

ACKNOWLEDGEMENTS

The counting of Wrybills over twenty years has been possible only through the co-operation of many willing helpers, who have provided transport or braved the wintry mud to reach keypoints at a significant season. More than one census has been taken on a mid-winter's day. I am especially grateful to Messrs. H. R. McKenzie, D. A. Urquhart, P. C. Bull, J. C. Davenport, B. D. Heather, F. M. Brookfield; Miss N. Macdonald; Mr. and Mrs. J. Prickett.

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BIRDS OF THE MERCURY ISLANDS GROUP

By P. D. G. SKEGG

The Mercury and Ohena Islands were visited from 27th August until 7th September, 1962. The intention was to study some of the islands not visited by a similar expedition twelve months earlier, and to spend a night on others previously visited only by day. The party was once again led by B. D. Bell (Senior Field Officer, Department of Internal Affairs), and included A. Blackburn, R. B. Sibson, I. A. E. Atkinson (Botanist, D.S.I.R.), J. L. Kendrick, J. F. O'Brien (Wildlife Branch), Miss Lois J. Bishop, Miss Joan Robb (Zoologist, University of Auckland), and C. G. Cathie, M. J. Hogg, N. J. Ledger, R. H. Sibson, P. D. G. Skegg of the King's College Bird Club. Eleven of the party were members of the O.S.N.Z.

In late November, 1962, C. A. Dickie and P.D.G.S. spent four days at the islands.

Strictly speaking, all the islands listed below comprise the one group, but for the sake of convenience they have here been divided into two sub-groups. The Mercury sub-group is taken to comprise Great Mercury (Ahuahu), Red Mercury (Whakahau), Kawhitihi (Atiu I., Stanley I.), Double Island (Ngaumangamanga, Fisherman's I.), Korapuki (Rabbit I.), Middle Island (Flax I.), and Green Island. The Ohena sub-group, to the south, includes the islands of Ohena (Ohinau), Little Ohena, and Koruenga (The Maori Woman) and the rocks or stacks of Black Rocks, Flat Island, Old Man Rock, and Needle Island (The Hole in the Wall).

On 27/8/62 we left Hobson Wharf, Auckland, in R.N.Z.A.F. "Arataki" and proceeded direct to Great Mercury. We arrived at our

campsite at Peach Grove, on the south coast of Great Mercury, at 4.30 p.m. Landing on the sandy beach was a simple matter and we just had time to find a suitable campsite and pitch tents before dark.

The next morning we re-embarked on the "Arataki" and went south to the Ohenas. It was intended that half the party would visit the comparatively unmodified Little Ohena but, the seas being as they were, a landing was not possible, and all the party spent the night on Ohena. An easy landing was made at the northern end of the island where there is a boulder beach and a patch of sand. A Leopard Seal (*Hydrurga leptonyx*) on the beach was a source of much interest, particularly to the photographers. Its faeces contained remains of Little Blue Penguins and primaries of shag and/or shearwater.

We confined our attention to the northern half of the island, the southern half having been covered by I.A.E.A. on 27/7/61. A night spent under the stars, below the old Maori wall and near the remains of the old Fishing Shack was rather chilly.

The next morning we were taken off Ohena, and for the night of 29th-30th the party was divided, some visiting Red Mercury, others Double Island. The Red Mercury party used the 1961 campsite at South Landing, and cleared the track to Roly-poly Bay, where banding operations were carried out. The Double Island party landed on the boulder bank and set up camp in the scrub at the eastern end of the western islet. During the night it rained heavily.

C.G.C. performed something of a feat when he caught with a boat hook a Giant Petrel which came alongside Jim Butterworth's fishing boat. It was duly put in a sack and transported on the "Arataki" back to Great Mercury for banding and photographing. The "Arataki" left us that afternoon.

On 31st August a party left for Middle Island. A landing made at the southern end of the eastern side of the island proved both rocky and difficult. As no handy campsite was to be found, the party slept on the beach. The island was covered fairly thoroughly and banding took place on the eastern slopes that night. The journey back to Great Mercury in rough seas was not without incident.

Rough weather for the next three days restricted operations to Great Mercury, where the southern two-thirds of the island were well explored. Shag banding by torchlight met with little success.

The seas had calmed sufficiently by 4th September to enable parties to spend a night on Green Island and Korapuki. On Green Island a difficult landing was made near the westernmost point. Tents were pitched at the base of the southern talus slope. The island is riddled with Diving Petrel burrows, and the supply of 200 bands was exhausted in a little over an hour. The Korapuki party landed in the centre of the south-eastern side of the island and this proved almost as good a landing as the north-western boulder beach used in 1961. Camp was made among flax and pohutukawas on the ridge up a steep cliff from the landing.

By the 5th the sea had roughened again but both parties got back to Great Mercury, though the last boatload took rather a long time when, after one of the rowlocks had earlier been lost overboard, the outboard motor died in open seas.

The "Hauraki" arrived on the 6th and in the late afternoon

we embarked and sheltered for the night in Kennedy Bay on the opposite mainland. Anchors were up at 4 a.m. next morning and we reached Auckland at 11 a.m..

The short two-man visit in November, 1962, was made possible by Mr. J. Butterworth, a crayfisherman of Whitianga. In his boat "Shoal," we left Whitianga on 25th November and en route for Red Mercury landed on Needle Island and Ohena. Seas again prevented our landing on Little Ohena, where both Tuataras and White-faced Storm Petrels are said to be found.

A most profitable night was spent on Red Mercury, where Pycroft's Petrels were discovered breeding, but a wind change made it necessary to leave early the next morning. Some hours were spent on Kawhitihiu on the 26th and late that afternoon a landing was attempted on Middle Island. After swamping the dinghy in the heavy surf, we decided that discretion was the better part of valour. We left again almost immediately.

Having sheltered for the night in Coralie Bay, we went ashore at first light the next morning. The day was spent exploring the northern one-third of Great Mercury, the only part of the island we had not covered in August-September. That night we enjoyed the warm hospitality of the Delamore home. We returned to Whitianga next day crewing a yacht that had not been able to leave Huruhi Harbour because of the seas.

DESCRIPTIONS OF ISLANDS

Descriptions of Red Mercury, Double Island, Kawhitihiu and Korapuki are to be found in the report of the 1961 expedition (Edgar 1962).

A lengthy description of Great Mercury, which differs in most respects from the rest of the Group, was published some years ago (Cochrane 1957) and use of it has been made here.

Great Mercury extends for a little over four miles north and south and varies in width from under a quarter of a mile to over one and a quarter miles. It is 4300 acres in extent, being almost ten times the size of the next largest island of the group. The island comprises a northern one-third of rolling to steep pasture-covered hills, and a higher and more broken southern two-thirds, which rises to a height of 810ft. above the White Cliffs. The two sections are joined by a narrow short tract of low sand dunes and consolidated sand, hereinafter referred to as the Flats.

The Flats are built of deposits from opposing wave action and have been drained, ploughed and sown to form good exotic pastures of ryegrass, white clover, paspalum and Yorkshire Fog, which have a very high carrying capacity. It is on The Flats and on the northern area of the island, which is largely a mixture of danthonia and browntop pasture, that most of the farming activity of the island is concentrated. The large southern area, with a 2000 acre poor clay basin, is largely covered with stunted Kanuka scrubland, beneath which no regenerating forest species could be found. This area is periodically burnt off, but the only pasture in this southern area is around a narrow coastal strip. Only very small stands of coastal scrub and forest remain on some inaccessible cliff faces and steep gullies. Gorse is a large problem, especially in the north, but some hundreds of goats help control it.

The island has a colourful history which entails Maori settlement and feuds, early pioneering, smuggling, whaling, gumdigging and shipwrecks (Buchanan 1937). It has been farmed since 1857, and is at present occupied by the Mizen and Delamore families. The two homesteads, one of which is 95 years old, are situated by the entrance to Huruhi Harbour.

In August-September we camped on a beautiful site at Peach Grove and found it infinitely superior to the Sheep Bay campsite we had used twelve months earlier.

Situated less than a mile south-east of Great Mercury is the smallest island of the Mercury sub-group, Green Island. It is about six acres in extent, built of steep andesite, and is of NE-SW orientation, c. 300 yards long and varies in width from 80 to 110 yards. It rises steeply from the sea to a long narrow crestal ridge of 105-170 feet above sea level. At the southern end is a talus slope leading down to a boulder bank, apparently formed by opposing wave action. Adjoining the northern end of the island is a large and almost perpendicular-walled islet. There are various rocks off the southern and western ends of the island.

It seems likely Green Island has long been left undisturbed. The seaward slopes are predominantly karo over taupata, with extensive areas of ice plant in the more rocky places, which include two-thirds of the northern slope. There are also stands of taupata and ngaio-karo forest. On the ridge karo-taupata scrub is the most widespread type, but mahoe and *Coprosma macrocarpa* are also present.

A landing can be made in the lee of the three rocks near the western corner of the island, and is easiest at high tide. Small tents can be pitched at the base of the talus slope. There is no fresh water. Tuataras are numerous.

Situated between Green Island and Kawhitihu is the twenty-acre Middle Island. Of andesite, it is over six hundred yards long and is up to two hundred yards wide at places. The southern and western slopes are formed by vertical cliffs 200 feet high. The eastern side is a very steep soil-mantled slope rising to the edge of two small plateaux, the northernmost being connected to the central plateau by a narrow saddle.

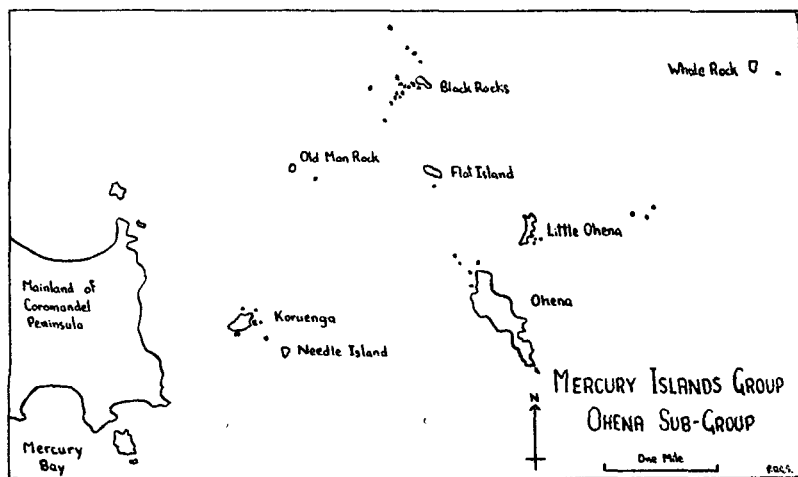
The southern end of the island comprises a narrow ridge which at its extreme end swings sharply eastward, and is surrounded by precipitous cliffs.

The vegetation of the island appears almost virgin, and although charcoal was found at a depth of 6-8 inches in a soil profile on the central plateau, there is absolutely no evidence that extensive fires occurred. The western seaward slope is predominantly taupata-*hymenanthera* scrub, the eastern seaward slope karo over taupata scrub, and the southern ridge karo over *hymenanthera* and mahoe forest. The upper slopes fringing the plateau are wharangi-mahoe forest. The large-leaved milk tree (*Paratrophis banksii*) is dominant on the plateaux, and the fine stand of this species on the northern (summit) plateau is apparently unique. Karaka is of local importance on the northern plateau. The cliffs are largely without vegetation.

The best landing is on the boulder beach at the southern end of the eastern side of the island. There is no handy campsite, and our party slept on the beach. In early September there was a small seepage just north of the landing. On this island, too, Tuataras are plentiful. Kioris were not found on either Green or Middle Islands.

About six miles south-south-east of Great Mercury, and three miles east of the mainland of the Coromandel Peninsula, is Ohena. Just over a mile in length, it is up to 650 yards wide. It has a total acreage of 52. The island is largely of andesitic rocks, the central western cliffs being precipitous vertical columns of finely banded sandstones which rise 300 feet from deep water. The island is divisible into a higher northern section, up to 305 feet a.s.l. for the most part, bordered by greyish and pinkish white rhyolite lavas and breccias which give way to the lower cliffs of the narrow southern section, at the end of which is a navigational light.

The vegetation of the island is completely secondary. Although probably first cleared by the Maoris, who had extensive kumara plantations on the island, little of the present plant cover could possibly be more than a century old. The northern amphitheatre-shaped slope is dominantly mahoe. The upper slopes of the northern section of the island are largely manuka over mahoe scrub, with mapou of local importance. In one area on the mid slopes of the island tauhinu, *Scirpus*, and prostrate manuka form a low, shrubland. The upper slopes of the low southern section of the island are largely dense flaxland, with pohutukawas emergent in places. The seaward slopes are largely pohutukawa scrub, though on a small islet apparently not frequented by rabbits karo-houpara predominate. Pohutukawa and ice plant make up most of the cliff plant communities. Grazing by rabbits (*O. cuniculus*), which were introduced in the nineteenth century, prevents the regeneration of many plants, including probably karo, taupata and wharangi. Kiores (*R. exulans*) also were present.



The pebbly beach, with some areas of sand, at the northern end of the island offers an easy landing at any tide. It is possible to pitch tents near the remains of the old Fishing Shack, only part of the framework of which still stands. We found no supply of fresh water.

Little Ohena is situated about 600 yards north-east of the northern-most point of Ohena. Of north-south orientation, it is largely surrounded by cliffs and rises to a height of 160 feet. It has an area of 3 acres, being very approximately 600 yards long by 100 yards wide. The plant cover appears relatively undisturbed. Landing is difficult. A likely place has been noted near the centre of the western coast, but a swell prevented our landing.

Flat Island is a low rock, highest point only 20 feet, about one mile north-north-west of Ohena. It has only one small patch of vegetation. Black Rocks, three quarters of a mile north of Flat Island, is a rocky islet in two parts, with a surprisingly good cover of vegetation and rising to 80 feet above sea level. Old Man Rock is the site of a battery-operated navigational light and is situated a little under two miles north-west of Ohena. It is 210 feet high, with near perpendicular sides and a sparse cover of vegetation.

Koruenga, like Needle Island, is not always considered one of the Mercuries. Only one mile east of the Coromandel coast, it is approximately a quarter of a mile long, 175 feet high, and supports a good plant cover. Landing appears simple. The 255 feet high Needle Island, less than half a mile south-east of Koruenga, has never been climbed. It is of steep, crumbly, much-eroded rock, with vegetation growing only on the small ledges. Landing is difficult except in calm seas.

THE BIRDS

Until 1961 the Mercury Group had received much less attention from the ornithological standpoint than most of the offshore islands of Northern New Zealand. They were visited by R. A. Falla and B. Sladden in the 1920's and again by R.A.F. and B.S. with Logan C. Bell in 1951, but on neither occasion was a full report published. In August-September, 1961, a party visited the group and investigated five of the islands. A full report was published (Edgar 1962).

The Species Notes are based on the records of two 1962 expeditions supplemented by records of the earlier trips and the information given me by the Mizen and Delamore families.

Our banding record in 1962 was as follows:

Diving Petrel	---	600
Grey-faced Petrel	---	290
Fluttering Shearwater	---	59
Allied Shearwater	---	11
Pycroft's Petrel	---	10
Pied Shag	---	2
Giant Petrel	---	1

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All the islands, but for Great Mercury, have much the same tubenoses breeding, but with significant differences in numbers.

RELATIVE ABUNDANCE OF PETRELS IN AUGUST-SEPTEMBER

	Red M.	Double	Kawhiti	Middle	Green	Korapuki	Ohena	Gt. Merc.
Grey-faced Petrel	1	1	1	4	3	1	1	1
Fluttering Shearwater	2=	2=	—	3	2	3	3	—
Allied Shearwater	2=	2=	—	2	(4)	4	(4)	—
Diving Petrel	?	—	2-	1	1	2	2	—

N.B. — (i) Brackets = heard only.

(ii) Some species, such as Fleishy-footed Shearwaters, were not coming ashore at the time of our visits.

(iii) At least a night has been spent on every island except Kawhitihi.

BUSH BIRDS ON SMALLER ISLANDS

	Green I. 6 acres	Middle I. 20 acres	Korapuki 24 acres	Ohena 52 acres
R.-F. Parakeet	3 pairs	50+ pairs	25 pairs	35-40 pairs
Fantail	6 pairs	50+ pairs	25 pairs	20-25 pairs
Warbler	10-12 pairs	30-40 pairs	15 pairs	20-25 pairs
Bellbird	3 pairs	12 pairs	5 pairs	20 pairs
Silvereye	10 pairs	12 pairs	12-15 pairs	15-25 pairs
Thrush	—	—	2 pairs	—
Blackbird	1	20+ pairs	5 pairs	5-10 pairs
Dunnock	1	6+ pairs	1	10-15 pairs
Chaffinch	4 pairs	2	1	7

N.B. — (i) Numbers of pairs are only approximate. Where figures only are given this is the number seen and no estimate has been made of the number of pairs (if any) present.

(ii) Green I. and Middle I. have been undisturbed for a very extensive length of time, whereas the vegetation of Korapuki and Ohena was much modified last century and earlier.

NORTHERN BLUE PENGUIN — Nesting on all the islands of the Mercury sub-group, and also Ohena. In largest numbers on Korapuki and Red Mercury. Two occupied burrows on Red Mercury were just below on inland ridge at c. 300 feet a.s.l. A number of burrows examined on 1/9/62 on Great Mercury contained two fresh eggs each. A chick examined on Red Mercury on 25/11/62 had lost almost all its down.

GIANT PETREL — Odd birds seen in these waters every day in August-September. One caught and banded on 30/8/62 was seen again on 6/9/62. None seen in November.

FLESH-FOOTED SHEARWATER — Falla (1934) recorded them as breeding in the group. Burrows in cliff-top situations, unoccupied in August-September, on Red Mercury, Double Island and Kawhitihi.

may well prove to be of this species. Falla (1935) shows a photograph of a Tuatara sharing a burrow with a Flesh-footed Shearwater at the Mercury Islands. As Tuataras are present in numbers only on Middle Island, Green Island and Little Ohena, it therefore seems likely Flesh-footed Shearwaters breed on at least one of these.

Ohena is apparently a stronghold of this species. Four dried specimens were found in August. Two counts of burrows in 100 square yards were made, and in neither area were more than 2 burrows occupied by Grey-faced Petrels. One area in a flat situation above the north-east cliffs had 38 burrows, and another area on a steeper slope behind the Northern Landing gave 32 burrows.

Although they were again present in New Zealand waters by the time of our August-September visit, none was coming ashore. On 25/11/62 upwards of thirty burrows were examined (by day) on Ohena, and all were empty. Many appeared to have been cleaned out, fresh droppings and feathers being much in evidence. It seems that the birds were coming ashore in numbers at night by this date.

The local Maoris still take this petrel each March as a "mutton-bird" in this group.

One fresh corpse on White Beach, Great Mercury, on 27/11/62.

SOOTY SHEARWATER — One fresh corpse on White Beach, Great Mercury, on 27/11/62.

FLUTTERING SHEARWATER — Coming ashore in numbers by the end of August. Kawhitihu, the only island of the Mercury sub-group on which we have not spent a night, is the only island in which we have not found Fluttering Shearwaters breeding (except Great Mercury). They were most common on Korapuki and on Green Island, where 22 were caught and banded by two boys in an evening. In a typical five minutes about midnight 14 were heard coming ashore on one side of this small island. Present on Ohena.

Burrows were found in varying sites, but the most favoured sites appear to be near the shore, often among ice plant or sometimes taupata and flax. On a number of occasions in late August or early September we found pairs of birds crooning under large boulders on the beach.

No birds were seen at sea among the islands of the group in August-September, but in November many hundreds were seen, particularly off the south and east coast of Great Mercury.

On Korapuki on 4/9/62 a female was found in a burrow by day incubating a fresh egg. This is the earliest laying date yet recorded.

ALLIED SHEARWATER — Recorded coming ashore on Red Mercury, Double Island, Green Island and (in largest numbers) Middle Island. They may well be present on Kawhitihu, the only island of the Mercury sub-group on which we have not spent a night. Calls, thought to be of this species, were heard on Ohena.

GREY-FACED PETREL — The Mercuries are a stronghold of this species, largest numbers being found on Double Island, Red Mercury, Korapuki and Kawhitihu. Breeding in much smaller numbers on Green Island and Middle Island. No positive indication of breeding on Great Mercury. An 1859 map (Buchanan 1937) shows mutton-bird sites above the White Cliffs, and they continued to breed here

until recent years. We found burrows and an old Grey-faced Petrel skull on Taramoko, a headland on the south coast of Great Mercury, but they were not breeding here in 1962. Michael Delamore has found them breeding on the Little Sister, a rock off Huruhi Harbour. Present in small numbers on Ohena.

By early September most birds had young chicks or eggs very near hatching. By the last week of November on most of the chicks we examined the feathers on the wings were beginning to show through the light grey down. Of 34 birds caught in less than half an hour on the Rolypoly Bay slope of Red Mercury on 29/8/62, no fewer than 8 were birds banded at the same place twelve months earlier. A count of burrows in 100 square yards of the Rolypoly Bay slope totalled 41.

One bird examined had white patches on its wings, a number pink blotches on their feet (this being the result of a growth on the webs of a number of petrels, which when it peels off leaves these blotches). Another bird had a large tumour on the outer toe of the right foot.

Some "muttonbirding" takes place in November on Red Mercury, Kawhitihu and Korapuki. According to Mr. J. Butterworth, numbers taken probably never exceed 500. Grey-faced Petrel bones were found in an old Maori midden on Green Island.

MOTTLED PETREL — Only record from the group is a specimen picked up dead on the beach at Red Mercury in the 1920's (Falla, 1934).

PYCROFT'S PETREL — Discovered breeding in surprising numbers — certainly some hundreds of pairs — on Red Mercury, the only island on which night work has been done in summer. On 25/11/62 10 were banded in a very short time and at least another 10 seen, on the Rolypoly Bay slope. They were also heard calling as they flew up the valley behind the South Landing.

WHITE-FACED STORM PETREL — Recorded breeding on the Mercury Islands in 1926 (Falla 1934), apparently on Little Ohena. We found no evidence of their breeding on any island visited, including Green Island, which we thought might be suitable. Bones found in a Black-backed Gull's nest on Double Island were identified as a White-faced Storm Petrel's. In 1962 none were seen at sea in the vicinity of the islands.

DIVING PETREL — Breeding in very large numbers all over Green Island and Middle Island, and in smaller numbers mostly in cliff sites on Kawhitihu, Korapuki, and Ohena. Burrows in concentrations wherever there is sufficient soil on Needle Island.

Remains were found in a Black-backed Gull's nest on Double Island, and two birds were seen on the ground on Red Mercury in 1961, but no evidence of breeding on either island as yet.

On Green Island two counts of burrows were made. One area of 100 square yards on the southern talus slope, under tallish taupata and karo, contained 76 burrows, 70+ of which belonged to Diving Petrels. Another area of 100 square yards on an open slope at the north-eastern corner of the island, amongst iceplant and taupata (6-18ins. high) contained 185 Diving Petrel burrows. Some areas would have more than 200 burrows to a 10 yards x 10 yards

sector. If, allowing for rocky areas, an average of 50 burrows to 100 square yards is taken this gives approximately 2500 pairs to an acre, or about 15,000 pairs on this six-acre island.

A count on an eastern slope of Middle Island gave 47 burrows in 100 square yards.

Diving Petrels sometimes occupy the much larger burrows of Grey-faced Petrels. By the beginning of September most birds are incubating a single fresh egg. A crooning "porr" makes a wall of sound at this season from soon after dusk until about 5.45 a.m. Even at this stage of nesting, after at least the bulk of the birds have laid, birds were noted "necking" and copulating outside their burrows. In late November the chicks were alone in their burrows by day. They were covered with a light grey down, with feathering beginning to show through on the head and wings. Diving Petrels fly in straight and almost bullet-like to land heavily by their burrows. Many immediately put their heads under their wings. They are considerably more nimble than the larger petrels on the ground.

GANNET — Quite clearly no large colony in the Mercuries. We saw small strings and single birds among the islands every day.

According to Fleming and Wodzicki (1952) there are unconfirmed reports of breeding between 1935-38 from the Sisters, two small stacks off Huruhi Harbour. There was some evidence of roosting in the 1940's. According to the Delamores up to 14 now roost on the Sisters.

Mr. Peter Densen recorded a single pair of Gannets breeding on Never Fail, a small rock just north-east of Great Mercury, in 1960-61 and 1961-62 season. They were definitely not present in the 1959-60 season (Stein 1962). On 27/11/62 we examined the rock from Arimiwhai, Great Mercury, and no Gannets could be seen on the side of the rock visible to us.

A roost was discovered on a small stack off the southern extremity of Korapuki. At dusk on 4/9/62, 3 were sitting on it and 6 more were circling around. Droppings led us to believe it was in regular use.

BLACK SHAG — Only noted as an occasional visitor in November.

PIED SHAG — There was a thriving colony, at least 30 years old, at Peach Grove. In 1962 there were 40 breeding pairs. Small colonies persist on Red Mercury and Kawhitihiu. The Delamores told me of a colony of c. 14 pairs on Number Two Beach, near the northern end of the west coast of Great Mercury.

Roosts were found on the south-west cliffs of Red Mercury (4 birds); a stack off Middle Island (19 birds); rocks offshore Green Island (c. 20 birds); in pohutukawas overhanging 100 feet high cliffs between Peach Grove and Sheep Bay, Great Mercury (c. 20 birds); on rocks by Taramoko, west of Peach Grove (4 birds); at an old nesting colony at Fly Point; at entrance to Huruhi Harbour (6 birds); by the fish wall in Huruhi Harbour (8 birds); Black Rocks (5 birds); islets off the northern end of Ohena (c. 18 birds); and west coast of Little Ohena (6 birds).

Breeding at Peach Grove in early September was at all stages from well grown and strongly flying young to fresh eggs. The material of which one nest was constructed included nearly 200

branches or twigs of pohutukawa, manuka and kanuka, with a lining of pohutukawa leaves, bracken, sedge and pohuehue.

Non-flying or weakly flying young were frequently noted to swim under water, using their wings and tail to assist progress. So, too, on occasions, were adults. Buller noted Pied Shags using wings and tail underwater when they were diving off Kawau Island, but Stead (1932) never observed this behaviour. When the young were disturbed from their roosting places at night they would submerge and nearly always swim to where our torchbeam met the water.

LITTLE SHAG — One or two birds were seen offshore among the Mercuries, but none were seen in the vicinity of the Ohenas. At Peach Grove, a pair of Little Pied Shags and two pairs of White-throated Shags were frequently to be seen sitting in the tops of the pohutukawas at the Pied Shag colony, but in early September they did not appear to be breeding. A pair of White-throated Shags was twice seen in a pohutukawa by Awhitu, Great Mercury.

REEF HERON — One or two pairs along the south coast of Great Mercury. Also seen at Coralie Bay.

WHITE-FACED HERON — Mr. P. Mizen informs me they are a recent arrival to Great Mercury. 3 or 4 were present in September, 1962, so they may well have bred. They walk around in the paddocks and sometimes perch in the top of tall cypresses (*C. macrocarpa*).

BITTERN — According to Mr. P. Mizen, a straggler visited Great Mercury about 1959, but was seen for only a few months. In 1962, Michael Delamore saw one in the old Maori eeling swamp at the northern end of the Flats.

GREY DUCK — Recorded by us at Peach Grove, Great Mercury, where 6 were seen on one occasion. Apparently present in Huruhi Harbour. The Delamores tell me there is an influx during the shooting season, a flock of 24 seen at this period many years ago being the largest number recorded.

HARRIER — Present on every island visited. They wander from island to island and were three times noted at sea between Middle Island and Great Mercury, and once between Middle Island and Kawhitihu. Only small numbers present on Great Mercury. The population on Great Mercury was once described as excessive and trapping was carried out for several years, 42 being trapped in a year.

BROWN QUAIL — In small numbers on Great Mercury. 3 seen in gumland scrub on slopes of Mohi Mt. on 3/9/62, near where J.L.K. saw 2 during a short visit in January 1961.

PUKEKO — According to Mr. P. Mizen, appeared some years ago, since when an explosion in the population has taken place. On 31/8/62 we saw 9+ in a reedy lake of two acres extent at the northern end of the Flats, and one on the edge of the scrub at the southern end. Mr. Mizen tells me there were up to 100 present in the upper reaches of Huruhi Harbour at this time. In late November there were pairs breeding in almost every gully in the northern area of the island with any reedy or swamp vegetation. Some birds were incubating eggs (up to 10), some had chicks. They frequently feed on pasture.

NORTHERN OYSTERCATCHER — Heard calling between Sheep Bay and Peach Grove on 30/8/62. The Mizens and Delamores tell me 6 are sometimes to be seen on White Beach.

BANDED DOTTEREL — The Flats appear a favourite haunt — 1 pair on White Beach on 31/8/62, 4 pairs on this beach and the grassy area of the Flats on 27/11/62. They sometimes feed in Huruhi Harbour.

NEW ZEALAND DOTTEREL — The Mizens and Delamores had never seen them on Great Mercury before 1961. Five were counted on 31/8/62, 1 pair being at Coralie Bay, 1 pair and 1 single on White Beach. Two pairs, both very agitated, were seen in the pastureland of the Flats on 27/11/62.

ASIATIC WHIMBREL — One, probably a tired migrant just arrived, appeared at Peach Grove on 5/9/62, and was seen again on 6/9/62. Seemed reluctant to leave and used a variety of resting places, such as a ledge 15 feet up a cliff, the sandy beach, an offshore reef, a freshwater stream mouth under low pohutukawas, and jumbled rocks below a headland.

RED-BILLED GULL — Small numbers around all the islands by day. At Peach Grove, sometimes flew up the stream. In August-September evening flocks of e.g. 20, 20, 25+, were to be seen flying west along the southern shore of Great Mercury, very probably to some roost. The same general movement was noted in November. There was definitely no nesting colony in the Mercuries in the 1962 season. At Peach Grove a number of them mobbed a Giant Petrel as it sat on the water after we had released it.

BLACK-BACKED GULL — Small numbers on all islands, with most on Flat Island (40+). The Mercury birds have a number of roosts including a rock by Green Island and (judging by birds flying around at dusk) the summit of the easternmost section of Double Island. Some of the Ohena birds were seen leaving for the mainland at dusk and returning next morning. In August-September old nests were found on the boulder banks of Double Island and Green Island. They were nesting at a number of localities around the coast of Great Mercury in late November. Bones found in a Double Island nest included Diving Petrel, White-faced Storm Petrel and Kiore.

WHITE-FRONTED TERN — As noted in 1961, very few present among the Mercuries in August-September. Two by Ohena on 28/8/62, and no more seen until 5 off Green Island on 5/9/62. On 6/9/62 c. 20 were seen west of Great Mercury, and they grew more and more common as we crossed to Kennedy Bay, on the opposite mainland. In late November they were in evidence. 150+ were sitting on Never Fail, a small rock north-east of Great Mercury, on 27/11/62. Whether they were breeding was not ascertained. There was much movement of Swallowtails, as they are locally called, towards this rock at dusk. In January, 1963, Michael Delamore found large numbers nesting on the rocks at the westernmost point of Green Island.

CASPIAN TERN — From time to time odd birds visit bays and fish the shallow waters round most of the islands. Not known to breed

anywhere in the group. The Delamores inform me that for many years two have always been present in Huruhi Harbour, but only rarely does a third one appear.

KAKA — Mrs. A. R. Delamore saw one near the homesteads on Great Mercury about 1960. It stayed only a short time.

RED-FRONTED PARAKEET — One of the commoner bush birds on all islands, with the exception of Great Mercury. Here we noted them only at Peach Grove and Sheep Bay. Prior to the summer of 1962-63, when there were several around the homesteads, Mrs. A. R. Delamore had only once seen them on Great Mercury. One was seen on Old Man Rock in July, 1961 (Atkinson 1962). They are perhaps the commonest land-birds on Middle Island and Korapuki.

Particular attention was paid to noting the food of these parakeets. On Double Island there were masses of leaves under a stand of tawapous. In all cases the leaves were cut off half to two-thirds way along the petiole. On Middle Island they were observed biting off *hymenanchera*, wharangi, and taupata leaves. They were also nibbling at the terminal shoots in the *Paratrophis* forest, but no defoliation was noted. On Korapuki they were picking the petals off manuka flowers. On both Green Island and Ohena, parakeets were seen chewing karo leaves. In the extensive flax areas on Ohena many sheaths of the flax buds were holed, and some completely stripped, before the flowers could develop. Bill marks led us to attribute this to parakeets.

SHINING CUCKOO — Heard in November on Red Mercury, Kawhihi and Great Mercury.

MOREPORK — Present on Red Mercury, Double Island and Great Mercury.

KINGFISHER — Present in small numbers on all islands visited, with 1 or 2 pairs in most bays on Great Mercury.

SKYLARK — Plentiful on Great Mercury, particularly in good grassland. In early September some were singing but many were still in small flocks of e.g. 7, 10, 14, 17, 23. Skylarks are not normally present on the smaller islands, but they may visit them in search of suitable nesting country. On 4/9/62, two were seen passing from Green Island to Great Mercury, and 3 were seen passing from Korapuki to Great Mercury.

FANTAIL — Common on outer islands, and also on Great Mercury, where in early September they often appeared in groups of three. Frequently feeding over the seashore, probably getting insects from the rotting seaweed.

GREY WARBLER — Common on all islands visited, in particularly good numbers in the areas of scrub. On Great Mercury, it was singing wherever scrub was high enough. On Green Island, where it was the commonest passerine, one sang at 9 p.m. when a torch beam shone on it.

SONG THRUSH — Not present on any of the outer islands except Korapuki, where 3 were seen. On Great Mercury, we recorded them only by the homesteads and on the south coast — Awanui, Sheep Bay, Peach Grove — where they were present in very small numbers.

- BLACKBIRD** — Present on all islands visited. On Great Mercury it was in small numbers, and we recorded it at Peach Grove and near the homesteads.
- DUNNOCK** — This hardy coloniser was present and singing on all islands visited. It is one of the most common passerines on Great Mercury, thriving particularly in the scrubland.
- PIPIT** — Seen in small numbers on Great Mercury, where it was found in pastureland, around the cliff edges, and on the sandy beaches. The only other island on which it was recorded was Red Mercury, where one was seen at the South Landing.
- BELLBIRD** — One of the most common passerines, being in greater numbers than any other bush bird on Red Mercury, Double Island and Kawhitihu. On Great Mercury they were very scarce and we heard only one or two behind Peach Grove and none elsewhere. Mr. P. Mizen told me that one summer he counted 30 in a single pohutukawa behind Sheep Bay. They appear around the homesteads in the summer.
- TUI** — None seen in 1962. According to the Mizens and Delamores they are only occasional visitors.
- SILVEREYE** — Small parties on all islands visited and also Old Man Rock (Atkinson 1962). Largest flocks in early September were 15+ on Green Island and 25 on Great Mercury.
- GREENFINCH** — Present only on Great Mercury, where we saw a single bird at Peach Grove, and (in November) large numbers around the homesteads, where pines may be the attraction.
- REDPOLL** — Present on Great Mercury. Usually a few, maximum 6, about Peach Grove, where they often fed on the ground among the dunes of loose white sand. The only food identified was the seed of *Scirpus nodosus*. One tame pair, watched very closely on 6/9/62, showed strong mealy characters (v. *Notornis* X, 141).
- GOLDFINCH** — Only on Great Mercury, and rather scarce there. Up to 5 at Peach Grove, sometimes feeding an pohuehue. Elsewhere only odd pairs recorded.
- CHAFFINCH** — Has colonised all islands visited, and also Old Man Rock (Atkinson 1962). Song infrequent and incomplete. On Great Mercury a flock of 12+ on 31/8/62 was composed mostly of males.
- YELLOWHAMMER** — Recorded only on Great Mercury, where most were still in small flocks in early September. Very tame, especially when feeding in sunlit patches among scrub, and sometimes within a few feet of tents. Some tentative singing on 1/9/62.
- HOUSE SPARROW** — Present only on Great Mercury. Maximum of 4 at Peach Grove, but flock of 30+ seen over hill towards Taramoko on 5/9/62. Large numbers, probably in hundreds around the homesteads on 27/11/62.
- STARLING** — Evening flocks of 20-40 seen on or over all islands visited. They roost on Red Mercury, possibly on Double Island, and definitely on Middle Island (500+ in *Paratrophis* forest on 4-5/9/62). Much movement takes place between islands and it is not yet apparent how many birds breed here. Starlings were extremely common in pastureland on Great Mercury by day, but in comparatively small

numbers on the other islands. 20 pairs were nesting in the cliff at Fly Pt., by the homesteads on Great Mercury, in November. Starlings are the only land birds to frequent Needle Island and, according to Michael Delamore, the Sisters.

Our suspicion that here, as on the Alderman Islands to the south (Sladden and Falla, 1928), at least some come from the mainland to roost, was confirmed on 6/9/62. 6 were seen flying from the mainland to Great Mercury, shortly after 5 p.m.

MYNA — According to Mr. P. Mizen, a pair first appeared on Great Mercury in 1961. Presumably they bred, for five were present at the northern end of the Flats at the time of our visits. Michael Delamore informs me numbers had greatly increased by February, 1963.

BIRDS RECORDED ON SEA TRIPS BETWEEN AUCKLAND AND MERCURY ISLANDS

NORTHERN BLUE PENGUIN — The only one seen was near Square Top Island on 27/8/62.

GIANT PETREL — Common. On 27/8/62 a total of 43 birds was logged; 19 between Wharves and North Head, 12 between North Head and Noises, 5 between Noises and Colville, and 7 between Colville and the Mercury Islands. On 7/9/62 the numbers were at first much smaller, only 12 being seen between Mercury Islands and North Head, but in the inner Waitemata west of North Head a record local tally of 37 was noted, the majority sitting on the water together.

CAPE PIGEON — On 7/9/62, 3 followed "Hauraki" across Gulf from near Cape Colville until opposite Waiheke Island.

FLESH-FOOTED SHEARWATER — Two on 27/8/62.

BULLER'S SHEARWATER — One on 7/9/62.

FLUTTERING SHEARWATER — Large numbers seen on both trips, including an estimated 2000 between Waiheke Island and Cape Colville on 27/8/62.

GREY-FACED PETREL — Most feed well out to sea. One off outer Coromandel coast on 27/8/62.

WHITE-FACED STORM PETREL — Only 2s and 3s seen off Noises, where there is a breeding colony, on 27/8/62, but some hundreds on 7/9/62. As is usual there was an area where they were not seen between the Noises and directly north-west of the Motukawao Group. Present all down the outer Coromandel Coast.

DIVING PETREL — Small numbers seen off outer Coromandel Coast. In view of the very great population on the Mercuries, it seems likely most feed further out to sea.

GANNET — Can be remarkably scarce and elusive when it is remembered that the Hauraki Gulf has several sizable gannetries on its fringes. Strings of threes and fives usual, the largest noted containing twenty birds.

BROWN BOOBY — On 7/9/62, J.L.K., L.J.B., M.J.H., C.G.C. and P.D.G.S., standing at the stern of the "Hauraki" when about ten miles north-east of Horuhoru, with 3 Cape Pigeons following, saw a Brown Booby flying low over the water in an easterly direction. Field notes confirm identification (v. Stein 1953).

PIED SHAG — Only birds seen were 4 on rocks by Square Top Island on 27/8/62.

SPOTTED SHAG — 4 off Noises on 7/9/62.

ARCTIC SKUA — At least one chasing terns east of Kennedy Bay on 6/9/62.

WHITE-FRONTED TERN — At this time of year curiously scarce in the Waitemata Harbour. Only 2 seen before we reached Waiheke Island on 27/8/62, but opposite Waiheke a flock of c. 2000 were seen with Fluttering Shearwaters. Flock of 600 in same area on 7/9/62. Occasional birds seen rest of way.

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Permission to camp on Great Mercury was kindly granted by Mr. Edward Mizen; and the Mizen and Delamore families gave us much useful information. In November the Delamores proved most hospitable hosts for a night.

In August, we were transported to the Mercury Islands by R.N.Z.A.F. "Arataki," which stayed with us for three days. The cheerful co-operation of captain and crew was much appreciated. We returned to Auckland on R.N.Z.A.F. "Hauraki," and they, too, made us welcome. The November expedition was possible only through the assistance and generosity of our old friend, Mr. Jim Butterworth.

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STUDIES AT A KAKA'S NEST

By J. R. JACKSON

In spring, 1955, Mr. K. Cooper, of Ngahere, found a Kaka (*Nestor meridionalis*) nest. That year four chicks were reared and fledged and in 1956-57 there were three chicks, but one died before fledging and in 1957-58 the Kakas did not nest; and in 1958-59 they successfully reared five chicks. Since then there has been no activity by the nest.