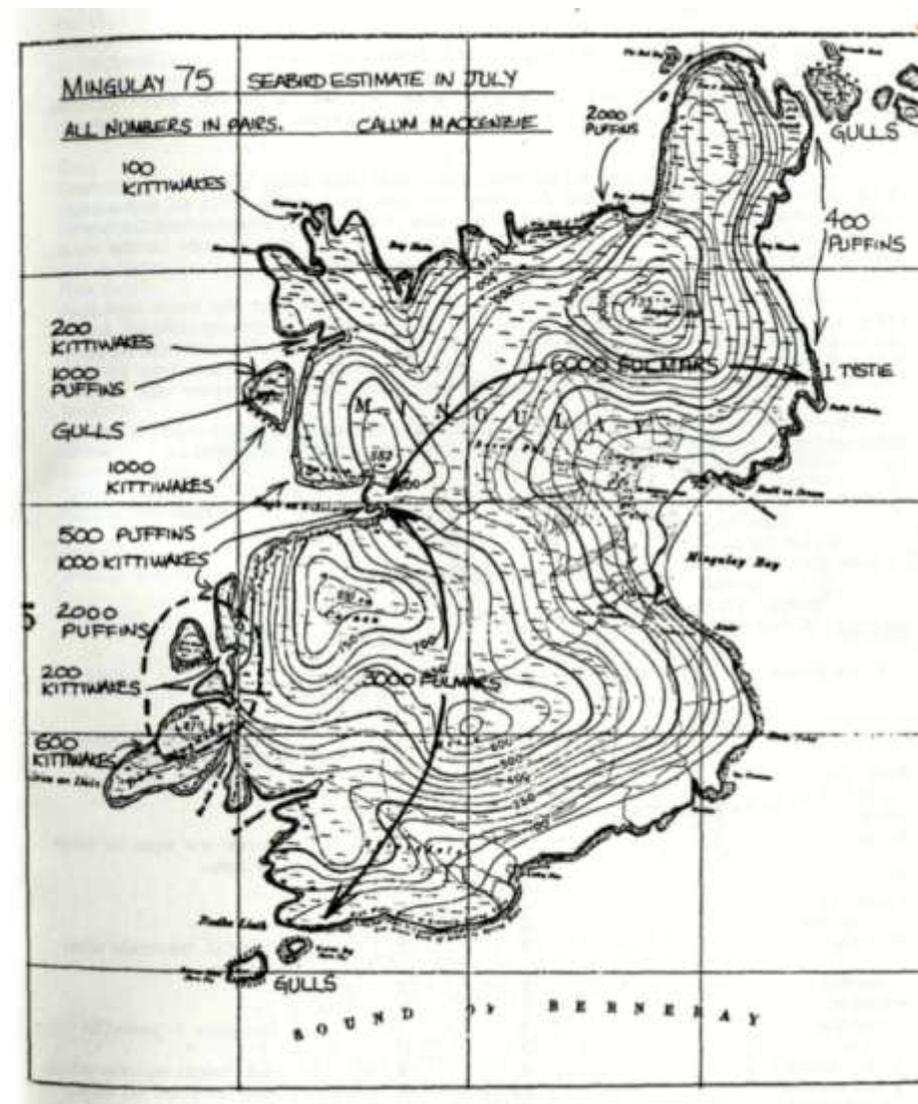
This is an exciting find. Puffins are part of the dismal decline of the Auks all over the northern Atlantic, and any increase, let alone one so large in the population of a significant colony must be viewed with considerable interest by more expert ornithologists.

Passage of seabirds past the island was generally disappointing and consisted mainly of Fulmars with a few Gannets and Manxies. A single Storm Petrel was, however, seen on the boat on Mingulay II The breeding season appeared surprisingly late, which perhaps accounted for the poor southward migration numbers.

Just the opposite was true for the wader and passerine migrants, with diversity of species and numbers wholly unexpected for such a small island. Big falls were of rock and meadow pipits, with several hundreds present for a few minutes, and similar numbers of twite and wheatear were around on the grassy slopes above the cliffs on occasion. A few stonechats and a single winchat arrived with one flock of wheatears by the village. Late afternoon often saw large numbers of swallows and swifts winnowing south stopping to feed. Another day a lone willow warbler was an exciting find near the school.

The beach offered little in the way of crustacea or worms, so the large number of waders attracted to the vast expanse of sand was surprising. Many merely stayed from late evening to early morning, having roosted where the stream runs out onto the beach. A Dunlin was the first to arrive on 7th August, and thereafter 4 Redshank, another Dunlin, and several curlew came through in the next few days. A resting Golden Plover was disturbed above Dun Mingulay one morning - a gorgeous bird still in its rich summer plumage.

Most unusual was the sighting of a Reeve spotted on the rocks at Aneir by Simon who identified it correctly from a brief glance. Looking bedraggled and exhausted



it fed weakly on seaweed, looking a bit like the morning after six pints of Pooh juice. A Heron that came onto the beach was also exceptional - almost certainly one of the birds from the only Coter Hebrides colony located in Stornoway woods. It was on its way south. The birds of prey were thrilling in both numbers and diversity. A glance up MacPhee's Hill would usually find the afternoon sun picking the characteristic outlines of Peregrine, Kestrel, Buzzard, or Eagle. Nothing can be more exciting than the meteoric stoop of the Peregrine at a Fulmar or Kittiwake with a seven hundred and fifty feet cliff as a backdrop. Two observations were not so welcome to record. Once again buzzard wings were found around the camp, suggesting that they had been shot while still on the nest. This was probably done by people who believe that Buzzard are responsible for much of the lamb mortality on the island. It is incorrect to think that this is the case. Buzzard much prefer to hunt rabbit which are always plentiful.

Secondly, the apparent failure of a ringed plover pair near the beach to raise offspring must be sadly recorded. The male defended a large territory gamely, but the number of casual visitors who walked round the dunes and infringed this area was probably responsible for this lack of success. We must all ask ourselves if this is the price for going to Mingulay? Is extinction in action around us?

One regret was that no ringing was done. This may have provided much valuable information about migrants. On future expeditions this may be worthwhile.

CALUM MACKENZIE

BIRD LIST - MINGULAY I AND II

<u>SPECIES</u>	<u>MI</u>	<u>MII</u>	<u>REMARKS</u>
(X means observed and O means not seen)			
Meadow Pipit	X	X	Numbers seen on migration.
Rock Pipit	X	X	" " "
Hooded Crow	4	X	
Raven	8	8	
Twite	X	X	Large nos seen on migration.
Wren	X	X	
Blackbird	X	X	
Song Thrush	X	X	
Wheatear	X	X	Several hundreds migrating.
Stonechat	4	X	
Whinchat	I	X	
Peregrine	3	X	One pair + juvenile
Kestrel	3	X	" " "
Golden Eagle	2	X	One juvenile, one adult
Oystercatcher	I4	X	Many sighted on beach
Ringed Plover	4	X	" " "
Snipe	X	X	Still nesting
Curlew	X	X	One or two each day
Herring Gull	X	X	
Greater Blackbacked Gull	X	X	
Lesser Blackbacked Gull	X	X	

<u>SPECIES</u>	<u>MI</u>	<u>MII</u>	<u>REMARKS</u>
Kittiwake	x	x	Chicks starting to fly
Puffin	x	x	Most numerous on MI
Buzzard	4	x	Often on MacPhee's hill
Fulmar	x	x	Most with large chicks
Eider	I4	I4	Females + chicks
Gannet	x	x	Few on passage
Cormorant	x	x	More numerous than the shag.
Shag	x	x	
Dunlin	x	x	
Lapwing	x	x	About 5 on MI
Pied Wagtail	x	x	Adults + Juveniles
Rock Dove	6	x	Seen on cliffs
Artic Tern	4	0	2 prs, soon left
Razorbill	x	0	Soon left
Guillemot	x	0	Soon left
Black Guillemot	2	0	
Manx Shearwater	x	0	Few on passage
Heron	I	0	I on stream by school
Swift	x	0	5 passed over/day
Swallow	x	0	3 " " "
Golden Plover	I	0	I on Dun Mingulay
Reeve	I	0	I by Aneir
Grey Wagtail	x	0	Adults + young
Common Scooter	0	2	2 at Solon Mor
Willow Warbler	0	I	I by school after high wind
Redshank	0	2	2 on migration
Stormy Petrel	0	(I)	Seen off boat near Pabbay
Starling	0	x	Flock migrating over Skippisdale
TOTALS	Mingulay I 44	Mingulay II 38	
Total number of species seen	49		

CALUM MACKENZIE, ANNY STONE, NICK BROWN

A SOIL SURVEY CN MINGUIAY

A wide range of soil types were found, although the investigation concentrated on the sandy soils found around the Priest's House, and the meadows behind the village. Survey holes were dug in order to expose the strata from the existing vegetation down to the bedrock. Surfaces were prepared and photographed and the results displayed at the conference. This report is a summary of the results, and must not be regarded as complete. The results from many holes, dug around the meadows and house, generally agree, although the thickness of the various layers varies greatly. The total depth of soil varies also from a few centimetres down to one and a half metres or more. The generalised profile diagram accompanying this report will be referred to by the Roman numerals I - VI to indicate the strata described.

VI

- The bedrock on which all the overlying soils have formed is undifferentiated ortho gneiss, well known in the Hebrides as Lewisian gneiss; around the meadows and the house all the bedrock is of this type, while other holes dug on the West would reveal intrusive basalt. Unlike the basalt of other areas the gneiss appears to be little affected by weathering, so that at the bottom of the survey hole the distinction between soil and bedrock is fairly clear.

V

Overlying the gneiss bedrock is a curious drainage layer. The layer is unlike all the soils above it in having a very low sand content, and its appearance is that of a silty gritty till. It is unlikely to be glacial till as it is too uniform. Its organic content is very low and it exists in the Ferrous or Ferric state, depending on the water/oxygen balance.

IV

- Above the leached drainage layer is a thin stratum containing whole lumps of wood charcoal preserved in very dark brown sand. The charcoal layer is very widespread and this fact, coupled with the great depth at which it is found, suggests that it arose through natural combustion. The lumps bear a good resemblance to the preserved roots of heather (*Calluna Vulgaris*).

III

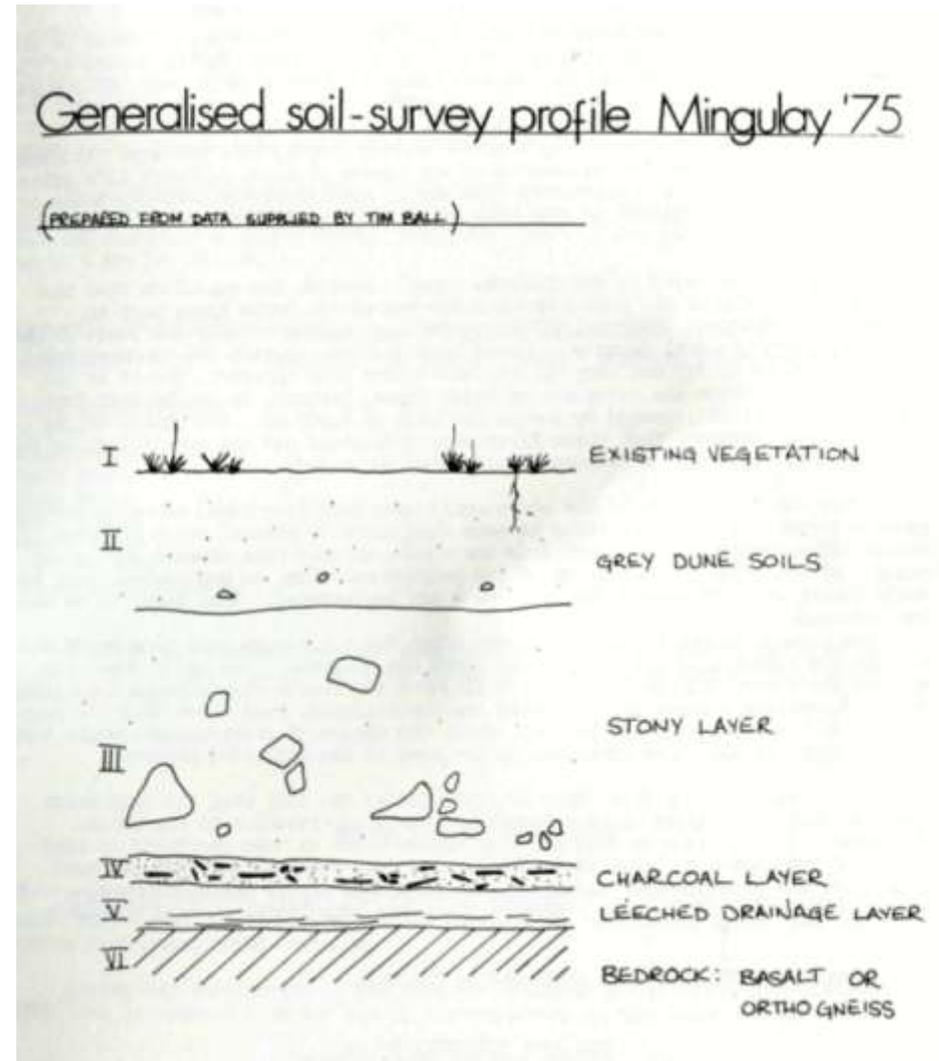
- The main soil type, present in all survey holes, is the thick "stony layer". Here, in a matrix of brown fine sandy soil, many boulders and small stones are suspended. The rocks are angular/sub angular, i.e. not water rounded, and are equally distributed throughout this stratum. The sandy soil's dark colour is due to its relatively high organic content.

II

- The stony layer below merges gradually into the layer above it. This upper stratum of about 40cms depth is the soil formed by stabilisation of the blown sand. The soils here are basically pure sand with a little grey organic matter from the few plants that have grown here in the past.

I

- Although not directly relevant here, the vegetation found on a soil can tell us much about the soil below. Sample site 35 in the vegetation survey gives a complete list of plants found, and a surprisingly wide species list it turns out to be. Indeed, the species present show just how well meadow species can survive on apparently impoverished soils.



From the evidence collected we can put together a reasonable hypothesis of the past history of Mingulay, as it affected the soils laid down. By the nature of the project any such hypothesis must be tentative and cannot hope to present the complete picture. The appearance of layer V, the leached drainage layer, is a mystery. It does not appear to be produced by weathering of the gneiss as such, although it's gritty character is undoubtedly explained in some way by erosion of the bedrock, while it also appears to lack glacial origins because of the striking uniformity of particle size. On top of this layer is the charcoal layer. Here we can speculate that the colonisation on top of the poor bedrock soils was of the heath type, poor in nutrients and species. Eventually, the vegetation reached heather and small shrub level, although the soil depth would have been shallow. As such the tendency for the whole system to dry out very quickly would have been apparent, and it is not difficult to envisage the occurrence of heath fires, perhaps, as can be seen from John Taylor's article, caused by man as far back as 8,000 BC. The extent of the charcoal layer suggests that these fires were widespread and not controlled, as the charcoal layer is a common feature of all holes excavated. After the fires, many of the soils would have been laid bare, exposing them to erosive forces. It- <s interesting to note that normally heather which has been burned off regenerates new shoots from the roots, so that this erosion should not occur. If the original vegetation on the bedrock was thin, as postulated, then we would expect it to be burned completely and not regenerated. This seems to be what has occurred.

The erosion caused by wind and water after the soils were laid bare could well explain the presence of the stony layer above the charcoal. The hills above the meadows are steep, and under the action of water and freeze-thaw effects landslides occurred creating a scree which covered the lower layers. Sand blown from the dune system was incorporated into the soil, while the action of frost would explain the angular shape of the rocks contained in the sand if ice splitting occurred.

The brown colour of this layer is explained by the fact that the vegetation covering this stony layer would successively decay, contributing to the humus. The amount of sand blown up from the dune system seems to have increased at some point and the uppermost layer is formed as sand dune plants stabilised the sand. After what was probably many centuries, the sand dune plants had contributed enough humus to the soils of this top stratum to allow the inhabitants to till the sandy soil.

Compiled by NTD from data collected by Tim Ball.

THE JURA BUTTERFLY PROJECT

The purpose of this project was to produce a list of butterflies that were seen on the island, and also to note the locality in which they were found. Altogether nine different species were seen, and these were:

- Small Tortoiseshell
- Ringlet
- Dark Green Fritillary
- Small Heath
- Large Heath
- Small Copper
- Meadow Brown
- Speckled Wood
- Green-veined White

It is interesting to compare this list with the one made by the last expedition to Cruib in 1973. Although they only recorded eight species, half of them were not seen by us at all. However, three of the four; Wall Brown, Large White, and Small White, were only seen by them along the Feolin to Craighouse road. The fourth one was the Common Blue. It is also surprising that neither the small Tortoiseshell nor the small Copper were seen in '73 as both species were fairly abundant around the Cruib Lodge. The Ringlet and Meadow Brown are still very common on the moors.

By dividing the island into 10 kilometre squares (i.e. those of the national grid pattern) we were able to pass on our findings to the Biological Records Centre who are currently making a survey of Scottish Butterflies. The full results of the project are as follows.

GRID REF. OF SQUARE:	NR57	NR58	NR68	NR69	NR79
HABITAT .	Moorland	Moorland	Trees	Moorland	Open woodland
Small Tortoiseshell		x			
Ringlet		x	x	x	
D.Green Fritillary		x		x	
Small Heath	x			x	
Large Heath			x	x	
Small Copper		x			
Meadow Brown	x	x	x	x	x
Speckled Wood			x		x
Green-veined White		x		x	x

Most of the observations were made whilst on route marches up and down the island. So one cannot claim that the survey gives a totally exhaustive coverage of the island.

-JIM LORING

MARINE BIOLOGY ON S. UIST

The coast of Loch Eynort has features typical of a very sheltered coastline. This is due, in the main, to the presence of surrounding hills, and the narrow, convoluted tidal entrance. During our examination of the area the seaweeds listed below were observed: (The list is ordered from the top of the sea-shore to just below sea level.)

Pelvetia canaliculata Fucus spiralis Fucus vesiculosos Ascophyllum nodosum Fucus senatus Landnaria digitata Chorda film

Weak currents result in these seaweeds growing to enormous sizes without being ripped of the rock. Strands of Chorda filum in excess of thirty feet were found on this expedition. Small hairs growing on the side of this seaweed trap oxygen that has been produced by photosynthesis, giving the weed buoyancy. This in turn results in the formation of huge floating mats of the weed on the surface of the water. It is these mats that become frequently entangled with the propellers of outboard motors.

The Fauna on the seashore was analysed by various groups, the species found were common, and lists of these can be found in previous editions of SHS Reports.

We often saw seals in the loch from the inflatable dinghy. These would characteristically rise to the surface within a few feet of the boat, and submerge again after a short period of time. A group of at least twenty seals was often seen basking on the rocks at low tide. As I have no knowledge of these animals, and there was no relevant literature available, we could only sit, watch, and photograph. Future expeditions to this site would be well advised to come prepared to observe these animals as I am sure this would prove rewarding study.

STEVE MACK-SMITH



THE SKULL OF A SEAL

SIMON
THOMAS
21.7.75

INTRODUCTION

Soon after we had arrived on Jura the stream that runs through our camp site was recognised as being an ideal candidate for a detailed survey. It is small, both in width and length (1 1/4 miles), but nevertheless its course shows a number of distinct features that may be correlated closely to the geology and history of the area.

The stream rises in a boggy area around 568845, quite a long way up in the hills that overlook the campsite. There are a number of sources, but for our purposes we chose the most distinct though perhaps not the most important - a tiny circular loch at around 600 ft. Water from the loch joins the main stream after travelling a stone's - throw over marshy ground. The stream is already quite large and there are no recognisable confluences all along its length. A few hundred yards further on the small gorge in which the stream rests becomes much longer and the slope even steeper. This gorge, with high, steep sides, continues for about three quarters of a mile and in it are several waterfalls, the significance of which will be discussed later. The gorge follows the long steep slopes which lead down from the high ground around the loch; but a quarter of a mile from the camp, the slopes finish abruptly, along with the gorge, and the stream is left to wind its way across an area of bog and long grasses, where it splits and rejoins itself several times. Many old courses can be seen. Just before Loch Tarbert is reached, the stream cuts about five feet down through gravel and becomes permanent in its last stretch.

We surveyed the stream (under the guidance of Roger Weatherly) by placing a five foot pole in the stream bed levelling it with a plumb line, and then sighting along its top until we were able to see the next point five foot above the pole on the stream bed. Using people as markers we were able to build up the transect. (Space has not enabled this to be shown.) This method, though crude, is remarkably accurate, and the results correlate well with maps of the area.

CONCLUSIONS

Glacial Action and the Upper Profile

There is some considerable evidence of glacial action in the upper reaches of the stream, which is as follows:

The small loch from which the stream rises appears to be a tarn occupying a glacial basin (through which there is very little to suggest the pronounced back wall that was expected). The tarn measures 50' x 150' (approx) and its lip is a moraine barrier through which the stream flows. It joins the main stream further down, which then flows over the area of flattish ground. Along its length are cut a series of miniature gorges which cut through the unresisting glacial material (moraine and some boulder clay) to the bedrock beneath. Finally, striations, probably caused by ice dragging stones over bare rock, can be seen further down.

Geology of the Lower and Middle Profiles and the Raised Beaches

The gradient of the stream is by far the steepest in the middle section, where the gorge has been cut as much as 20' down into the bedrock. Though the bedrock is fairly uniform all the way up the gorge, with the exception of a dyke of reddish



(weathered surface) rock about 1' thick half way up, and some shattered rock near the beginning, there are a number of waterfalls ranging from 5' to 20'. There are also many disused 'plunge' pools. The gorge ends abruptly after three quarters of a mile and the stream flows onto a raised beach beside Loch Tarbert. There were three sea level changes on Jura in the past few thousand years since the ice ages, and the beach that the stream flows over appears to correspond with the last of them - the 25' raising of the land. The alteration before this, the 50' raising of the land, corresponds with another raised beach, 50' higher still, but this is only vaguely seen to the west of the stream, and does not affect its profile. The very first sea level change, of about 100', seems to be marked by high ground above the beginning of the gorge. The reason for the sudden disappearance of the gorge is that the stream is leaving a line of "fossil" cliffs, which once stood next to the sea by the 25' raised beach. This fact is not recorded on the O.S 1" geological maps, which is surprising, since the line of high ground bordering the 25' raised beach looks very much like cliffs, even after thousands of years in which they have become eroded and overgrown.

The changes in sea level would explain at least some of the waterfalls in the gorge. The first and longest waterfall downstream is probably a nick-point originating from the last sea level change (25'). The other two knick-points that should be present are now lost amidst rapids and other falls further upstream. Other streams that run out into Loch Tarbert also possess strings of waterfalls, probably for the same reason.

Erosion in the Stream Bed

Erosion in the lowermost and uppermost regions of the stream is virtually insignificant. But the forming of a large gorge by a tiny stream in the middle reaches is startling. The quartzite over which the stream flows is very hard in itself, but is considerably weakened by joints in the rock, and by frost shattering. During most of the year the water is at quite a low level in the stream, and movement of only the smallest pebbles takes place in the gorge. But the stream bed is full of boulders much larger than this, and it seems that these can only be moved in peak flood times. While we were at the camp site there were a number of storms, during, and just after, which the stream rose by up to a foot (from 6") and occupied seven times its normal width. It is clear that most of the erosion that occurs goes on during periods like these.

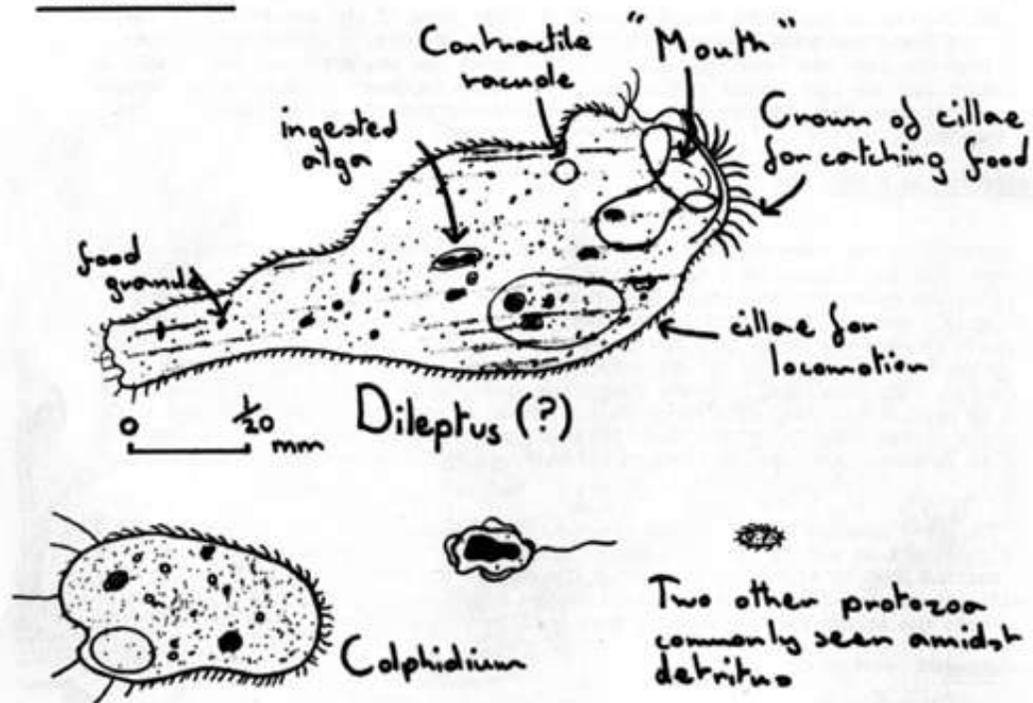
The lower reaches of the stream are also full of boulders, some very worn. But it is difficult to say whether they have come directly from the raised beach, or have been carried down by floods. A mixture of the two is the most likely answer. The only significant erosion that has taken place is the removal of the peat in places, and also where the stream has cut several feet into the raised beach in the last 200 yds.

Vegetation

There is very little vegetation in the stream itself, the most obvious reason being the very fast water flow rate. The other reason is the lack of mineral nutrients in the water such as nitrogen. Thus there is only moss growing in the slower flowing lower reaches, and a few hardy lichens in the upper.

The surrounding land that is close to the stream is much more interesting. Many land plants have adapted to poor soils, and the stream provides water and shelter in the gorge. On the plateau near the camp site the stream forms marshy areas rich in grasses, mosses, and a wide range of flowering plants, including sundew. There are also several varieties of ferns and heather. The gorge itself is even more interesting since it provides sufficient shelter for trees to grow (though stunted) oak, silver birch, mountain ash, and holly were seen. There is much soil creep on the gorge, and the soil that is not washed away by the stream accumulates and provides a better soil than on the surrounding slopes. Here are found low bilberry bushes, honeysuckle, and the inevitable ferns and grasses.-

Protozoa



Further up the gorge the vegetation is more scarce. The slopes are too steep for anything other than heather to cling to, There are a few small but very old oak trees covered in moss and lichen. Near the banks of the stream there are clusters of many different plants, but these are confined to suitable ledges. Where the gorge fades away long grasses and heather take over again, these also are succeeded by sphagnum moss and bog around the loch. Here the soil compresses like a sponge where-ever you walk forming pools of muddy water around your feet. Ample evidence of the lack of minerals in the soil is provided by the complete lack of flowering plants, with the exception of the sundew, which obtains supplementary food from insects.

MICROSCOPIC LIFE IN A SMALL STREAM ON JURA

The stream which has already been described in the survey project originates from a boggy area and a tiny oligotrophic (i.e. unproductive) loch in the hills above the camp site. The water is highly peat stained and poor in almost every dissolved mineral and nutrient except oxygen. The rate of flow is very fast. Yet it still is able to support some life, especially in its lower reaches, where there is a great deal of moss on the banks and on the stones. This traps decaying vegetable matter and so provides both food and a home for microscopic life. There are also a number of pools along the length of the stream. But these are flushed out by periodic floods and were quite barren when the expedition was there.

The most noticeable feature about the water samples from the stream was the almost complete absence of filamentous algae. Only two species were seen, and these only occasionally - mougeotia and an unidentified one. The free swimming alga Chlamydomonas, was also present, along with a plain circular alga that forms colonies embedded in the clear gelatinous substance.

The diatoms were well represented with eight species, including several of the almost universally occurring genus Navicula and the colonial (chain) form Tabellaria. There were very few desmids which is surprising since they usually abound on arid peaty soils, and are abundant in the streams running of the heath in the New Forest. Two forms were seen including Closterium.

A number of interesting protozoa can be found in the banks of the stream. One species of amoeba is present feeding of the algae. Three species of ciliated and one flagellated protozoan can be seen moving at high speed among the detritus. Protozoa are very difficult to identify as there are no really comprehensive fresh water guides published. Vortioella, though rare, clings to the mosses, and another form, probably Dileptus, moves about occasionally settling for a while and collecting food with the crown of its cillae. (see illustration) Its body is highly contractile. It can reduce itself to a shapeless blob if the microscope slide is jolted. Our specimen was full of ingested algae etc.. and possessed a curious bluish colour.

Multicellular Creatures

Feeding of the creatures already mentioned were a number of copepods, similar the well known cyclops (which , since there are 105 different species, I did not attempt to identify) and a few Cladocera, or water fleas, of a variety that suck the juice out of plant stems. Also in the water were millions of Chironomids (midge) larvae whose grotesque appearances under a microscope are guaranteed to put anybody drinking the water they came from.

PLANS FOR 1976

LEWIS EXPEDITION Group O (12 1/2-14) *	10th/26th August
NORTH UIST EXPEDITION Group N (14-15)	20th July/6th August
HARRIS EXPEDITION Group M (15-16)	19th July/4th August
SOUTH UIST EXPEDITION Group L (16-17)	9th/27th August
RHUM EXPEDITION Group K (17 +)	8th/27 August

* Age on 1st August 1976

All the dates mentioned must be regarded as provisional until the publication of the summer rail and steamer timetables. Details and copies of the Society's Prospectus for the coming year can be obtained from:

Mrs Mary Jones
19 Moss Lane, Timperley
Cheshire WA15 6TA

COVENANTS

A covenant is a most effective way of benefiting the Society. If you wish to make a donation to the Society this way can be to its advantage. By making a series of payments out of one's regular income the Society will receive in addition to your donation an amount equivalent to the basic rate of tax that one has already paid on earning that sum. If you wish to have more details of this method of aiding the Society the man to contact is:

JOHN ROUND (Treasurer)
SCHOOLS HEBRIDEAN
SOCIETY BACK LODGE,
SPELLOW HILL STAVELY,
KNARESBOROUGH YORKS.
TEL: COPGROVE 396

PAST EXPEDITIONS OF THE SHS

	Year	Leader:	
Gometra Expedition	1962	"	John Abbott
Rhum	1963	"	John Abbott
Gometra	1963	"	Tim Willcocks
Mingulay	1964	"	Martin Child
South Rona	1964	"	John Abbott
Raasay	1964	"	Richard Fountaine
Gometra	1964	"	James Emerson
Harris	1965	"	John Abbott
Jura	1965	"	Jonny Ker
Raasay	1965	"	Clifford Fountaine
Morvern	1965	"	Jim Hardy
Lewis	1966	"	Roger Dennien
Harris	1966	"	Alan Bateman
Jura	1966	"	Andrew Wilson
Colonsay	1966	"	Chris Dawson
Dingle	1966	"	John Houghton
Mingulay	1967	"	Kenneth Hudham
Rhum	1967	"	John Dobinson
Harris	1967	"	Andrew Wilson
Lewis	1967	"	John Abbott
Colonsay	1967	"	John Jackson
Vatersay	1968	"	Philip Renold
Lewis	1968	"	David Cullingford
South Rona	1968	"	Chris Gascoine Hart
South Uist	1968	"	John Cullingford
Colonsay	1968	"	Alan Bateman
Shetlands	1969	"	Chris Dawson
South Uist	1969	"	John Cullingford
Lewis	1969	"	John Hutchison
Rhum	1969	"	Chris Gascoine Hart
Colonsay	1969	"	Roger Trafford
South Uist	1970	"	Geoffrey David
Shetlands	1970	"	David Vigar
Fladday	1970	"	Mike Baker
Lewis	1970	"	Alan Howard
North Uist	1970	"	Philip Renold
Ulva	1970	"	Alan Fowler
South Rona	1971	"	Roger Weatherly
Rhum	1971	"	Philip Renold
Jura	1971	"	Charles Hooper
Colonsay	1971	"	Alan Howard
Mingulay	1971	"	Hugh Williams
Muckle Roe	1972	"	Ray Winter
South Uist	1972	"	Alan Fowler
Lewis	1972	"	Gavin Macpherson
Raasay	1972	"	Paul Caffery
North Uist	1972	"	Roger Weatherly
Harris	1973	"	Philip Renold
South Uist	1973	"	Alan Fowler
South Rona	1973	"	Jim Turner
Rhum	1973	"	Mark Rayne
Jura	1973	"	David Bradshaw
Colonsay	1973	"	Alan Howard
South Uist	1974	"	Jim Turner
Raasay	1974	"	Peter Carlisle
Harris	1974	"	John Hutchison
North Uist	1974	"	John Cullingford
Outer Isles	1974	"	Paul Caffery

Colonsay Expedition
Jura "
South Uist "
Raasay "
Mingulay I "
Mingulay II "

1975
1975
1975
1975
1975
1975

Leader: Philip Renold
" Lawrence Hall
" Alan Evison
" Gavin Macpherson
" Nick Deeley
" Nick Deeley



ARCTIC SKUA