NOTES ON THE BIRDS OF COPPERMINE ISLAND, HEN AND CHICKENS GROUP

By D. V. MERTON and I. A. E. ATKINSON†*

A party consisting of Mr. J. C. Hopkins and the writers visited Coppermine, or Eastern Chicken Island, between the 19th and 22nd November 1965. Since little information on the wildlife of this interesting island is available, our observations for this short period are summarised below.

The Hen and Chickens are Scenic Reserves administered by the Department of Lands and Survey; the Chickens being declared in 1920 and Hen in 1928. Landing without written authority was prohibited in 1956.

Coppermine Island, the most easterly of the group, is 2000 yards long, 330-650 yards wide, and has an area of 180 acres. It lies approximately 10 miles east of Bream Head, and is separated from Middle Chicken (Whakahau or Whatupuke) Island by a channel 180 yards wide. Hen (Taranga) Island is approximately $4\frac{3}{4}$ miles to the south west. Coppermine is the steepest island in the group, the exposed northern and eastern faces being particularly so and the only semi-flat area is on the westernmost summit or D'Arcy Hill (607′). The main ridge, oriented in an east-west direction, is broadened into three rounded summits connected by two narrow steep-sided saddles. The best method of traversing the island is by following this ridge. An automatic lighthouse is situated on the eastern summit (480′).

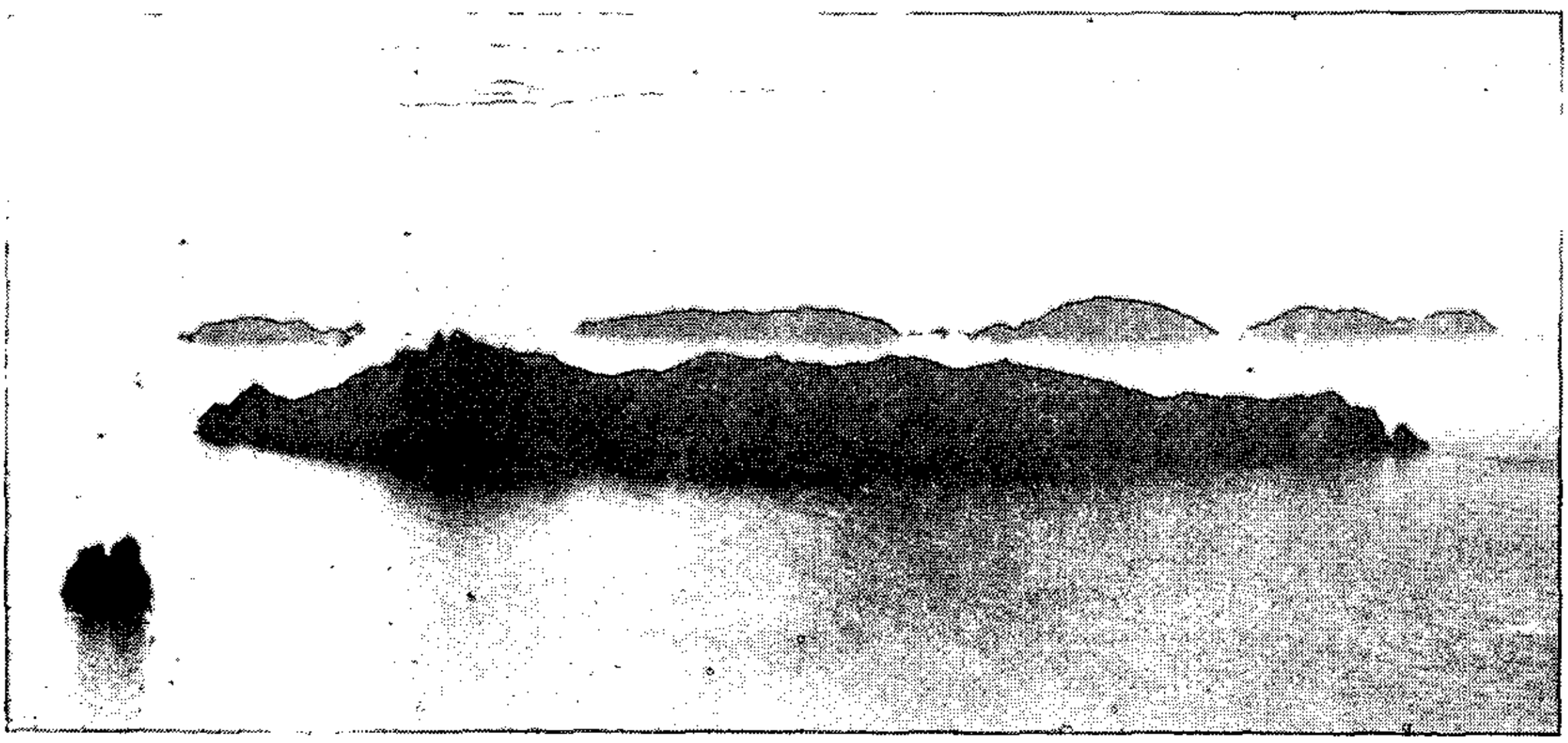

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Plate XVI — The Hen and Chicken Islands viewed from the south. Beyond Hen are, from the left, South western (which obscures North western), Big (Lady Alice), Middle and Eastern Chicken (Coppermine) Islands. Sail Rock is in the left foreground and the Poor Knights group can be seen in the distant background.

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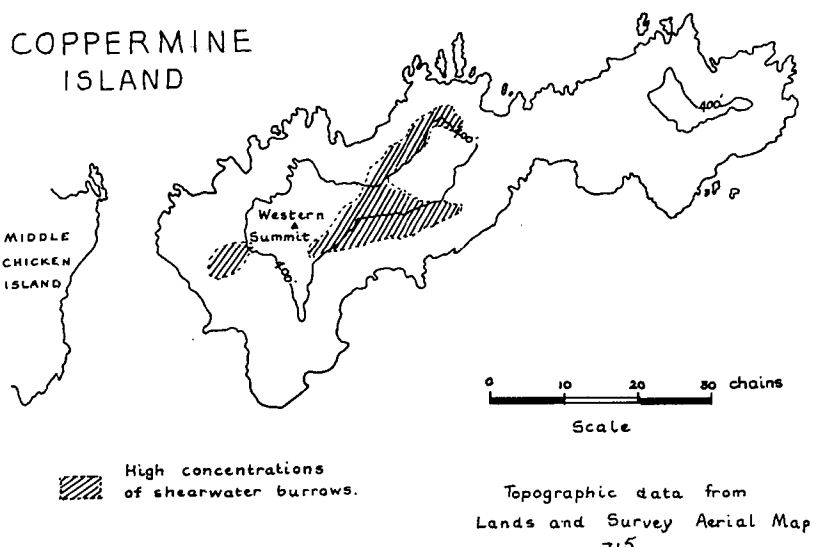
The presence of copper was known as early as the 1840's and attempts were made to mine it in 1849 and 1896. A shaft was put in a little above sea-level in a south-western bay before the venture was abandoned. The current interest in the island's copper minerals has resulted in detailed accounts of the geology and mineralization (Brothers and Hopkins 1967; Thompson and Wodzicki 1967). The most common igneous rocks are diorites and granodiorites that have been intruded while molten into the original basement greywacke, thus bringing about mineralization. Later intrusion of andesitic dykes has resulted in more extended mineralization.

Signs of ancient Maori occupation were found in the form of three terraced sites, about 150′ above sea-level on a south-west spur. A pit measuring 5′ x 3′ x 1′ deep occurs near the western summit. Other signs of Maori use were midden deposits, charcoal-rich soil and a piece of obsidian.

Most of the island's steep faces are covered by dense thickets of flax, pohutukawa, kawakawa, ngaio, and taupata. Some of the steep moist talus slopes are completely covered by luxuriant masses of renga lily, a feature we have not seen developed to the same extent on other islands in the group. The kanuka scrub at the eastern end appears to have developed following a fire in the latter half of the last century. The upper central and south-western slopes are covered by a forest of mixed composition, presumably developed since the Maoris left the island. Further details of the island's vegetation are given by Atkinson (in press).



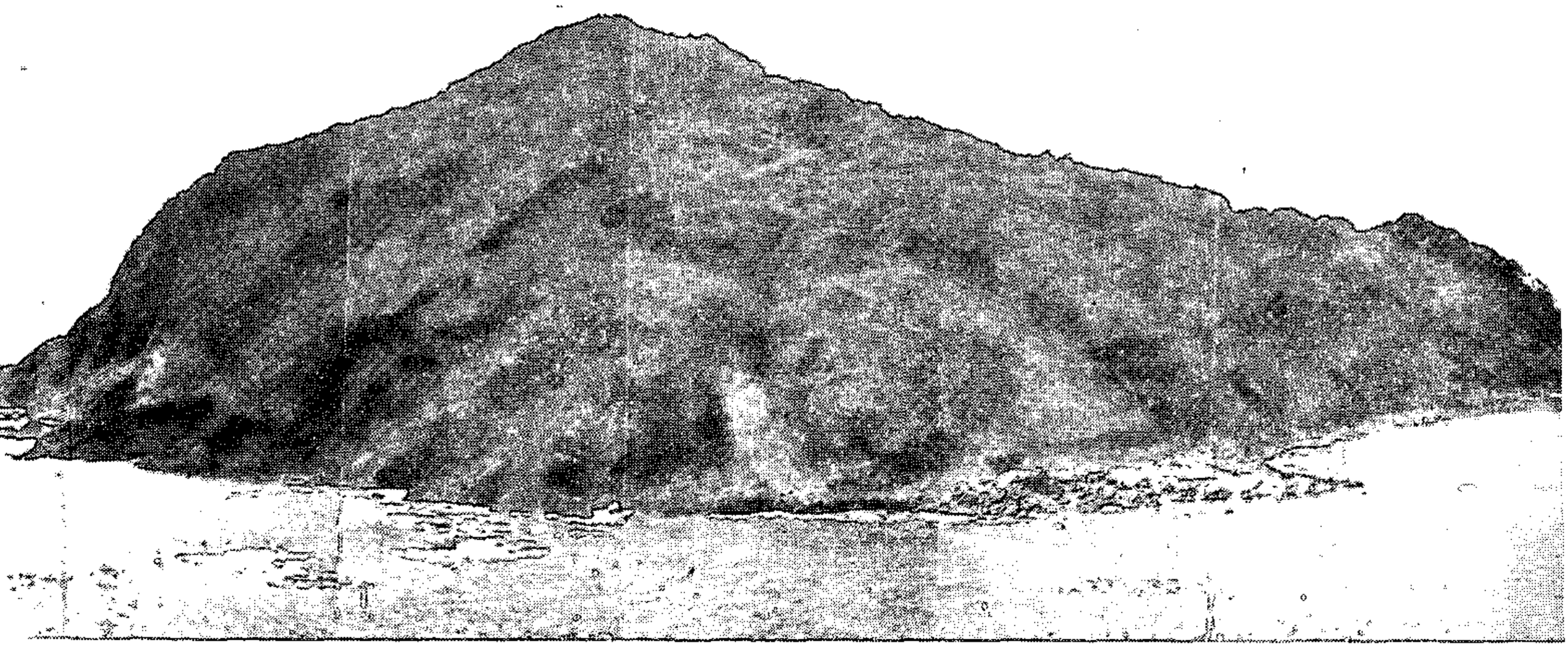


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Plate XVII — Western end of Coppermine Island taken from Middle Chicken Island, showing part of the rugged northern coast, D'Arcy hill (607 ft. a.s.l.), Scran Point, Coppermine Bay and Coppermine Point.

BIRDS

Coppermine is the only large island of the Hen and Chickens Group where numbers of petrel burrows are sufficient to qualify it as a "petrel island." However, a complete list of breeding sea-birds must await a winter visit. No census of the forest birds was attempted because of the difficulty of moving about the island but one of us (D.V.M.) had just spent 10 days on Hen Island where a census (Skegg 1964) had been made so that some comparison of the two islands was possible:—

NORTHERN BLUE PENGUIN *(Eudyptula minor)*

Breeds in moderate numbers along the southern and western coasts. It is considered to be as numerous as on Hen Island.

FLESH-FOOTED SHEARWATER *(Puffinus carneipes hullianus)*

The island supports a major breeding colony. Cowan (1908) compared the burrowed ground to that of rabbit-ridden country, and more recently Skegg (1964) has described the colony.

We saw large numbers of birds every evening wheeling over the island. They seemed to land earlier than other shearwaters, i.e. most were ashore by 8.15 p.m. Although the birds were nesting in many parts of the island, the main concentration of burrows was on the southern slopes of the central region (see Fig.). Counts of burrows were made in high-density areas using 20 circular plots, each of 10 sq. meters (1.78 meters radius), randomly-spaced along contours. We found densities up to 1.2 burrows per sq. metre with a mean value of 0.6 burrows per sq. metre. Most appeared to be in use, having signs of recent activity in their entrances, and only these were counted. In the 17 acres of high-density burrows that

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Plate XVIII — Burrows of Flesh-footed Shearwater at about 350 ft. a.s.l. on the southern slopes of Coppermine Island. Claw marks can be seen in the foreground.

were mapped, the shearwater population must be well in excess of 10,000 breeding pairs. No particular vegetation seemed to be associated with shearwater areas. The main colony was under a puriri-mahoe cover but other concentrations were present in kanuka forest and under flax nearer sea-level. The densely burrowed areas are associated with very friable sandy soils, possibly weathered from coarsegrained diorite and mineralised greywacke. Such soils extend from 150′ to 550′ above sea-level and were found on northern, southern and western slopes.

SOOTY SHEARWATER *(Puffinus griseus)*

Small numbers were heard each night but none was seen ashore. In 1953 Davenport (1954) found a corpse in a man-made pit.

FLUTTERING SHEARWATER *(Puffinus gavia gavia)*

Moderate numbers were heard each night and one was seen ashore.

NORTH ISLAND ALLIED SHEARWATER *(Puffinus assimilis haurakiensis)*

Moderate numbers were heard coming in each night and two were seen ashore. This species seemed more abundant than Fluttering Shearwater; neither has been recorded from this island before.

GREY-FACED PETREL *(Pterodroma macroptera)*

Neither seen nor heard. As they are winter breeders one would not expect to find many in November. Almost certainly a few nest here, as they do on other islands in this and neighbouring groups.

PYCROFT'S PETREL *(Pterodroma pycrofti)*

Moderate numbers were heard arriving each night and one was seen ashore. This rather rare species has not previously been recorded.

NORTHERN DIVING PETREL *(Pelecanoides urinatrix)*

Several were heard ashore low on the northern slopes one night. None were seen. They have not previously been recorded.

PIED SHAG *(Phalacrocorax varius)*

Several groups of up to 6 birds were seen feeding off-shore or resting on adjacent rocks. No breeding colony was found and we presume that these birds were from Middle Chicken where a breeding colony is present.

AUSTRALASIAN HARRIER *(Circus approximans)*

One was usually present. The species was recorded as breeding on this island in December 1953 by Chambers *et al.* (1955).

SOUTHERN BLACK-BACKED GULL *(Larus dominicanus)*

One pair apparently with a nest at the eastern end of Middle Chicken was often encountered along the coast.

WHITE-FRONTED TERN *(Sterna striata)*

A small nesting colony (4 nests) was found on a stack off the mid-northern coast.

NEW ZEALAND PIGEON *(Hemiphaga novaeseelandiae)*

As plentiful as on Hen Island. One occupied nest was found.

NORTH ISLAND KAKA *(Nestor meridionalis)*

As plentiful as on Hen Island. They were heard throughout the day, and one pair was thought to be breeding in the mixed forest at the western end of the island.

RED-CROWNED PARAKEET *(Cyanoramphus novaezelandiae)*

Present in greater density than on Hen Island. Apparently breeding in holes in the northern cliffs. Up to 8 were seen in the air together.

SHINING CUCKOO *(Chalcites lucidus)*. Numerous.

MOREPORK *(Ninox novaeseelandiae)*. Numerous.

NEW ZEALAND KINGFISHER *(Halcyon sancta)*

As numerous as on Hen Island.

NORTH ISLAND FANTAIL *(Rhipidura fuliginosa)*

As numerous as on Hen Island.

GREY WARBLER *(Gerygone igata)*

More plentiful than on Hen Island.

BLACKBIRD *(Turdus merula)*

As plentiful as on Hen Island. One occupied nest was found.

TABLE 1 — DISTRIBUTION OF BIRDS RECORDED ON THE HEN AND CHICKENS ISLANDS

(Data from Skegg (1964), Department of Internal Affairs file 46/29/410 and from our own records.)

Key to symbols used

Recorded: x Self-introduced European passerines: •
Breeding confirmed: b Visitors, migrants and vagrants: v
Birds introduced by man: I

Species	HEN	CHICKENS				
		South-western	North-western	Big (Maro-tiri)	Middle (Whatu-puke)	Eastern (Copper-mine)
Northern Blue Penguin	xb			xb	xb	xb
Fairy Prion (i)						
Flesh-footed Shearwater	xb		xb	xb	xb	xb
Sooty Shearwater	xb			xb		x
Fluttering Shearwater	xb		xb	xb		x
Allied Shearwater	xb			xb		xb
Grey-faced Petrel	xb			xb	xb	
Pycrofts Petrel	xb			xb	xb	x
Northern Diving Petrel	x		xb			x
Pied Shag	xb			x	xb	x
Little Pied Shag	x			v	v	v
Blue Heron	x			v		
Mallard	v					
Australisian Harrier	x			xb	x	xb
New Zealand Falcon (ii)	x			x	x	x
Southern Black-backed Gull	xb	x	x	xb	x	x
Red-billed Gull	x	x	x	x	x	x
White-fronted Tern	xb			xb	x	xb
New Zealand Pigeon	xb			xb	x	xb
North Island Kaka	xb			x	x	x
Red-crowned Parakeet	xb	x	x	x	x	x
Yellow-crowned Parakeet	xb			x		
Shining Cuckoo	vb		v	v	v	v
Morepork	xb			xb	x	x
Kingfisher	xb			x	x	x
Fantail	xb		x	xb	x	x
Pied Tit	xb			xb	x	x
Grey Warbler	xb			xb	x	x
Song Thrush*	xb			x		
Blackbird*	xb			xb	x	xb
Dunnock*	x			x	x	x
New Zealand Pipit	x	x	x	x	x	x
Bellbird	xb	x		xb	x	x
Tui	xb	x		xb	xb	xb
White-eye	xb	x	x	x	x	x
Chaffinch*	x			x		x
House Sparrow	v					
Starling*	x	x	x	x	x	xb
Corvus sp.	v					
North Island Saddleback (iii)	xb			I	Ib	
Totals:	39	8	11	35	28	31

(i) Alleged to breed on the Chickens, but confirmation required.
(ii) Last recorded on Hen 1924, Chickens 1880 and Eastern Chicken 1914.
(iii) But for several remnant males (c 9 in July 1967) of the South Island sub-species *P. c. carunculatus*, persisting on the rat-infested South Cape Islands off Stewart Island, Hen Island supports the last natural population of this endemic genus. Six from Hen introduced to Big Chicken Island in 1950 were not seen after 1953. However, a liberation of twenty-three to Middle Chicken in 1964 was completely successful, sixty being located four years later.

DUNNOCK *(Prunella modularis)*
Present in small numbers.

NEW ZEALAND PIPIT *(Anthus novaeseelandiae)*
Heard twice.

BELLBIRD *(Anthornis melanura)*
Abundant, as on Hen Island.

TUI *(Prosthemadera novaeseelandiae)*
Abundant, as on Hen Island. One occupied nest was found. Up to 15 were seen in the air together off the northern cliffs on 20 November 1965. Both Tui and Bellbirds were commonly seen visiting pohutukawa blossom.

WHITE-EYE *(Zosterops lateralis)*
Few present, as on Hen Island.

STARLING *(Sturnus vulgaris)*
Small numbers present and breeding in the northern cliffs.

NORTH ISLAND SADDLEBACK *(Philesturnus carunculatus rufusater)*
Although watched for particularly, none were seen or heard. Calls could be heard from across the narrow channel separating Coppermine from Middle Chicken Island where they were released in January 1964 (Merton 1965). It will be interesting to see if birds from Middle Chicken eventually cross this barrier and colonise Coppermine Island.

TABLE 2 — SUMMARY OF BIRDS RECORDED

Number of confirmed breeding species given in parenthesis		CHICKENS				
	HEN	South-western	North-western	Big	Middle	Eastern
Indigenous landbirds:	16(13)	5	4	15 (8)	14 (1)	14 (3)
Procellariiformes:	7 (6)	-	3 (3)	6 (6)	3 (3)	6 (2)
Other sea and coastal species:	7 (4)	2	2	5 (3)	5 (2)	5 (2)
Self-introduced European passerines:	5 (2)	1	1	5 (1)	3	4 (2)
Visitors, migrants and vagrants:	4 (1)	-	1	3	2	2
Birds introduced by man:	-	-	-	1	1 (1)	-
Totals:	39(26)	8	11 (3)	35(18)	28 (7)	31 (9)

It is unlikely that subsequent observers will increase greatly the numbers of species already recorded on the better known islands, i.e. Hen and Big Chicken, however significant additions can be expected to those of the remaining islands, all of which are little known. Further work is required before complete lists of breeding species can be compiled.

OTHER VERTEBRATES

Tuatara, both young and adults, appeared to be very common. Skinks and geckos, including *Hoplodactylus duvauceli,* were abundant. Kiore *(Rattus exulans)* were present in small numbers.

THE ISLAND AS A RESERVE

With the recent revival of interest in Coppermine's copper deposits and the scarcity of facts concerning its faunal attributes, the island's value as a public reserve has been questioned. Our records show the avifauna to be comparable with that of any other of the Chickens (see Tables 1 and 2), and a diversity of Procellariiformes greater than that of most islands off the New Zealand coast. Pycroft's Petrel is known to breed only on the Poor Knights, Hen and Chickens and Mercury Islands, but is nowhere abundant. However, it is the colony of Flesh-footed Shearwaters, perhaps the largest in New Zealand, which makes Coppermine so distinct from its neighbours. The only other large breeding colony known to us, in the New Zealand region, is on Karewa Islet (9 acres) in the Bay of Plenty. Beyond New Zealand waters this sub-species breeds only at Lord Howe Island, where, according to J. L. McKean* (pers. com.) the colony comprising a minimum of 50,000 breeding pairs, may soon be endangered by development.

There are at least three types of damage that must be guarded against:

1. Introduction of European rats.
2. Fire.
3. Trampling of burrows by visitors.

Rats, if introduced, would easily spread to the other Chicken Islands because of the short distances separating them. Their introduction would alter the plant, vertebrate and invertebrate communities of these islands, and, judging by the results of the rat *(Rattus rattus)* invasion of Big South Cape Island (Blackburn 1965), would lead to the disappearance of Saddlebacks from the Middle Chicken. Both tuatara and the smaller petrels and shearwaters breeding here would almost certainly share a similar fate. As far as rats and other predators are concerned, the Chicken group should be considered as a single island. At present the Chickens are among the few remaining islands without large browsing mammals or pigs, rabbits, opossums, cats, stoats, ferrets or European rats; this is in marked contrast to mainland communities.

Each of our offshore islands has its own distinct features and Coppermine Island is no exception. The intimate relation between rock composition, soils and burrowing seabirds is well exemplified here. Study of this may contribute to our understanding of the distribution and requirements of burrowing seabirds and may ultimately provide the knowledge necessary for new colonies to be established artificially. A film of the life of a Shearwater-reptile colony such as this would allow many more people to appreciate

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and enjoy the beauty and complexity of this island ecosystem. What the outcome of the current copper prospecting will be is unknown, but it must be made clear that from the viewpoints of both wildlife interest and scientific study the Chicken Islands are irreplaceable.

ACKNOWLEDGEMENTS

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SHORT NOTE

BLACK-FACED CUCKOO-SHRIKE IN SOUTH WESTLAND

On 14/9/67 I received a message from Mr. C. Eggeling that he had seen a strange bird near his home at Okuru on September 1st. He described it as follows. The bird had a body about the size of a Tui's; a short, thickish neck, a beak about the thickness of a Bush-pigeon's, but not quite as long. The tail was about as long as a Tui's or slightly longer. The colour on the breast and under the wings was a greyish white, and the back was a light blue or bluish grey, darkest towards the head, which was short and stumpy.

A short time afterwards, Mr. Eggeling's brother and his two sons saw a bird of the same description about one mile and a half from where the first sighting occurred. They followed it to the first corner from the bridge. It was making a number of short flights, several times crossing the road. It would flap its wings a little ,then glide to a perch, at times making a piping call. They noted that the feathering about the head was dark or black; and they estimated its length as about a foot.

Later when Mr. Eggeling and his sons were shown a number of books, they all picked Kokako as the nearest; but the colouring was wrong. As I thought this bird could be a vagrant from Australia, I discussed it with H. R. McKenzie and B. D. Bell, both of whom suggested that it was an immature Black-faced Cuckoo Shrike *(Coracina novaehollandiae)*. This was the species picked out by the Eggelings when I showed them a copy of Cayley's " What Bird is That ? "

The weather before the sighting had been rough with strong north-westerly gales.

— ALAN WRIGHT