

New Zealand Bird Notes

Bulletin of the Ornithological Society of New Zealand.

Edited by R. H. D. STIDOLPH, 114 Cole Street, Masterton.

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ANNUAL MEETING.

The Ornithological Society of New Zealand held its annual general meeting on May 23, 1947, in the National Club Rooms, Wellington. The president (Professor B. J. Marples) was in the chair and members were present from Dunedin, Christchurch, Wellington, Masterton, Hawke's Bay, Wanganui and Auckland.

No other nominations having been received, the officers, as detailed on page 89 were declared elected.

The annual report of the committee stated that the society had made substantial progress during the year. The membership had increased as at May 1, to 340, a gain of 100 since the same date last year. Removals from the roll by deaths, resignations and other causes totalled 22. There were 12 life members and 70 who had paid in advance, while 15 were in arrears for one year, four for two years, and four for three years. As the cost of printing "New Zealand Bird Notes" would be considerably higher next year, an increased number of members would be required to maintain the present standard of the publication. In this connection, the editor pointed out that during the year, four issues were published at regular quarterly intervals. The numbers averaged 22 pages a part. Contributions had been widespread, 23 members having contributed articles and 43 to the classified notes. Eight illustrations and three diagrams were included.

The financial statement showed a satisfactory position, though it was still desirable to build up a larger reserve. It included a number of items of expenditure necessitated by the change of secretaryship, and it was pleasing to note that donations of £4 4s. 8d. had been received, apart from special donations towards the cost of illustrations, etc. The possibility of reprinting the early cyclostyled bulletins had received attention, but, owing to the heavy outlay, which would be well over £100, this had been thought impracticable at the present time. Further exchanges had been arranged with overseas journals and institutions.

During the year, special investigations had continued, and these gave almost everyone a chance of contributing to their knowledge of birds. An example was provided by recent storms which washed ashore many petrels. If members patrolled their beaches after such storms much interesting material would come to hand.

It was decided to reissue, when required, numbers 1 and 2 of Volume 1 of "New Zealand Bird Notes," dated and marked as a reprint; the price to be 1s. 3d. or more at the editor's discretion.

The report of the ringing committee was received. Dr. R. A. Falla was elected to the committee, which it was suggested, should ascertain the Government's attitude to a ringing scheme.

Mr. C. A. Fleming reported on the progress of the gannet census. All the North Island gannetries had been visited or photographed, and these included the discovery by Major Buddle of a new colony. No definite information was available regarding South Island gannetries. Appreciation was expressed of the co-operation of the Air Department in photographing colonies from the air. Photographs were displayed at the meeting.

Dr. W. M. Hamilton, who visited the Great Barrier colony, said it appeared that numbers of young birds and eggs had been removed.

The following amendments to the Constitution, as circulated to members, were approved:—

- (a) In clause 4, alteration of July 1 to April 1.
- (b) In clause 5, alteration of July 1 to April 1.
- (c) In clause 6, alteration of final words to "shall take office at the conclusion of the annual general meeting."

(d) Replace clause 14 by: "Notice is to be sent to each member, not later than April 1, advising them that nominations of officers under clause 6 close on April 14, the names of retiring officers to be given. The election of officers shall be by postal ballot, the result to be announced at the annual general meeting. Each nomination must be in writing, and signed by two members, and be accompanied by the written consent of the nominee. When no nomination is received for any office, the retiring officer shall be deemed to be re-nominated. Casual vacancies may be filled by appointment by the remaining officers."

A proposal by Dr. Hamilton that the society consider incorporation was referred to the incoming committee for consideration. It was decided that a draft new constitution also should be referred to the incoming committee with a view to calling a special general meeting for its adoption.

The hon. secretary's action in bringing under the notice of members an appeal of the Emergency Committee for the Relief of European Ornithologists was approved. Several donations had been received.

Votes of thanks were passed to the chairman, the hon. auditor, the hon. secretary, Dr. Falla and Professor Marples for their past services, and to Mr. Grant Taylor for making the National Club room available for the meeting.

Supper was served.

INCOME AND EXPENDITURE ACCOUNT for Year ended 30th April, 1947.

INCOME.				EXPENDITURE.			
	£	s.	d.		£	s.	d.
Subs., 1946, and Arrears	118	5	0	N.Z. Bird Notes—			
Donations	4	4	8	Vol. 1, No. 11 and index	16	17	6
Sales (back numbers)	7	19	9	Vol. 2, Nos. 1 to 4	60	9	3
Interest, P.O.S.B.	2	14	2	Expenses of Transfer	2	5	9
				Envelopes	3	14	6
				Postages	9	11	10
				Exchange		8	6
				Stationery	7	6	9
				Subscription, R.A.O.U.	1	1	2
				Reprints Silvereye Paper, distributed 1946	2	4	11
				Excess of Income over Expenditure, transferred to General Reserve	29	3	5
	£133	3	7		£133	3	7

BALANCE SHEET as at 30th April, 1947.

LIABILITIES.				ASSETS.			
	£	s.	d.		£	s.	d.
Subs. paid in advance	77	5	0	Sundry Debtors	4	6	9
Extra Copies Reserve	4	10	0	Subs. in arrears, estimated to realise	2	0	0
General Reserve	112	13	4	Stationery on hand	5	9	0
				Cash		11	10
				Bank of New Zealand	29	6	7
				P.O. Savings Bank	152	14	2
	£194	8	4		£194	8	4

Audited and found correct.

F. E. WELLS, 1/5/1947.

(A more detailed audited statement of the accounts was presented to the annual meeting and copies may be obtained on application.)

A field excursion organised by the society was held in the Wairapa during the weekend following the annual meeting.

On the Saturday afternoon a visit was paid to the sanctuary of Messrs. Pike Bros., adjoining Carter's Bush, where several species of water-fowl were observed, including the grey teal. On Saturday evening, in Masterton, a film and slide screening was held. Mr. H. W. Hope Cross showed a colour film of bird life on Kapiti Island sanctuary and also one taken by Mr. E. G. Turbott, of the Auckland Museum, of the birds of Little Barrier Island sanctuary. A brief commentary on the Kapiti film was given by Mr. J. M. Cunningham, of Masterton, while Mr. Turbott supplemented the well documented film of Little Barrier. Slides were shown by Mr. R. H. D. Stidolph of birds in the Wellington district, including the Wairapa and Kapiti, and Mr. Turbott showed some of birds on sub-Antarctic and other islands.

On Sunday, in delightful weather, a visit was paid to Onoke Spit and to Pounui Lake, Mr. Norman Matthews's sanctuary in the Western Lake area. On the Spit the species seen included the black-fronted tern and members had an admirable opportunity of comparing the juvenile and adult plumages.

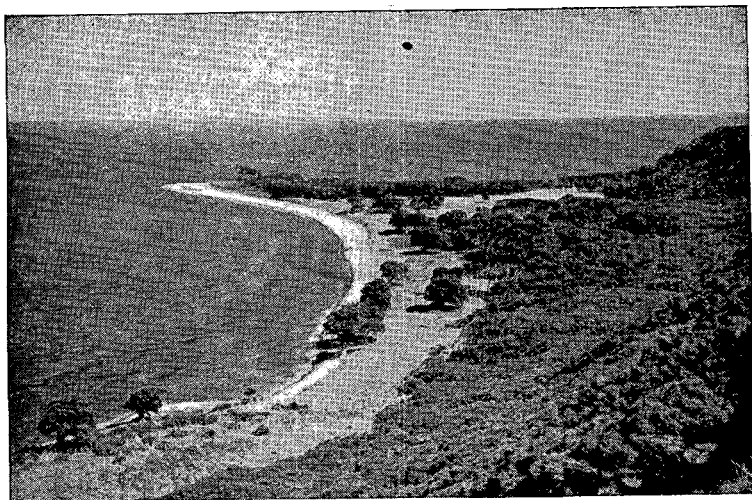


Photo: W. M. Hamilton
 THE HOMESTEAD FLAT AND BOULDER BANK FROM THE EAST,
 LITTLE BARRIER ISLAND.

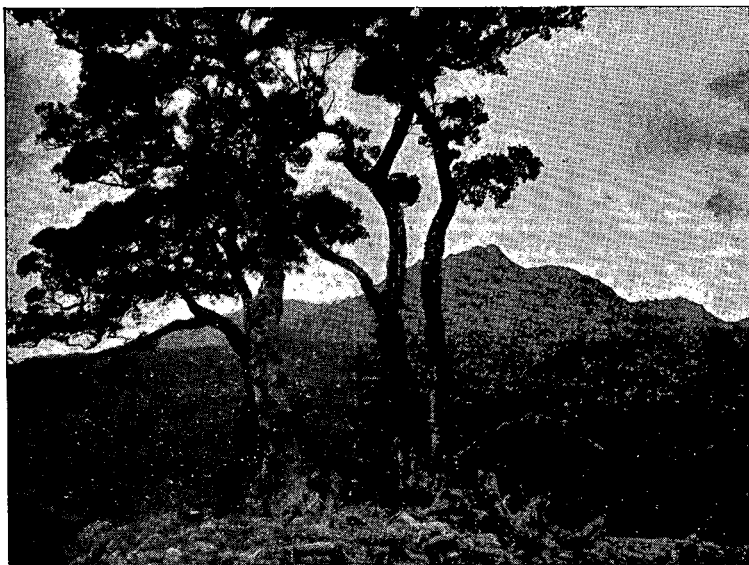


Photo: G. A. Buddle.
 FORESTED SLOPES FROM TE TITOKI POINT,
 LITTLE BARRIER ISLAND.

BIRDS OF LITTLE BARRIER ISLAND.

BY E. G. TURBOTT, AUCKLAND MUSEUM.

Accounts of the birds of Little Barrier Island have been written at fairly regular intervals by Hutton (1869), Reischek (1886, 1887), Drummond (1908) and finally by Oliver (1922); 25 years have now passed since any ornithological description has appeared.

In the spring of 1919 Guthrie-Smith spent ten weeks on the island, and photographed the stitch bird, robin and whitehead ("Bird Life on Island and Shore," 1925); Falla (1934) summarised information on the breeding petrels in the course of a general account of the North Auckland area; and finally Hamilton (1935, 1936) made a major contribution to the study of the island in his detailed account of history, topography, geology, soils and climate (part I, 1935), plant covering (part II, 1936) and affinities of the flora, etc. (part III, 1936).

It is to be hoped that this steady growth of exploratory and related research work will lead to a more detailed study of the birds, one of the principal aims for which the island was set aside. It should be recorded, however, that successive caretakers have steadily contributed to the study of the island in their reports and personal diaries. These are worthy of being abstracted in readily available form; reports have been made to the Department of Lands and Survey, to the Auckland Institute and Museum, and, since 1905, to the Tourist Department.

RELATIONSHIPS OF THE AVIFAUNA.

There is a tendency in many accounts of offshore islands to regard the birds as unreservedly typical of forests on the mainland before European settlement. Apart from a greater potentiality for the establishment of new specific or subspecific characters in a limited population (Sewall Wright effect), it is unlikely that the bird population of an island will closely resemble that of an area of the same extent on the mainland.

Insular climatic and other physical conditions tend to be distinctive; and, in the case of Little Barrier, there may be added the mountainous terrain and correspondingly varied plant covering.

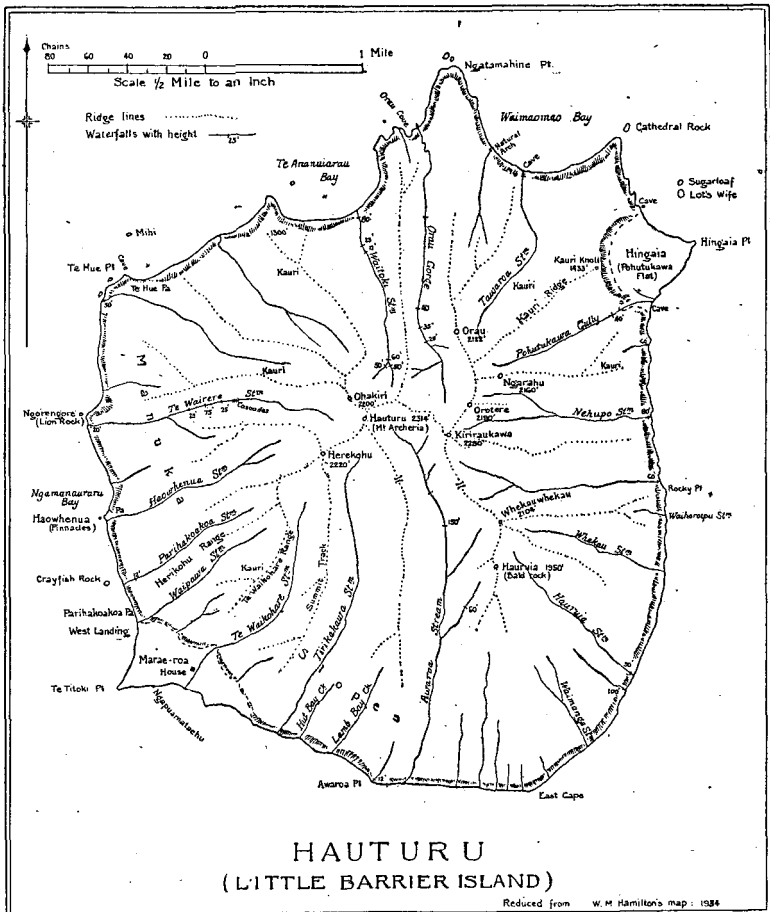
Little Barrier Island rises in a multitude of steep ridges separated by deep ravines, ascending to a central group of peaks culminating at Mt. Hauturu (2378 feet, revised altitude). The general elevation is thus considerable within the total area of the island, which is 7,000 acres.

The only level ground is the homestead flat behind the boulder banks of south-western Te Titoki Point; for Hingaia ("Pohutukawa Flat") consists of a tumbled mass of rocks formed by an old landslide.

As a result of the rugged surface there is often little soil, and generally much fragmentary surface material is present. A related factor, of considerable importance to forest birds, is the scarcity of surface water: rain sinks quickly beneath the rocks of the stream beds, which are in most cases running watercourses only for a short period after a heavy fall of rain.

Forest or scrub clothes the island from the peaks to shore level, broken only by the fenced 60 acres of clearing on "The Flats," representing the caretaker's garden and house-paddocks. As indicated in

Hamilton's detailed account of the vegetation (1936) there is a rapid transition from fringing coastal scrub, through heavy inland forest, to wind-blown scrub again on the summit. As the land rises abruptly from the shore, coastal forest gives place to tall tawa-rata, with kauri and beech on the ridges; at higher elevations there is a preponderance of mossy towai (*Weinmannia sylvicola*) and tawa; and on the misty, wind-swept summit ridges grows a dark, low forest of *Quintinia serrata* and *Q. acutifolia*, *Ixerba brexioides* and *Metrosideros umbellata*, heavily clothed with moisture-loving mosses, liverworts, lichens and filmy-ferns.



Of a different nature is the large area on the south-western side of the island, which was cleared during the period of settlement by felling, fire and stock. This has been allowed to regenerate, and is at present covered by tall tea-tree and transition forest. It might be noted that most visitors are unable to penetrate far beyond the south-western slopes traversed by the "Summit Track," which is the region most affected by clearing and regeneration.

The effect of these distinctive environmental conditions upon the bird life requires further study. Most species appear to range freely over the island, with a considerable degree of seasonal movement from one vegetation region to another in accordance with changing food supplies.

In two cases at least, local conditions may be regarded as directly affecting the distribution of a species. The kiwi is heard at night only about the south-western flat and on the neighbouring low slopes, and may well be prevented from spreading over the remainder of the island by the rocky nature of the ground, which would tend to restrict its normal feeding.

Again the old clearings on the south-western slopes have had a noticeable effect upon the nesting habits, not in this case of a forest species, but of the breeding population of Cook's petrel. For at least one-third of its distance to the summit the track passes over ground more or less denuded of its covering of leaf mould and humus. Here petrels could dig only with difficulty, and it is not until this region is passed that nesting burrows become frequent.

In addition to such general comparison with the mainland, it is particularly interesting to compare forest conditions on the island with those of other coastal islands to the north, especially with Hen Island, upon which I carried out a bird census in 1939 (Turbott, 1940). It is apparent that Little Barrier, with its relatively large area and more varied plant covering, will reflect mainland conditions more closely than these smaller islands. Hen Island is approximately 1,175 acres in extent as compared with the 7,000 acres of Little Barrier. Although both islands support such typically forest species as pigeon, kaka, tui and bell bird, there is a considerable divergence between the coastal forest of Hen Island (cf. Cranwell & Moore, 1934) and the more varied rain forest of Little Barrier (cf. Hamilton, 1936), and a census on Little Barrier would probably show a greater number per unit area of such birds as pigeon and kaka, in accordance with a more varied food supply and range of nesting sites. It may be noted also that several species, including the whitehead constitute an important element in the Little Barrier bird life absent on Hen Island.

On the much smaller Poor Knights group (area 480 acres), the bell-bird is abundant but kaka, pigeon, tui and other species, are absent, probably because the total population of these birds which the islands could support would be below the limit for survival. The vegetation here is essentially a coastal scrub, with some coastal forest (cf. Cockayne, 1906; Cranwell, 1937; Buddle, 1941 and 1946).

Unfortunately our visit to Little Barrier (October 1st-10th, 1945) was too short to enable us to carry out census work, which would have permitted of direct comparison of the total population density with that on other islands. It may be recorded that an unpublished census by Mr. P. C. Bull and the present writer in 1940 on the Poor Knights Islands indicated a lower total density than that recorded on Hen Island (Turbott, 1940).

Direct comparison by census methods with unmodified mainland forests is, of course, no longer possible.

The elements in the avifauna are represented in the following lists of species recorded from the island by various authors:—

A.—SPECIES BREEDING, OR APPARENTLY BREEDING.

*Kiwi	<i>Apteryx australis</i> .
Little blue penguin	<i>Eudyptula minor</i>
Diving petrel	<i>Pelecanoides urinatrix</i>
Fairy prion	<i>Pachyptila turtur</i>
Fluttering shearwater	<i>Puffinus gavia</i>
Allied shearwater	<i>P. assimilis</i>
Black petrel	<i>P. parkinsoni</i>
Grey-faced petrel	<i>Pterodroma macroptera</i>
Cook's petrel	<i>P. cookii</i>
Pied shag	<i>Phalacrocorax varius</i>
Bush hawk	<i>Falco novaeseelandiae</i>
Harrier	<i>Circus approximans</i>
Brown quail	<i>Synoicus ypsilophorus</i>
Banded rail	<i>Hypotaenidia philippensis</i>
Marsh crane	<i>Porzana pusilla</i>
Black-backed gull	<i>Larus dominicanus</i>
Pigeon	<i>Hemiphaga novaeseelandiae</i>
Brown kaka	<i>Nestor meridionalis</i>
Red-fronted parrakeet	<i>Cyanoramphus novaeseelandiae</i>
Yellow-fronted parrakeet	<i>C. auriceps</i>
Orange-fronted parrakeet	<i>C. malherbei</i>
Shining cuckoo	<i>Chalcites lucidus</i>
Long-tailed cuckoo	<i>Eudynamis taitensis</i>
Morepork	<i>Ninox novaeseelandiae</i>
Kingfisher	<i>Halcyon sanctus</i>
Rifleman	<i>Acanthisitta chloris</i>
Pipit	<i>Anthus novaeseelandiae</i>
Grey warbler	<i>Pseudogerygone igata</i>
Pied tit	<i>Petroica macrocephala toitoi</i>
N.Z. robin	<i>Miro australis</i>
Pied fantail	<i>Rhipidura fuliginosa</i>
Whitehead	<i>Mohoua ochrocephala albicilla</i>
Silvereye	<i>Zosterops lateralis</i>
Tui	<i>Prothemadera novaeseelandiae</i>
Bellbird	<i>Anthornis melanura</i>
Stitch bird	<i>Notiomystis cincta</i>
Saddleback	<i>Creadion carunculatus</i>
Greenfinch	<i>Chloris chloris</i>
Chaffinch	<i>Fringilla coelebs</i>
Goldfinch	<i>Carduelis carduelis</i> .
Sparrow	<i>Passer domesticus</i>
Yellowhammer	<i>Emberiza citrinella</i>
Thrush	<i>Turdus ericetorum</i>
Blackbird	<i>T. merula</i>
Hedge sparrow	<i>Prunella modularis</i>
Skylark	<i>Alauda arvensis</i>
Starling	<i>Sturnus vulgaris</i>

* Probably from introduced stock.

B.—NON-BREEDING SPECIES AND STRAGGLERS.

*Large spotted kiwi	<i>Apteryx haastii</i>
Blue petrel	<i>Halobaena caerulea</i>
Sooty shearwater	<i>Puffinus griseus</i>
Mottled petrel	<i>Pterodroma inexpectata</i>
Gannet	<i>Morus serrator</i>
Black shag	<i>Phalacrocorax carbo</i>
White-throated shag	} <i>P. melanoleucos</i>
Little pied shag	
Pukeko	<i>Porphyrio poliocephalus</i>
Oystercatcher	<i>Haematopus</i> sp.
Curlew	<i>Numenius madagascariensis</i>
White-fronted tern	<i>Sterna striata</i>
Red-billed gull	<i>Larus novaehollandiae</i>
*Kakapo	<i>Strigops habroptilus</i>
Australian raven	<i>Corvus coronoides</i>

* Introduced.

I have included tentatively in one or other of the above categories the following species, records of which we were unable to confirm:—

Large spotted kiwi (*Apteryx haastii*); cf. Oliver, Journ. Sci. Tech., 1922, p. 290.

Blue petrel (*Halobaena caerulea*), cf. Iredale, 1913, p. 25.

Fairy prion (*Pachyptila turtur*); cf. Reischek, 1887, p. 183; Buller, 1888, p. 210.

Sooty shearwater (*Puffinus griseus*); cf. Reischek, 1887, p. 183. (*P. tristis*); Drummond, 1908, p. 506. ..

Fluttering shearwater (*P. gavia*); cf. Reischek, 1886, p. 94.

Allied shearwater (*P. assimilis*); cf. Reischek, 1887, p. 183; Buller, 1888, p. 237; Iredale, 1913, p. 19.

Mottled petrel (*Pterodroma inexpectata*); cf. Drummond, 1908, p. 506.

Black shag (*Phalacrocorax carbo*); cf. Drummond, 1908, p. 503.

Little pied and White-throated shag (*P. melanoleucos*); cf. Reischek, 1887, p. 183.

Bush hawk (*Falco novaeseelandiae*); cf. Hutton, 1869, p. 160; Reischek, 1886, pp. 87, 97.

Marsh crane (*Porzana pusilla*); cf. Drummond, 1908, p. 506; Oliver, 1922. (Confirmed by Miss H. M. Shakespear, 1947.)

Oystercatcher (*Haematopus* sp.); cf. Hutton, 1869, p. 160; Reischek, 1887, p. 183.

Orange-fronted parrakeet (*Cyanoramphus malherbei*); cf. Reischek, 1887, p. 146; Oliver, 1930, p. 415.

Kakapo (*Strigops habroptilus*); cf. Oliver, Journ. Sci. Tech., 1922, p. 240.

Saddleback (*Creadion carunculatus*); cf. Layard, 1863, p. 224; Hutton, 1869, p. 160; Reischek, 1887, p. 188. (See below.)

The avifauna thus includes or is known to have included most of the birds characteristic of the original forests of the adjacent mainland. The two notable exceptions are the blue-wattled crow (*Callaeas cinerea wilsoni*) and the North Island woodhen (*Gallirallus greyi*), both of which, had they been present, would almost certainly have been observed by the early naturalists.

The crow occurs at present on Great Barrier Island, 11 miles distant from Little Barrier, and was once common on the Coromandel Peninsula and other parts of the mainland. Although the possibilities of bird distribution, even in weakly flying species, should not be under-estimated

there seems to be no doubt that the crow with its limited powers of flight and sedentary habits, would be quite unable to cross these narrow strips of water. It seems probable that both crow and woodhen were absent from the Little Barrier region, because of unsuitability of habitat, at the time when submergence separated it from the adjacent areas. In this case it would be necessary to assume a considerable reduction in the powers of flight of these two species before the final submergence, which probably occurred during the early Recent (cf. Henderson, 1924).

It is worth recording that little evidence is available as regards the extent to which birds pass backwards and forwards between the island and the mainland (15 miles distant at Cape Rodney) or to the surrounding islands. As in the case of the more distant outlying islands, the sea passage has proved no barrier to introduced birds. In the case of strongly-flying species, interchange of individuals is probably comparatively frequent, while passages by birds of apparently weaker flight may be commoner than might be expected. Miss H. M. Shakespear, to whom I am indebted for valuable notes on Little Barrier, informs me that she has seen pipits (*Anthus novaeseelandiae*) some miles out at sea between the island and the mainland.

The explanation of the historical extinction of the saddleback seems to lie in the presence of cats, especially in view of the fact that the bird apparently disappeared at a time when settlement and exploitation of the island was at its height (1860-1890)*. There are no cats on Hen Island, where this species is still a vigorous element in the bird life, and my impression is that the introduction of cats would result there in immediate reduction and probably elimination of the saddleback. It frequently feeds on the forest floor, where it may be almost completely hidden amongst ferns and debris as it turns over the leaf mould; and the adult birds would be vulnerable in many of the nesting situations.

I am indebted to Mr. A. S. Wilkinson for a note on an apparently unsuccessful attempt to re-establish the saddleback on Little Barrier. Twelve saddlebacks, six of each sex, were brought from Hen Island, and liberated near the caretaker's house in October, 1925.

An account of the history of cats and other pests on Little Barrier may here be of interest. Reischek (1886), in referring to the stitch bird, says (p. 87) that "these rare birds will soon disappear, even from these lonely wilds, owing to the domestic wild cats, which are very numerous, and commit great havoc among them." In his later description of the island (1887), based upon five visits between 1880 and 1885, he refers (p. 184) to wild pigs and cats as both very destructive; "the former root all the ground-birds out, and devour them; the latter watch night and day for their prey."

It would thus appear that cats had spread to many parts of the island at this time; and it is accordingly interesting to note that between 1897 and 1910, while Mr. R. H. Shakespear was caretaker, cats were apparently very uncommon. This is indicated by Drummond's statement (1907, p. 504) that Shakespear considered cats very rare, and

[*Hutton describes the saddleback as very common on Little Barrier in 1868; it was last seen by Reischek in 1882, when it was very rare.]

believed that the Norway rat and pig were absent; and by a recent communication from Miss H. M. Shakespear, who informs me that she remembers no sign of wild cats during the thirteen years which she spent on the island.

I have been particularly interested to hear from Mr. D. R. Campbell, of Auckland, who was present at the departure of Tenetahi and his family in c. 1896, that at least twenty cats were destroyed about the settlement on that occasion. This fact, in view of their subsequent rarity, suggests that those recorded by Reischek may have been loosely attached to the Maori settlement. As Hamilton (1935, p. 470) indicates, the Maori occupation in more recent times was sporadic, and cats would probably have ranged well afield during the absence of their owners.

Whether cats were subsequently brought to the island, or surviving animals multiplied rapidly, they were very common by 1932. Mr. L. Hardgrave, who accompanied his father, Mr. W. H. Hardgrave, to the island, and later followed him as caretaker, has kindly given me the following records. During the eleven years which he spent on Little Barrier approximately 360 wild cats were confirmed as destroyed. A campaign against rats resulted in the destruction in the first year of over 2,000, and of about 400 a year in subsequent years—a total of approximately 6,000.

Dr. W. M. Hamilton and Mr. C. Parkin inform me that cats still occur in considerable numbers on all parts of the island in spite of vigorous efforts to destroy them by both shooting and trapping. Members of our party saw one of these animals on the shore near the homestead.

It may be noted, finally, that the stitch bird, as a hole-nesting species, seems to be assured of survival in spite of the presence of these animals on Little Barrier. Guthrie-Smith describes its nesting holes in tall trees, well out of reach of cats.

NOTES ON THE BIRDS OBSERVED.

Kiwi (*Apteryx australis*).—The inclusion of the kiwi as endemic to Little Barrier rests only on Buller's statement (1888) that several were collected there by T. Kirk. The present stock is almost certainly descended from those liberated near the caretaker's house (Oliver, Journ. Sci. Tech., 1922, p. 290). An adult bird was captured at night during our visit, and the following measurements recorded before its release: Culmen, 12.2; tarsus, 8.0; toe, 7.4 cm. These fall well within the measurements of males of North Island birds (*Apteryx australis mantelli*) (Bartlett) and it was noticed that the feathers were harsh to the touch, a distinctive characteristic of North Island as compared with South Island birds.

Kiwis were quite common on the pasture of the homestead flat, where they were seen by torchlight, and heard every night. They penetrate to the manuka forest on the neighbouring slopes, but were not heard on any other part of the island. P.C.B. heard none at Pohutukawa Flat, where the ground is particularly rocky; and calls heard during a clear night from Mt. Herekohu (The Thumb) seemed to come from the slopes close to the homestead.

As stated above, the restricted distribution of the kiwi on Little Barrier seems probably due to the rocky surface of the remainder of the

island, and not simply to failure to spread from the point of release. The Flat was probably originally a lagoon behind the boulder banks, and still retains its swampy nature to a considerable extent. Buller does not indicate the locality in which Kirk obtained indigenous specimens, but it would probably be in the neighbourhood of the only workable landing, i.e., near the homestead.

The individual captured fed readily on worms dug up in the caretaker's garden, where supplies proved plentiful; animal food is probably readily available on "The Flat" at all times of the year. The summer of 1945-46, however, was marked by a particularly dry spell, and Mr. Parkin made the remarkable observation that kiwis were eating grapes on the concrete yard by his back door. Bell birds and tuis were feeding on the grapes, many of which, as a result of their vigorous movements would fall on the concrete. The kiwis had been seen eating grapes in this way for some weeks.

Kiwis apparently breed, a half-grown chick being seen by torchlight (G.A.B.) on 5th October.

Little blue penguin (*Eudyptula minor*).—Seen just offshore by day and heard ashore at night. Nests were found in all suitable localities round the island, particularly at the homestead area and Pohutukawa Flat. Small colonies were located in Te Ananuiarau Bay on the northern coast, and at every suitable place between Te Titoki Point and Pohutukawa Flat. Penguins were seen moving up the stony boulder beaches towards the cover of the shore vegetation in mid-afternoon.

A specimen found washed up had been killed by oil. (P.C.B.)

Diving petrel (*Pelecanoides urinatrix*).—Observed in small numbers at sea off the island. Mr. Bull landed on the small rocky islet, known as Lot's Wife, off the north-eastern end of Little Barrier, where he found the small-mouthed burrows characteristic of this species; the identification was confirmed by an egg examined in an easily accessible burrow, and by stray feathers. The species is thus confirmed as breeding on the island; it was found only on Lot's Wife, where it appeared to occur in small numbers.

Black petrel (*Procellaria parkinsoni*).—An effort was made during our visit to check records of the breeding habits of the black petrel. It was at least possible to verify Reischek's observation that this species does not breed until November. Major Buddle, who has had experience of the island dating back to 1904, also has records of late November or early December as the laying date. His notes mention the finding of eggs chipped and about to hatch in the second week of February, and a small downy chick in March. With Mr. Bull I visited the summit on two occasions at night, but did not see or hear this species, in spite of a prolonged search by torchlight. Cook's petrels were plentiful and noisy; but it was presumed that the black petrels had not yet arrived to clean out their burrows. Numerous large burrows, presumably of this species, on the summit ridges, were evidently unoccupied, and in many cases there was spider's web across the entrance. Later in the year, on 20th December, Mr. Parkin found two dead black petrels at an elevation of 2,220 feet on Mt. Herekohu (The Thumb), one of the areas which we examined in October.

Grey-faced petrel (*Pterodroma macroptera*).—This widely distributed northern species breeds in considerable numbers round the lower parts

of the island. Burrows were found above the cliffs to the north-west of the homestead, and round the western coast as far as the Pinnacles, from which area it was heard calling at night. Mr. Bull found evidence of nesting in and just above the sea cliffs at intervals all round the coast; it was also present on Lot's Wife and in the old sea cliffs behind Pohutukawa Flat. A broken egg, which had apparently hatched, was found outside one burrow; and the considerable number of dead birds and skeletons found at various points suggested that wild cats kill this species as well as *P. cookii*.

Cook's petrel (*Pterodroma cookii*).—This is the common nesting petrel of the inland slopes, and even from the homestead was particularly noisy at night, especially on nights when considerable numbers of the birds seemed to be in the air in the neighbourhood of the summit. As in other petrels, the volume of sound seemed to vary from night to night, probably according to weather conditions.

During our visits to the summit at night (P.C.B. and E.G.T.) we found ourselves level with or above the incoming birds, which we saw clearly by torchlight as they swirled close to us through the mist. Two distinct calls were heard, one deep and throaty, and the other the characteristic reedy "ti-ti-ti-ti."

Burrows were common about the track from about 1,000 feet to the summit, and seemed to be more plentiful on the last few hundred feet.

Remains of this petrel destroyed by cats are found at intervals on the Summit Track and on all parts of the island. Direct evidence of the same destructive process was given by the discovery, at an elevation of approximately 1,500 feet, of a Cook's petrel alive on the track, with extensive injuries characteristic of an attack by a cat. On the first day's walk to the summit the remains of 54 petrels, mostly of this species, were found on, or within sight of, the track. Most of these remains were old, and probably represented birds killed during last year's breeding season.

Live measurements of two birds captured at night, and later released, are worth recording as records from the breeding area (millimetres):—

Culmen	Wing	Tail	Tarsus	Toe
28	235	94	32	41
28	227	88	29	37

An observation by Mrs. Parkin made on January 12, 1944, is of interest in view of the lack of information on the breeding habits of this species. On this date a burrow was accidentally laid open, and was found to contain a nestling clothed in pale bluish white down; its total length was approximately 8 inches. Falla (1934) publishes a photograph of a nestling, according to Mrs. Parkin, of approximately the same age, taken early in February.

The white-faced storm petrel (*Pelagodroma marina*), giant petrel (*Macronectes giganteus*) and black-browed mollymawk (*Thalassarche melanophrys*) were recorded at sea off the island; on one occasion a giant petrel was noticed within 100 yards of the spit.

Pied shag (*Phalacrocorax varius*).—The colony breeding in pohutukawa trees on the south coast is still thriving, and at the time of our visit contained some 30 nests.

In addition a colony in pohutukawas some distance up in the forest was observed at Te Ananuiarau Bay, where approximately 20 nests were

counted. There was no sign of the colony nesting on rock at the northern end of the island which was examined and photographed by Major Buddle in 1904-5. (M.W.H. and P.C.B.)

Both colonies provided evidence of the extended breeding season of this species. There were a number of fledglings already out of the nests, while one nest in the south-western colony contained a chick not yet a week old. Adults were seen carrying building material. According to Mr. Parkin there is still activity at the south-western colony as late as January.

An immature bird of last season was observed and photographed on the boulder beach close to the colony.

Gannet (*Morus serrator*).—Seen fishing offshore from time to time from all parts of the coast.

Harrier (*Circus approximans*).—On at least four occasions a single harrier was observed.

Mr. Parkin has since reported the presence of a tame harrier, which landed in the garden on 12th January, 1946, and remained until 23rd January. The bird would follow him on the wing, and, while he was in the house would stand on the concrete at the back door. It would alight on the ground nearby when called, and even allow itself to be touched and its wings spread out. It was fed on meat and fish.

A later report, sent to Mr. P. C. Bull, records that a tame harrier appeared on Motuora Island, 25 miles to the south-west, on 7th January, 1946. It seems probable that this was the same individual; and the record indicates the ease with which the harrier may cross from the mainland or other offshore islands.

Brown quail (*Synoicus ypsilophorus*).—The following observations are of particular interest in view of doubt as to the identity of the quail (*Synoicus* sp.) found on northern offshore islands. (cf. Buddle, 1941 and 1946.)

Reischek (1887, p. 183) lists "*Coturnix pectoralis*" (the Australian stubble-quail) and "*Turnix varius*" (the Australian painted quail) as self-introduced to Little Barrier. These are evidently mistaken identifications for a *Synoicus*, but provide interesting evidence that quail existed on the island at this early date.

According to Miss H. M. Shakespear, brown quail were common on the Flat and about the garden between 1897 and 1910. I am informed that they were heard rarely by the Hardgraves; and they were not seen during our visit.

Quail had not been recorded by Mr. and Mrs. Parkin up to 18th November, 1945, but on this date, in company with a visitor to the island, Mr. T. Shout, they heard the characteristic drawn-out call. A few days later one was seen in the garden by Mrs. Parkin, and the birds were subsequently observed quite frequently. It would thus appear that these birds were members of a flock of brown quail (*S. ypsilophorus*) which had just arrived from the mainland.

Banded Rail (*Hypotaenidia philippensis*).—This species, previously not recorded from the island, was described by Mr. Parkin, who saw the bird close to the house on 2nd February, 1945.

Pukeko (*Porphyrio poliocephalus*).—Miss H. M. Shakespear has given me permission to include her record of a pukeko which remained on the island for a few days during 1908-09.

Curlew (*Numenius madagascariensis*).—A pair landed in the neighbourhood of the homestead during a heavy north-easterly gale on 19th September, 1945. They were seen for four days by Mr. Parkin, who later verified the identification from Museum specimens. Mr. Parkin notes that they were seen to settle on kanuka trees.

(?) Fairy tern (*Sterna nereis*).—Dr. Hamilton and Mr. Parkin, both competent observers, described a colony of small terns, believed to be of this species, nesting on the cliffs of the west coast; they were last observed on 6th November, 1944. The site was examined (W.M.H. and P.C.B.) but there was no sign of the birds.

White-fronted tern (*Sterna striata*).—Four adults in breeding plumage were seen on an offshore rock north of Te Ananuiarau Bay. (P.C.B.)

Black-backed gull (*Larus dominicanus*).—Observed at scattered intervals all round the island during circumnavigation. (P.C.B.)

Red-billed gull (*Larus novaehollandiae*).—Two seen at Pohutukawa Flat. (P.C.B.)

Pigeon (*Hemiphaga novaeseelandia*).—A deceptive impression of numbers of the pigeon was perhaps given by the constant presence of some 25 birds about the homestead, but it was observed elsewhere at frequent intervals and appeared to be plentiful. There would also seem to be a fairly considerable death roll in view of the fact that the remains of three dead birds were found in the neighbourhood of Te Titoki Point during our ten days' visit; one of these was a recently-dead specimen in splendid plumage which had apparently struck an obstruction in flight.

The homestead pigeons were feeding on the ground on young clover; they were also observed on the shore eating young leaves of pohuehue (*Muehlenbeckia complexa*).

Brown kaka (*Nestor meridionalis*).—A kaka was seen at intervals in the garden, where it was attracted by tree tomatoes, and had a past history as regards oranges, lemons and green figs. Elsewhere few were seen: it was observed several times on the Summit Track, and two were seen at Pohutukawa Flat. (P.C.B.)

Red-fronted parakeet (*Cyanoramphus novaeseelandiae*).—Several were present in the neighbourhood of the homestead and were seen frequently. One at Pohutukawa Flat. (P.C.B.)

Yellow-fronted parakeet (*Cyanoramphus auriceps*).—One appeared at the homestead, where it was seen on two successive days. According to Mr. Parkin and Dr. Hamilton this species had not been seen at the house for about 13 years.

Parakeets were also recorded in passing up the Summit Track, and on the south coast, but at too great a distance for identification.

Shining cuckoo (*Chalcites lucidus*).—Heard frequently on the lower slopes on all parts of the island visited; on one occasion heard calling loudly and persistently at 11 p.m. The first call this year (1945) was heard by Mr. Parkin on 28th September.

Long-tailed cuckoo (*Eudynamis taitensis*).—Heard near the homestead and at Pohutukawa Flat (P.C.B.); one was seen close to the Summit Track, calling constantly (E.G.T.). Mr. Parkin's earliest record for 1945 was 30th September.

Morepork (*Ninox novaeseelandiae*).—Heard at the homestead, Pohutukawa Flat and at The Summit, but in every case only a single bird. One at Pohutukawa Flat was mobbed by stitch birds, whiteheads and

blackbirds. Pellets, which were presumed to be those of moreporks, were found on three occasions: one contained the foot of a Cook's petrel and another the bones of a rodent. ((P.C.B.)

Kingfisher (*Halcyon sanctus*).—Seen at intervals all round the coast, but not in great numbers. One was heard halfway up the track; but there were at least two birds about the homestead.

Rifleman (*Acanthisitta chloris*).—A call was heard which was doubtfully recorded as this species; later, however, one was seen. (W.M.H.) Miss H. M. Shakespear remarks that between 1897 and 1910 it was frequently seen, particularly in the heavy forests of the northern slopes.

Pipit (*Anthus novaeseelandiae*).—Observed by several members of the party.

Grey warbler (*Pseudogerygone igata*).—Distributed throughout the island, although probably more common in manuka forest on the lower south-western slopes. Singing strongly.

Pied tit (*Petroica macrocephala toitoi*).—Seen in pairs both at the homestead and Pohutukawa Flat, and on the Summit Track up to approximately 1200 feet. Possibly more common in manuka forest. The song was frequently heard; and a male was seen feeding the female. (P.C.B.)

Robin (*Miro australis*).—Only three birds seen, all above 2000 feet; they were particularly quiet and retiring, although quite confident. This was not my experience during a visit to the island on 27th February, 1934, when robins were seen in manuka or transition forest on the lower south-western slopes, and approached us closely.

Pied fantail (*Rhipidura fuliginosa*).—Observed in pairs on all parts of the island visited, although not seen above 1200 feet. From the numbers observed they would not be regarded as plentiful, but possibly, as in the case of several other species, were occupied with nesting.

Whitehead (*Mohoua ochrocephala albicilla*).—According to our observations during this visit the whitehead would be regarded as the commonest bird on the island. A count of those heard singing from the track, including at least eight heard from The Summit, totalled 48; and six were recorded on another occasion from the shore during the short walk to Awaroa Point. The birds were generally observed in small flocks, and were singing strongly. Several different notes can be distinguished, including a common song very like that of the chaffinch, but without the final rattle; another call frequently heard is almost bell-like and could be confused with certain notes of the bell bird.

A nest was found on 3rd October in the dense wind-swept tea-tree just inside the boulder bank near Te Titoki Point. On this date it was almost completed; the birds continued building, but no eggs had been laid by the 8th. (G.A.B.). Major Buddle also states that nests were plentiful in tea-tree scrub on the Flat during 1904-5-6.

Silvereye (*Zosterops lateralis*).—Still in flocks in most cases of c. 20, although one large group of c. 100 was recorded. (G.A.B.). These were all seen at sea level (homestead, East Cape, Pohutukawa Flat).

Tui (*Prosthemadera novaeseelandiae*).—There were always up to a dozen about the garden, feeding regularly on sweetened water from the feeding trough. The group included an individual of dominating type, which would not tolerate the others while feeding; this bird was present throughout our stay, but it was not possible to decide whether the remaining individuals formed a permanent group. They would come to

the trough together at regular intervals of several minutes, passing the intervening period in the trees above, singing spasmodically, and apparently waiting for the food to digest. They were also feeding eagerly on a pink azalea bush in full flower beside the kitchen window, and descended to the ground to take nectar from garden freesias and lachenaleas.

Elsewhere tuis were common along the coastal regions, and were plentiful at Pohutukawa Flat, where pohutukawa (*Metrosideros excelsa*) was already in flower. (P.C.B.). They were also observed feeding on flowering tree fuchsia (*Fuchsia excorticata*). (E.G.T.).

Bell bird (*Anthornis melanura*).—Observed sparingly on all parts of the island visited, and at all altitudes. A concentration occurred on early-flowering pohutukawa at sea level on the north-eastern side of the island. (P.C.B.). There were several about the homestead feeding on nectar from flowering orange, apple and *Watsonia*, and searching for insects in the orchard.

Later in the season (December, 1945) Mrs. Parkin had a bell bird's nest under observation in the grape vine close to the house. It contained three eggs which hatched in 12 days; and it was noticed that the work of incubation was carried out entirely by the female.

On my previous visit to the island (27th February, 1934) the bell bird was the only species feeding on the sweet material provided by the caretaker. During our present visit only the tui was observed at the feeding trough. Mr. Parkin confirms the fact that there is a periodic fluctuation between these two honeyeaters through the year.

This may be partly due to the dominating attitude of the tuis, but is probably also governed by a general divergence in breeding seasons, the tui in general being an earlier breeder than the bell bird. Presence or absence would then be explained by the exigencies of moult and pre-breeding behaviour. It has been mentioned that, although absent from the feeding trough, bell birds were numerous on nectar-bearing trees elsewhere on the island.

Stitch bird (*Notiomystis cincta*).—All visitors to the island have watched eagerly for the appearance of the stitch bird, and in most cases have had our own experience of obtaining a satisfactory, if fleeting glimpse of one or two birds. The first stitch bird was seen close to the Summit Track at the commencement of higher level forest (approximately 1,500 feet); another was seen on the Summit ridge at closer quarters. The last was apparently an immature bird of last year, in general very like an immature bell bird, although somewhat shorter and more heavily built; in general colour it was olive-grey, with darker shading on the head, and a broken white bar on the wing. The call was a continuous, high-pitched note somewhat like that of the rifleman.

On our second visit to the summit we were fortunate in seeing a male in full plumage—deep black head, and yellow band on the breast—which called beside the track at approximately 1,200 feet. The calls included a high-pitched cry and a distinctly bell-like note, resembling those of the other honeyeaters. It was in company with a small flock of whiteheads, which were feeding and singing by the track.

A total of three adult males was seen at various points by members of the party; the call of birds of this species, however, was heard quite frequently, although in most cases in the higher bush.

At Pohutukawa Flat it was present at sea level, where it was feeding on flowering pohutukawa in company with tuis, bell birds and silver-eyes. (W.M.H. and P.C.B.). It is also seen about the homestead and probably becomes widely distributed over the island as nectar-bearing plants come into flower.

Chaffinch (*Fringilla coelebs*).—Common about the homestead, where a group of 10 were seen together (P.C.B.) but not observed in forest.

Greenfinch (*Chloris chloris*).—Observed on several occasions.

Goldfinch (*Carduelis carduelis*).—Observed near the homestead.

Sparrow (*Passer domesticus*).—At least 30 about the homestead; one drank from the feeding trough in an interval between visits by tuis.

Yellowhammer (*Emberiza citrinella*).—A male and female were seen near the homestead. (P.C.B.)

Thrush (*Turdus ericetorum*).—About the garden. A nest containing four young about three days old was found on 3rd October, and flying young were also observed. (P.C.B.)

Blackbird (*Turdus merula*).—Common about the homestead, and, in contrast with other introduced species, observed in forest on many parts of the island. One nest was found on 9th October, the female sitting on three eggs; the full song was heard constantly.

Hedge sparrow (*Prunella modularis*).—Two were seen near the homestead; this species has spread throughout the North Auckland area only within the last few years.

Skylark (*Alauda arvensis*).—Eight or nine were seen constantly together on the Flat near the homestead, and were apparently associated as a small flock.

Starling (*Sturnus vulgaris*).—Common on the Flat; also recorded feeding among seaweed at low tide on isolated rocks off the western coast. (P.C.B.)

Australian raven (*Corvus coronoides*).—During a period of several days of stormy weather, a stray bird, identified as a member of the crow family, appeared on the island. It was particularly wary, and our closest view was at several hundred yards, from which distance it was only possible to ascertain that the bill and feet were black. Its call was heard rarely, and was described as a deep croak. (G.A.B.). In flight the bird resembled the rook (*C. frugilegus*), but the face was fully feathered, not bare as the adult rook; and the possibility that it belonged to this species must probably be ruled out on the grounds that young rooks only retain their facial feathering for the first winter. A certain amount of facial moult should be apparent by October: in Great Britain the facial feathers are gradually lost between January and May (Witherby, 1938, p. 21). The nearest colony of rooks in New Zealand is at Hastings, some 260 miles to the south.

The bird is thus tentatively placed in the above common south-eastern Australian species as a trans-Tasman straggler.

Major Buddle has since made the interesting record (1947) that a black bird probably the same individual, appeared on the Mokohinau group, 20 miles to the north, during this period of stormy weather.

ACCOUNT OF THE TRIP.

The visit to the island recorded in this paper was made from October 1st to 10th, 1945, by a party of seven. For permission to visit the island we were indebted to the Tourist Department; our transport was pro-

vided by the Navy, through the courtesy and special interest of Commodore W. K. D. Dowding, R.N.

During our stay we depended upon the hospitality of Mr. and Mrs. Charles Parkin, who helped us in every possible way. Fortunately, Dr. W. M. Hamilton was also a guest of the Parkins, and not only provided a willing source of information on all subjects relating to the island, which he has so thoroughly explored, but guided members of the party on several trips. Certain observations recorded above are his (W.M.H.).

Our party included three members interested in birds, Major G. A. Buddle (G.A.B.), Mr. P. C. Bull (P.C.B.) and myself. To both of my companions I am greatly indebted for generously allowing me full use of their notes; and to all members of the party for their interest in making this account of the birds as full as possible. Mr. Bull in particular explored as much of the island as could be reached in a ten days' visit. In addition to the two nights on the Summit, his activities included a trip round the coast to Pohutukawa Flat and a circumnavigation of the island by boat with Dr. Hamilton.

A great deal of my own time was devoted to making a 16 millimetre film of the birds, which is herewith recorded for documentary purposes. The birds photographed were the kaka, tui, bell bird, pigeon, kiwi, fantail, blue penguin and pied shag.

Since my return I have been indebted to Mr. A. T. Pycroft for information on literature relating to the island.

Finally, both Mr. and Mrs. Parkin have kindly provided information of special interest to this account, and it is hoped that they will continue to contribute to this journal a full series of records from the island.

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Dr. R. A. Falla, director of the Canterbury Museum since 1937, and the Society's first president, has been appointed director of the Dominion Museum, Wellington, in succession to Dr. W. R. B. Oliver. Dr. Falla recently went to Paris as one of the New Zealand delegates to the first conference of the United Nations Educational, Scientific and Cultural Organisation.

BANDING OF DUCKS.—A waterfowl investigation, with particular reference to the grey duck (*Anas superciliosa*) is being carried out by the Wildlife Service of the Department of Internal Affairs. The banding of ducks is an integral part of this work, which is hoped ultimately to be of benefit in improving the duck population. Members are asked to keep a look out for any bands and to return them, with such information as the date, the locality in which the bird was shot or found, and the name and address of the person concerned to the Controller, Wildlife Branch, Department of Internal Affairs, Wellington, or to the nearest Acclimatisation Society secretary or ranger. The bands are made of aluminium, and each has a number and the address "Internal Affairs, Wellington, New Zealand." Incidentally, the Wildlife Service is a member of this Society.

DONATIONS ACKNOWLEDGED.—Donations received with thanks during the year include: L. A. Brewster 2/-, S. Edwards 15/-, Mrs. Lenz 15/-, J. F. Lysaght 10/6, Miss B. McDougall 5/-, Dr. D. L. Serventy 10/-, R. H. D. Stidolph £1 (Illustrations Fund), B. Sladden £1. The amounts collected for the Relief of European Ornithologists Parcel Fund were: V. I. Clarke £3/2/7, J. M. Cunningham 10/-, Miss M. C. Hogwood 9/8, Whangarei Rod and Gun Club £3/2/7, R. H. D. Stidolph 10/-.

CONTRIBUTIONS TO THE GANNET CENSUS.

III.—HORUHORU GANNETRY (WAIHEKE), OCTOBER 2, 1946.

By C. A. Fleming, Wellington.

Horuhoru (Gannet Island) a little under a mile due north of Thumb Point, Waiheke, is an irregular, steep-sided, narrow ridge some 150 yards long and 40 yards wide, reaching a height of 75 feet. Areas of taupata scrub on the top of the island separate four main groups of nesting gannets, and a fifth group occupies the semi-detached North Stack. Cliffs rising above a rock platform bound the main island except in the centre of the west side; there the island slopes westward from the eastern cliff and allows access to the summit ridge.

This account is the result of about an hour and a half spent on Horuhoru on October 2, 1946, thanks to officers of the Works Department, Auckland, who provided launch transport for Major G. A. Buddle and myself. Owing to the short time available, Major Buddle concentrated on camera work. The sketch plan is based on rough-paced and estimated distances and is not accurate. The count made was of individual nests either with eggs or with freshly-arranged seaweed; actual counts by eye (in most cases at least two of each group) were made except in area F on the central group which was calculated several times from counts along its margins and across it. 52% to 61% of nests in several small samples contained eggs, the mean figure being 55% in over 100 nests.

The North Stack was examined from the main island and from the sea. On the south-west slope 113 gannets were counted, of which 96 appeared to be on nests; on the north-east slope 32 birds appeared to be sitting; a total of about 128 nests.

The Northern Group consists of 52 nests to the west and three separated nests to the east of the north point of the main ridge.

The North Central Group occupies a rounded ridge top and includes 213 nests.

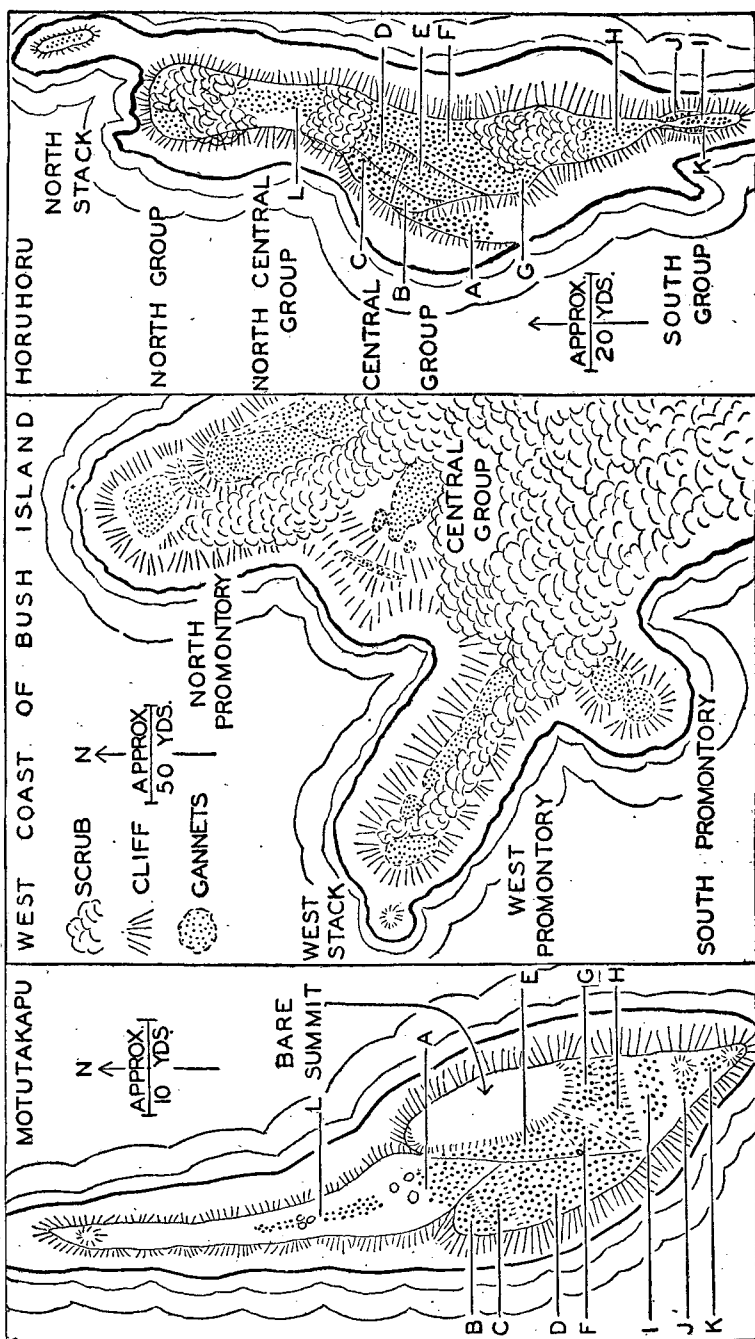
The Central Group of nesting gannets occupies the terraced west slope of the widest part of the island. Seven small areas, defined by steps and joints were counted separately, and gave mean totals of: A, 48; B, 32; C, 45; D, 54; E, 67; G, 43. Area F could not be subdivided and was calculated, the extreme results differing by less than 50 nests, and the median being almost exactly 400 nests. The central group is thus assessed at 689 nests in all.

The South Group, on the narrow southern point, consists of a more northern wider area, H with 66 nests; a narrow ridge-top I, with 29; flanked by narrow ledges J and K, with 17 and 31 nests, a total of 143.

Summary.—

North Stack		128 nests
North Group		55
North Central Group		213
Central Group		689
South Group		143

Total nests, equals breeding pairs 1228



General.—The above figures are means of several counts in nearly every case, but the sums of the extreme figures are within about 50 nests of the mean. No predatory animals were seen at the gannetry but a few broken egg shells were on the shore platform beneath the south group. Very few dead gannets were seen; no birds in juvenile plumage were present; no "unemployed" birds were recognised. Where nesting gannets adjoined scrub it was being locally invaded, but elsewhere bare ground, apparently suitable, was unoccupied by nests.

Postscript.—The above account was written before J. M. Cunningham's visit to Horuhoru, on December 1. In view of the big decrease in occupied nests between October 2 and December 1, some elaboration of the criteria for "occupied nests" in the earlier count is desirable. Occupied nests included: (1) Nests with egg, these accounting for over half the nests, and therefore totalling about four times the number of eggs and chicks counted in December; (2) empty nests with newly arranged fresh seaweed or other vegetation (e.g., *Parietaria*), either with or without attendant birds; in October many birds put to sea and there seemed ample birds for such vacated but obviously fresh nests; (3) empty nests, whether newly-lined or not, on which an adult sat in the incubating position when the count was made: most of such nests were, in fact, freshly lined. Old nest sites with neither new nesting material nor attendant bird were excluded from the counts; at Horuhoru there were very few of these on October 2. I believe the high October count at Horuhoru gives the correct order of magnitude of the population unless (a) a pair sometimes build more than one nest, i.e., a "play-nest," in addition to the functional nest site, (b) unoccupied breeding adults habitually sit on non-functional nest sites, or (c) submature birds incapable of breeding, are attached to the colony, building and occupying nests during the earlier part of the season. None of these postulates is supported by what we know of the breeding economy of *Sula*, but since the Australasian gannet moults into adult plumage within about nine months of leaving the colony (see Buller, *Birds N.Z.*, 2nd ed., vol. 2, p. 177 and pp. 179-80, for account of captive bird), submature birds may be present at the gannetries. Tramping and piracy of nest material could easily account for the obliteration of many nests in two months. The 1946-47 gannet census has revealed a low rate of nesting success in most New Zealand gannetries, and discussion of the general problem would be out of place here.

IV.—HORUHORU GANNETRY, DECEMBER 1, 1946.

By J. M. Cunningham, Masterton.

On December 1, 1946, a visit was made to the Horuhoru Gannetry by the writer and P. J. Parr, thanks to the courtesy of Major M. E. Johnson, of Auckland. A visit of 1½ hours had been made earlier in the year, on October 2, by C. A. Fleming, and his results were available on the occasion of the present trip. Though only an hour was spent ashore, it is felt that this brief period detracted in no way from the accuracy of the survey except in the case of North Stack, on which a landing was not made. Owing to the small number of occupied nests, there was no difficulty in counting their number, and the natural divisions of the colony, as shown by Fleming in a sketch map of the island, were well defined and were again used as a basis for subdivision on the present

occasion. In the details which follow, Fleming's figures being in parentheses, only nests containing eggs or chicks, or else chicks out of the nests are included in the totals. No new nests were seen, nor were any flying young recorded.

North Stack.—A landing was not made on North Stack, but counts from the sea revealed about 100 birds on the north-east slope and 109 on the south-west slope. Of 97 birds counted from the main island, only c. 21 appeared to be on nests or with chicks, and on the basis of one nest to every five birds, there would be something like 40 nests (128).

North Group.—Nests with one egg, 2; chicks, light down, 4; all white, 3; total, 9 nests (55). Used nests, c 10. A count from the sea showed 61 birds in the part of this subdivision which was visible from the sea. A little to the east of this group was a group of 4 birds with one nest (chick, quills appearing). Grand total, 10 nests (55).

North Central Group.—Nest with one egg, 1; chicks, naked, 1; quills appearing, 3; light down, 2; all white, 4; 11 nests (213). Used nests, c 120.

Central Group.—Total nests, unclassified, 69 nests (689).

South Group.—Ridges and ledges, total nests, unclassified, 27 (143).

Summary.—

	J.M.C.	C.A.F.
North Stack	c40	128
North Group	10	55
North Central Group	11	213
Central Group	69	689
South Group	27	143
	157	1228

It was realised at the time that these figures fell far short of Fleming's, and therefore in some of the subdivisions counts were made of the nests which had apparently been used. Even these figures are insufficient to account for the large number of nests counted by Fleming, and inevitably give rise to conjecture as to their fate. It was found to be difficult to decide in some cases as to what had been a nest, and owing to heavy trampling down by adult birds, many could easily have disappeared from this cause. It is recalled that Wodzicki (in ms), noted a similar occurrence at Kidnappers, and it seems probable that, whatever the cause of the nests being deserted, the mound would soon get trampled down by other birds. Any eggs, if broken, would be ground to powder and not be visible at a later date (the writer saw no eggshells) but it would be interesting to subject a sample from one of these mounds to a microscopic examination. A small number of dead chicks and adults were seen, the chicks being practically buried in the dust and guano, but no predator of any kind was recorded. Some adults had been caught by the neck in forks of taupata (*Coprosma retusa*). No good estimate was made of the number of adults present, but they were sitting all over the nesting areas just as if on nests. The total may well have been 1000-1200. When approached they showed none of their customary fearlessness, suggesting possibly that they had been molested recently. All the birds took to the air, circling over the island, and eventually settling, but never within 20 yards of the observers.

The only other birds seen on the island were a few starlings (*Sturnus vulgaris*) believed to be nesting there, and a colony of white-

fronted tern (*Sterna striata*) on the southern ledges. There were at that time 38 nests (1 egg, 35 nests; 3 eggs, 1; 1 chick, c 2 days, 2). There appeared to be a number of birds without nests.

V.—COLVILLE GANNETRIES, SEPTEMBER 9, 1946.

By C. A. Fleming, Wellington.

On September 9, 1946, through the good offices of Mr. W. Tidey, Marine Department, Coromandel, I was able to visit the islets south-west of Colville in the eastern Hauraki Gulf, to assess the population of breeding gannets as part of the Ornithological Society's gannet census project.

This report is offered to provide a basis of comparison with counts made at other times. At this early date less than half the nests contained eggs, and adults readily left the colony, so that the basis for the counts was the number of nests at which freshly arranged seaweed, etc., suggested occupation by a pair intending to breed; such a count may give an over-estimate of the number of breeding pairs if submature birds habitually build nests without laying or if unoccupied mates ever build separate "play nests." On the other hand some eggs are laid in old nest sites without much preparation, and old nest sites were excluded from the present count. The sketch plans do not aspire to accuracy but should allow identification of the areas by later visitors.

Gannets now nest on three of the islets grouped on Admiralty Chart No. 2543 as Motu Kawai Group, 2-3 miles off the west side of Coromandel Peninsula.

1. **Motu Takapu (Gannet Rock).**—This, the outermost of the group, is a boat-shaped rock about 130 yards long rising above a tidal platform, the top accessible at the narrow north end from which the rock rises and expands to a width of about 20 yards before narrowing to the vertical-sided south end. Prominent steps, rock joints and boulders enabled subdivision of the area occupied by nests as shown in the sketch. The numbers of nests were: A, 24; B, 25; C, 23; D, 48; E, 19; F, 28; G, 20; H, 51; I, 9; J, 3; K, 6; L, 32. Thirty-seven per cent. of nests contained eggs, all of which were counted on this islet, the percentage in individual groups ranging from 21 to 57. There appeared to be room for more than the total of 288 nests found.

2. **Double Island, South-west Stack.**—From the boat and from Bush Island, 6 to 10 gannets were counted on the small islet off the tip of Double Island; some appeared to be on nests, and in default of more precise information the population is put at five pairs.

3. **Bush Island.**—This is a scrub-covered steep-sided island with high promontories on its western side, their summits occupied by a number of ganneries which can be grouped as follows:—

A. **South Promontory.**—Two groups of 48 and 54 nests and a ledge with six nests, totalling 108 nests, of which 44 (41%) had eggs.

B. **West Promontory.**—A narrow ridge with 44 nests to east; knob with 38; further ridge with 71; separated by rock from 32 on east of ridge top, and separate ledge 50 feet below with 97 nests; totalling 282 nests.

C. **West Stack.**—Reported old site (capacity about 20 nests), but no nests present though probably regular roost.

D. **Central Group**.—On rounded spur between B and E; a rectangular space 23 yards wide, falling seaward about 35 yards, occupied by a central mass of nests calculated at 355; five detached patches of 9, 6, 40, 4 and 12 nests, and a ledge below, 26 nests; totalling 472 nests.

E. **North Promontory**.—Top of ridge with 75, 80, 17, 119, 22, 210, 30 nests, detached ledge to west with 53, and spur end, 50 feet below, with 55; totalling 651 nests.

Summary.—

Motu Takapu	288 nests
Double Island (North-west Stack)	5
Bush Island—	
South Promontory	108
West Promontory	282
South-West Stack	0
Central Group	472
North-west Promontory	651

Total nests, equals breeding pairs 1806

General.—No groups of clearly “unemployed” birds nor juveniles were seen. In all three dead adults were seen. Some few ancient nest sites had not been newly lined and were not counted. Scrub to south of B and east of D (Bush Island) is being killed by encroaching gannets, a few nests being beneath low dying *Coprosma* and *Hymenanthera* shrubs. Guano has been taken with some regularity by mainland farmers, reputedly in February, and some 100 bags were stacked on the shore of Bush Island; there was no sign that the gannetries had suffered from this. No predatory birds (gulls, etc.) seen at the gannetries. Mr. P. Wood told Mr. R. B. Sibson that he had assessed the Colville gannetries at 1200 pairs in about 1940. Sibson himself visited Bush Island in January, 1942, and judged that “two main colonies on Bush Island must have 400 pairs each; beside these there are two smaller colonies with some scores of pairs. Then Gannet Rock is white with birds, probably 4-500 pairs” (pers. comm. from field notes). His estimation for the whole was 1400 pairs. Mr. J. Ngapo, Coromandel, told me (9/9/46) that Gannet Rock had once been the chief gannetry, and that he had noticed a great difference on his return from war service. Mr. W. Gilliver, Marine Department, Tauranga, has told me (13/1/47) that there have been great increases during the past decade, the “new” areas being: Double Island Stack, South Promontory, lower ledge of N.W. Promontory, and lower parts of Central Group.

REPRINTING OF No. 1 Vol. 1 OF “BIRD NOTES.”—Number 1 of Volume 1 of “New Zealand Bird Notes” is to be reprinted in the near future. Numbers 2 to 11 inclusive, together with the supplement and index, are available at present, and are priced at 13/9. The first four parts of Volume 2 are also available at 5/-. Members should notify the secretary if they require number 1, the cost of which will probably be 1/3.

SUBSCRIPTIONS NOW DUE.—Reminders are included with this issue to those whose subscriptions are now due, and members are requested to attend to this matter promptly. It is pointed out that the expenditure on New Zealand Bird Notes is controlled by the amounts received, and a better budget for the year can be drawn up if all subscriptions are received early. Subscriptions, due on April 1st each year, entitle members to the July, October, January and April numbers of “Bird Notes.” New members, joining during the year, are entitled to all four numbers.

BIRDS OF PARENGARENGA HARBOUR AND FARTHEST NORTH.

By A. H. Watt, Paua.

The accompanying notes have been compiled from observations made during the past 32 years. The locality comprises the peninsula forming the extreme northern tip of the North Island and the isthmus as far south as Te Kao, a Maori village at the southern end of Parengarenga Harbour. It contains about 250 square miles and is sparsely populated.

The isthmus is low-lying with sand dunes on both coasts, those on the east being composed of almost pure white silica sand. North of the harbour the land broadens out and is considerably higher, rising to a little over 1000 feet in the peaks of Kohuronaki and Unuwahao.

Except at Te Kao, where dairy farming is carried on in a small way, the land is uncultivated and unfenced, and provides rough grazing ground for some few thousands of sheep, cattle and horses, which wander unrestricted. The local Maori name Koraha (wilderness) aptly describes it. The predominant vegetation is stunted manuka, wiwi and fern. On the high land near the north coast are patches of bush.

Each year sees the bush decrease in area, for all through the summer, and indeed at any time when conditions are dry enough, burning of the vegetation goes on without let or hindrance. The gumdigger does it to clear ground for his operations, the stockowner to provide "feed" for his animals, and others for the pure joy of seeing a good blaze. The land, most of it rather poor, is rapidly becoming more impoverished. Large areas have, within the memory of the writer, become almost completely sterile and incapable of providing even what is regarded as "feed" in these parts.

Parengarenga Harbour, like a giant octopus, lies sprawled across the peninsula, its long arms twisting and turning in all directions, some of them reaching to within five miles of the west coast. At low tide it consists of countless channels separated by banks of sandy mud, mostly covered with eel-grass (*Zostera*) on which the waders find food. The long spit, with its range of white dunes, that runs south from the harbour entrance is a conspicuous feature of the district and could easily be mistaken for snow-clad hills.

Paua, sometimes wrongly called Parenga, is situated near the centre of the harbour on a tongue of land separating the western and southern reaches.

Kiwi (*Apteryx australis*).—Has not been recorded from the district.

Little blue penguin (*Eudyptula minor*).—Nests on rocky parts of the northern and eastern coastline, and inside the harbour opposite the entrance, at Te Pua Point.

Dabchick (*Polioccephalus rufopectus*).—Occurs sparingly on a number of small lakes as far north as Te Paki.

Order procellariiformes. The fluttering shearwater (*Puffinus gavia*), and probably other shearwaters and petrels, are sometimes seen in flocks just inside the bar; but no birds of this order have been observed within the harbour. On several occasions, always in March, a young wandering albatross (*Diomedea exulans*) in brown plumage has been seen sitting on the sand on the eastern ocean beaches.

Black, pied and white-throated shags (*Phalacrocorax carbo*, *P. varius* and *P. melanoleucos*).—All occur in considerable numbers in the harbour.

Daily trips to the west coast have been observed at certain seasons, probably during periods of abundance of small fish. At a nesting colony of black shags on the lake at Te Paki breeding has been recorded as early as July; another colony has been abandoned on a small lake further south, the nests, which are in tall manuka, having been almost enveloped by drifting sand. There is a nesting colony of pied shags in a pohutukawa near the mouth of the Whareana Creek, a few miles south of North Cape.

Gannet (*Morus serrator*).—Regular visitors to the harbour in spring and summer, but never more than six at a time.

White heron (*Casmerodius albus*).—One seen on several occasions, once roosting for some months regularly in pohutukawas on a tidal creek near Te Kao.

Reef heron (*Demigretta sacra*).—Plentiful. A flock of 30 were observed during the winter of 1946. On 8th February, 1947, there were 11 in the neighbourhood of Paua. Occurs in small numbers all through the year.

Bittern (*Botaurus poiciloptilus*).—Frequently observed in swampy areas.

Grey duck (*Anas poicilorhyncha*).—Common both in the harbour and on the many small lakes and lagoons in the area.

Scaup (*Aythya novaeseelandiae*).—Not common.

Black swan (*Cygnus atratus*).—In the harbour in flocks of up to 300 in autumn and winter; breeds singly and in small groups on lakes throughout the northern peninsula.

Falcon (*Falco novaeseelandiae*).—Once observed at Te Kao, c. 1928.

Harrier (*Circus approximans*).—Common throughout.

Brown quail (*Syncoicus ypsilophorus*).—Common.

Californian quail (*Lophortyx californicus*).—Only as far north as Te Kao, where a solitary cock bird was seen on one occasion. Between Te Kao and Awanui it occurs only in small flocks.

Pheasant (*Phasianus colchicus*).—Common.

Weka (*Gallirallus greyi*).—Not in the district. The name weka is used locally for the banded rail.

Banded rail (*Hypotaenidia philippenses*).—Common, nesting in rushes round the harbour edge.

Spotless crane (*Porzana tabuensis*).—Observed once, inland south of Te Kao.

Pukeko (*Porphyrio porphyrio*).—In restricted numbers, but well established, occurring as far north as Spirits Bay.

Oyster catchers (*Haematopus* spp.).—Both pied and black individuals. Nesting on ocean beaches; and in flocks of up to 40, both pied and black, in the harbour.

Turnstone (*Arenaria interpres*).—In small flocks of up to 24, arriving and departing at same time as godwits.

Lesser golden plover (*Pluvialis dominica*).—Never seen on the harbour, but seen on paddocks in the Te Kao Valley. An informant reports flocks of 50 this year (1946-47 summer).

Banded dotterel (*Charadrius bicinctus*).—Does not nest about the harbour, and not plentiful even in non-breeding plumage on mudflats. In last week of February, 1947, however, observed fairly frequently feeding

high on mudflats, in post-breeding and juvenile plumage. Large wintering flocks have been observed in the Te Kao Valley by the end of March.

New Zealand dotterel (*Pluviorhynchus obscurus*).—Nests on shell banks in the harbour in many places, and remains in the harbour throughout the winter. Nests found on hillside of open scrub in Te Kao Valley.

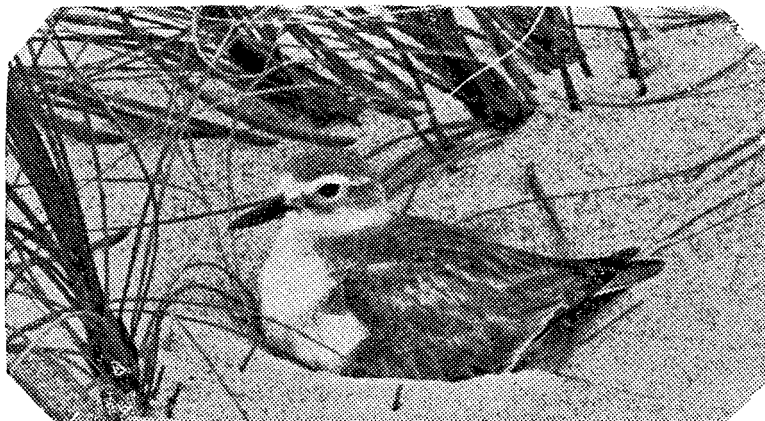


Photo: G. A. Buddle.

(By courtesy "Weekly News.")

N.Z. DOTTEREL ON NEST.

Wrybill (*Anarhynchus frontalis*).—A flock of 13 first observed on 26/1/47, feeding on marine worms.

Bar-tailed godwit (*Limosa lapponica*).—Accounts of massed departure from Spirits Bay do not correspond with my observations for the last 32 years. Godwit flocks arrive at Parengarenga Harbour in September, generally after the second week, and remain in approximately the same numbers throughout the summer. No increase has been noted before departure, which generally takes place during the last week in February and first week in March. At this time, however, there is much activity in the flocks, large bodies of the birds circling together and performing side-slipping flights, as if there had been an increase in coherence within the flock. The flocks finally disappear, but without assembling at any particular place.

During the summer there is a constant routine with the tides. As the tide rises within the harbour, flocks, generally of some considerable size, pass swiftly towards the east, where the birds congregate on the ocean beaches to north and south of the Heads. One flock observed here at high tide numbered at least 10,000; knots and other smaller waders were probably included in considerable numbers. As soon as the tide begins to fall the birds return to the harbour in smaller flocks of c. 30. Their piping call is frequently heard during both inward and outward flights. Regular flights to the west coast have also been observed from Te Kao. Towards the time of departure, many red-breasted birds are observed (Maori, kura), but grey-breasted birds are still present in considerable numbers (Maori, karoro). Flocks of up to 60 have remained throughout the winter (birds remaining are known to the Maoris as kakao). The general term for the godwit, as elsewhere, is kuaka.

Knot (*Calidris canutus*). Maori, *parerarera*.—Numbers fewer than godwits, but feed in close association; and remarks concerning habits of godwits apply in general to knots. They arrive and leave at the same time; but have not been observed in winter.

Curlew (*Numenius madagascariensis*).—One seen about the harbour throughout the year for the last two years; not in association with godwits, but often close to a flock of oystercatchers. The curlew was well known to the old Maori, to whom it was known as *tutei* (sentry). Maori informants refer to it as associating closely with flocks of godwits. Netting of godwits was carried out at the peak of high water, when the flocks seemed to settle down for a short period. The *tutei*, which up to this time had kept up its characteristic call, then suddenly became silent: at this moment the net was drawn.

White-headed stilt (*Himantopus himantopus*).—Does not nest within the harbour, where it is present only in small flocks except in the breeding season. Flocks of up to 250 have been seen on grassland at Houhora, and smaller flocks in the Te Kao Valley, in winter. Nests in creek beds on northern coast. Two totally black stilts have been observed, and one black except for white belly.

Caspian tern (*Hydroprogne caspia*).—A small colony on the white sand of the ocean beach one mile south of Parengarenga Heads; on 12/11/1941 the colony contained 24 nests, 10 with two eggs, the remainder with one egg; the ground colour of the eggs in this colony varies from *café-au-lait* to blue-white; in 1940 there were 30 nests in the colony. Observed regularly fishing in the harbour.

White-fronted tern (*Sterna striata*).—Never visits the harbour. No nesting ground in the neighbourhood, but observed on the west coast.

Black-backed gull (*Larus dominicanus*).—Scattered nests on north and east coasts; small colonies on west coast. Nests on east coast are on bare sand near the colony of Caspian terns, and are of remarkable structure, being built up to a height of 18 inches, out of sand and leaves of pingao. On the west coast, two miles south of the Bluff, a colony occupies the broken stumps of an ancient forest in the sandhills.

Red-billed gull (*Larus novaehollandiae*).—Occurs in greater numbers than the previous species, with minimum numbers in the breeding season. Large wintering flocks roost in the harbour. Huge flocks observed feeding off Waikuku Beach, south of North Cape, have come in to rest in thousands on the sand, going out again later to feed; on such occasions the smell on the beach is very noticeable. A few scattered pairs nest on the rocky north coast; large colonies on the Three Kings.

Pigeon (*Hemiphaga novaeseelandiae*).—Still present in some numbers in remaining forest of the northern block.

Kaka (*Nestor meridionalis*).—Absent.

Parrakeets (*Cyanoramphus* spp.).—One report of a parrakeet having been seen on the forested slopes of Unuwhao over 20 years ago.

Shining cuckoo (*Chalcites lucidus*).—Appears regularly.

Long-tailed cuckoo (*Eudynamis taitensis*).—Reported from the district; once 12 together, reported during rough weather.

Morepork (*Ninox novaeseelandiae*).—Generally distributed, even in open country amongst low scrub, where it was seen about the road at night.

Dollar bird (*Eurystomus orientalis*).—One at Te Kao, 1923.



Photo: G. A. Buddle.

FERN-BIRD FEEDING YOUNG.

(By courtesy "Weekly News.")

Kingfisher (*Halcyon sanctus*).—Common, nesting in low clay banks round the harbour; once boring in dead willow at Paua.

Pipit (*Anthus novaeseelandiae*).—Nesting in considerable numbers; present in all open country.

Fern-bird (*Bowdleria punctata*).—Still common in spite of frequent scrub fires. Careful observation has convinced me that the double call is always made by two birds.

Grey warbler (*Pseudogerygone igata*) and fantail (*Rhipidura fuliginosa*).—Both plentiful.

Silvereye (*Zosterops lateralis*).—Plentiful, large flocks observed in winter.

Tui (*Prothemadera novaeseelandiae*).—Absent from the district.

Greenfinch (*Chloris chloris*).—In small numbers, never observed in flocks, one seen at North Cape.

Chaffinch (*Fringilla coelebs*).—Common.

Redpoll (*Carduelis cabaret*).—Two observed near Te Kao, 1941.

Goldfinch (*Carduelis carduelis*).—Plentiful, in considerable flocks.

House sparrow (*Passer domesticus*).—Everywhere common about settlements.

Yellowhammer (*Emberiza citrinella*).—Common.

Song thrush (*Turdus ericetorum*) and blackbird (*T. merula*).—Both very common.

Hedge sparrow (*Prunella modularis*).—Now well represented; observed within the last ten years.

Skylark (*Alauda arvensis*).—Common.

Starling (*Sturnus vulgaris*).—Common, although scarcity of nesting places may restrict numbers; kingfisher which bored in dead willow was evicted. Feeds frequently on mudflats.

White-backed magpie (*Gymnorhina hypoleuca*).—Furthest north of which I have heard record is Herekino Gorge, 10 miles south of Kaitaia.

BIRD NOTES COLLECTED IN NORTH CANTERBURY, October, 1934.—Among a series of notes collected at West Oxford, Canterbury, in 1934, are some bird notes which may prove of interest. My informant was the late Mr. A. Burrows, who arrived in Canterbury in the year 1874 in the ship Waitari. Sky-larks and hares were brought out on this ship and introduced into Canterbury. (Previous introductions had already been made.) Mr. Burrows tells of the abundance of the weka when he arrived in West Oxford. He was very interested to watch Maoris catching them by the well-known means of using a weka wing attached to a stick about 6 feet long and a noose attached to a longer stick. The cry of the weka was made by the fowler using a whistle of flax called a whakapi made from the youngest and finest blades of the flax plant. To take the stiffness out of them the blades were previously heated in a fire. The bird came to investigate and was caught in the noose. This account is of interest as it is the first time the name whakapi has been recorded. Literally, whaka is the causative prefix, and pi is the young of land birds. Following the Maori custom, the first settlers used the kea for food. In the winter it came down from Mt. Oxford to West Oxford in twos and threes. The flesh was considered very palatable.—W. J. Phillipps, Dominion Museum, Wellington.

BREEDING HABITS OF RED-BILLED GULL.

By R. H. D. STIDOLPH, Masterton.

On Kapiti Island, in the first half of November, 1941, a considerable colony of red-billed gulls (*Larus novaehollandiae*) located on a rock not many chains from the caretaker's house provided an admirable opportunity of observing the breeding habits of this bird.

The female is fed by the male, after supplication on the part of the female, on the nesting rock. The female lowers her head, and turns her bill upwards, upon which the male regurgitated food, the female sometimes taking it direct from the male's bill, though at other times from the ground. On most occasions coition follows immediately after feeding. The male invariably flaps his wings, opens his bill and utters incessantly and quickly, "kar, kar, kar" during the act, which lasts two or three minutes. The males stands fairly erect with the wings upright over the back and when coition is taking place oscillates his tail sideways as it is brought down under the female's tail. The male stamps his feet alternately, as if to maintain balance. Females agreeable to the act offer no objections but stand still and erect, sometimes bending the head backwards or turning it sideways, as if to make half-hearted pecks at the male's feet. The presumed female which objects to coition raises her wings, pecks vigorously at the male, refuses to stand and screeches vociferously.

The presumed female appears to gather the nest material, some of which is picked up right alongside the nest site, though other material is gathered from much further afield. When the material, often pieces of seaweed, is placed in the nest site, the female squats in the cup, with the breast pressed down and works her feet backwards to shape the cup. The male stands by and watches, though when the female is absent he may sometimes mould the nest in the manner described.

Some birds at this colony carried large pieces of seaweed; one was seen with a tiny piece of dry grass stem which it dropped into the nest! One bird which was seen to carry several pieces of material from the beach to its nest, then flew from the nest, dipped its bill in the sea water during flight, returned to the nest, and "watered" it—water was seen to drip from the bill on the bird's return and the whole act had a deliberate air about it.

The general atmosphere was one of constant screams and harsh gratings, with the "kar, kar" of mating birds almost constantly heard, interspersed with occasional squabbles when a bird objected to the too near approach of another bird to its nesting site. Other birds, perhaps unmated, stood on the fringe of the colony, either drying or preening their feathers.

Much thieving goes on in the colony, as the birds appropriate nest material if this is possible. For instance, a nest seen on November 1 had disappeared on November 4 together with the two eggs it contained. Six nests which earlier had an egg each, on November 4 had lost their eggs.

On November 1 it was estimated that there were 100 birds on or near the nesting site and another 100 were feeding about half a mile away. Many nests were under construction; there was only one egg. A white-fronted tern (*Sterna striata*) had a "nest" on top of the rock and returned very promptly to its single egg. On November 2, the gull nest

which had one egg the previous day, had two, while a second gull's nest had one egg. Another white-fronted tern's nest was found on the side of the rock with one egg. The following day two more gulls' nests had an egg each. On November 5, ten nests had an egg each, and on November 7, eleven had one egg and four had two. On this day three eggs were picked up in the colony, sucked of their contents. On November 10, 21 nests had one egg and eight two eggs. A count showed that there were 203 birds in the colony. The next day, the position was: One egg, 20 nests; two eggs, 12 nests. At this point my own observations ended.

On November 17, my wife, who remained on the island, states that there were 39 nests with an egg each and 39 with two eggs each, while two nests had three eggs each. One of the tern's eggs was found on the beach with a fully-formed chick inside. On November 18 a harrier (*Circus approximans*) was worrying the colony and many eggs were found to be broken. The gulls left the colony in a crowd when the harrier flew over, and appeared to make no attempt to drive it away. Later, according to Mr. A. S. Wilkinson, custodian of the island, heavy seas washed away the nests on the lower portion of the rock and only one nest, which was built higher up the hillside near the rock and under vegetation, produced fully-grown chicks.

AUSTRALIAN RAVEN AS A STRAGGLER.

By K. A. Hindwood, Sydney, N.S.W.

The occurrence of what seems to have been either a crow (*Corvus cecillae*) or a raven (*C. coronoides*) from Australia, in the Mokohinau Group, New Zealand ("New Zealand Bird Notes," April, 1947, p. 70)* is of considerable interest as it indicates how far land birds may sometimes stray from their normal range. Some years ago a so-called "crow" made its appearance on Lord Howe Island. It was first observed on September 18, 1941, and remained on the Island for some two years, living largely on the eggs of sea-birds. On October 3, 1943, it was captured in a rabbit trap. The head of the bird was sent to me and was later examined by Norman Favaloro, R.A.O.U., who has a wide knowledge of the differences between the crow and the raven. In his opinion the head was that of the Australian raven, probably a female. Lord Howe Island lies some 300 miles east of Port Macquarie on the New South Wales coast.

The following extract from a letter written by Max Nicholls to Captain J. D. McComish gives details of the capture of the raven:—"I found a wild duck's nest in the swamp at Mosely Park. It had eleven eggs in it, but Mr. Crow came along and sucked the lot. I declared war and made a dummy nest with fowl feathers, put four eggs in it, and set a rabbit trap alongside. For a few days the bird only looked at the nest: at last he came to the eggs and trod on the trap to which a line six feet long was attached, so Mr. Crow got into the water and was drowned. He had white rings (irides) around the eyes. I chopped his head off and preserved it. I counted forty-seven "wide awake" (sooty tern) eggs under one tree that he used to frequent."—October 12, 1943.

* See page 106 of this issue.

WHITE-FACED HERON IN GOLDEN BAY DISTRICT, NELSON.

By CHARLES LINDSAY, Dominion Museum, Wellington.

In December, 1945, Mrs. E. M. Hayter, of Motupipi, reported two greyish herons that frequented some trees near her home. These birds were observed for some weeks but did not nest, although they gave indications of so doing, Mrs. Hayter on one occasion observing one bird flying with a stick in its beak. At this same period Mr. R. Alexander observed this heron at the tidal mouths of the Takaka and Wainui rivers. During October, 1946, he reported five birds on the Takaka River, near its mouth.

In December, 1946, Mr. W. Hadfield, of Wainui, reports that the light-grey heron was observed in the evening flying in groups to the willows that line the Wainui River near its mouth. He considers that they nest in the willows, but no actual nests have been found.

On December 27, 1946, Dr. W. R. B. Oliver and the writer observed a solitary white-faced heron (*Notophyx novaehollandiae*) on the Aore River about half a mile from Collingwood township. During February, 1947, more than twenty birds were seen together at Rangiheta, near Takaka. Mr. R. Alexander, during February, also reports it from Awaroa Inlet.

These records and reports recorded by Dr. R. A. Falla that this species is plentifully distributed in Westland, indicate that this bird, formerly of rare local occurrence, is in the process of becoming well-established. No definite records of its nesting have been recorded; but Mr. Hadfield's inference that it nests in the willows at the mouth of the Wainui, and Mrs. Hayter's observation of the bird flying with the stick in its beak, are quite in accord with its breeding habits in Australia, where it builds a nest of sticks in a tree overhanging water.

Both Mrs. Hayter and Mr. Alexander have been resident in the Takaka district for some years, but it is only during the last three years that the white-faced heron has been observed.

[When I visited the Takaka district in October, 1946, a resident at the mouth of the Takaka River described to me a heron which fitted the description of the white-faced species. He said he had seen several birds in that locality but on October 9, the date on which I visited the Takaka River mouth, none was seen or had been seen for several days.—R. H. D. Stidolph.]

REVIEWS.

Modern Bird Study.—Ludlow Griscom (Harvard Univ. Press, 1945, 18/9.)

This is a very good book. It deliberately omits discussion of several aspects of ornithology, but a list of the chapters will give an idea of the range covered. Development of Field Ornithology, Capacity and Intelligence of Birds, Adaptability of Birds; Migration, Causes and Origin; Migration, Factors and Routes; four chapters on Distribution; general, South America, Central America, North America; and, finally, Classification and the Species Concept. New Zealand comes in for a surprising degree of mention.

The chapters on Capacity and Adaptability, Migration, and Classification are particularly good. The former are of considerable interest to the psychologist as well as the ornithologist. There is some useful "debunking," particularly of Merriam's concept of transcontinental life-zones, though the much sounder vertical life-zones in tropical and mountainous countries are retained. His definition of a species is one of the

best I have seen. "It consists of actually or potentially interbreeding populations, no matter how different they may seem to be, reproductively isolated from other such groups, no matter how similar they may appear to be."

One criticism: On pp. 50-51, Griscorn discusses the extinction or partial disappearance of native New Zealand birds, and appears to regard the introduction of European birds as the main cause. Rats, cats, stoats, and the axe, are not mentioned, though he recognises the importance of some of these factors for North America.

Plain bird-watcher, or ornithologist, will find much of interest and profit in this book.—R. J. Scarlett.

An Undescribed Form of the Black Petrel, by R. A. Falla. Rec. Cant. Mus., Vol. v., No. 2, pp. 111-113, plates xvii-xviii, Nov. 15, 1946.

This paper relates the events leading to the discovery of a new subspecies of the Black Petrel (*Procellaria parkinsoni westlandica*) found breeding in the coastal bush-clad hills near Barrytown, Westland, in 1945, and gives a description of the new form, which has fresh eggs late in May, downy young in August and fully-fledged young in November. This winter breeding season contrasts strikingly with the summer breeding season of the typical bird. Incidentally this interesting event was first brought under the notice of the author by the pupils of Barrytown School through their head teacher, Mr. W. Watson, the school being a group member of this society.—R.H.D.S.

OYSTERCATCHERS AT SEA.—Mr. Max Nicol informs me that on several occasions when fishing from a launch three or four miles off the east coast of the North Island (c 30 miles south of Castlepoint) he has seen one or two black oystercatchers (*Haematopus* spp.) settle on the sea. On one occasion, in November, 1946, a bird, settling close behind the anchored launch, swam up to it, was caught and liberated again. When handled it uttered a high-pitched piping. Although European oystercatchers are known to settle in flocks on the ocean, often at a considerable distance from land, this habit does not appear to have been previously reported in N.Z. waters.—J. M. Cunningham, Masterton.

NEW MEMBERS.

The following members have been enrolled since the publication of the membership list in the last Bulletin. An asterisk denotes a life member:—

Balham, R. L., 49 Matai Road, Hataitai, Wellington.
Burns, W. J., Russell Street, Upper Hutt.
Burrows, W. M., Gore School, Southland.
Carter, R. H. c/o Forest & Bird Protection Society, Box 631, Wellington.
Chambers, Stewart, 61 Seaview Road, Remuera, Auckland.
Cheesman, Oswald, 1 Marua Road, Ellerslie, Auckland, S.E. 6
Cooper, Miss N., 27 Maire Street, Lower Hutt.
Crookes, Miss M. W., 31 Maungawhau Road, Auckland, S.E. 3.
Dover, C. W., 9 Logan Terrace, Parnell, Auckland, E. 4.
Edgar, Miss J. K., 78 St. Andrew's Hill Road, Sumner, Christchurch.
Fisher, V. F., 20 Douglas Avenue, Auckland, S.W.2.
Frost, Rex, 3 Hillside Road, Papatoetoe.
Gunson, Lady, Totara Park, Manurewa, Auckland.
Iorns, B., Bunny Street, Masterton.
McHarg, I. S., c/o Education Department, Wellington.
*McKenzie, Richard, c/o G.P.O., Rotorua.
Palmer, C. C. H., Kinohaku, Te Kuiti.
Shaw, David, Clevedon.
Shirtcliffe, Alan, Pungaere, Waipapa, Bay of Islands.

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