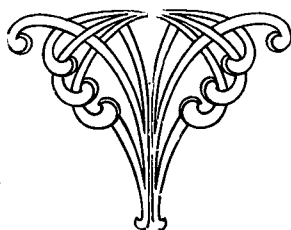


Vol. 2. No. 8.

April, 1948.

New Zealand Bird Notes



Bulletin of the Ornithological Society of New Zealand.

Published Quarterly.

New Zealand Bird Notes

Bulletin of the Ornithological Society of New Zealand.

Edited by R. H. D. STIDOLPH, 114 Cole Street, Masterton.
Annual Subscription, 5/-. Life Membership, £5.
Price to non-members, 2/- per number.

OFFICERS 1947-1948.

President—Professor B. J. MARPLES (Museum, Dunedin)
South Island Vice-President—DR. R. A. FALLA (Museum, Christchurch).
North Island Vice-President—MR. E. G. TURBOTT (Museum, Auckland).
Recorder—MR. C. A. FLEMING, 79 Duthie Street, Wellington, W3.
Secretary-Treasurer—MR. J. M. CUNNINGHAM (39 Renall St., Masterton).
Regional Organisers.—Auckland, MR. R. B. SIBSON (King's College); Hawke's Bay, REV. F. H. ROBERTSON (Havelock North); Wellington, MR. C. A. FLEMING; Christchurch, DR. R. A. FALLA; Dunedin, MR. L. GURR (University of Otago).

Vol. 2 No. 8 Published Quarterly. APRIL, 1948.

CONTENTS.

	Page
Bird-life at Sundrum, South Canterbury, by D. H. Graham	178
The Snares Island Expedition, 1947	181
Identification of Birds by Radar, by C. A. Fleming	184
Stilts Nesting at Ardmore, by A. F. Stokes	185
Hutton's Shearwater in N.Z., by V. I. Clark and C. A. Fleming	187
Seabird Mortality in February, 1947, by J. M. Cunningham	188
Breeding of Red-capped Dotterel in New Zealand, by R. A. Falla	194
Royal Spoonbill in New Zealand, by R. H. D. Stidolph	195
Habits of Shining Cuckoo, by Ross H. Michie	196
Index	197
NOTES—Density of Paradise Duck Population, 177; Blackbirds Eating Carrots	197

ILLUSTRATIONS

	Facing page
Plate V.—Snares Island Crested Penguins	182
Plate VI.—Antarctic Terns; Snares Island Tomtit	183
Plate VII.—Red-capped Dotterel	194
Plate VIII.—Royal Spoonbill in New Zealand	195

DENSITY OF PARADISE DUCK POPULATION IN THE MOLESWORTH STATION AREA.—A count of paradise duck (*Tadorna variegata*) from a truck between Molesworth Station homestead, 2,905 feet above sea level, to Tarndale, 3,350 feet, via Sexton Pass and along the Acheron, Sexton and Alma rivers, was taken by the writer on October 29, 1946. A distance of 26 miles, of which about 11-12 miles were along the riverbeds, was covered between 10 a.m. and 3 p.m. The weather was fine, warm at noon in sunshine, with slight to moderate winds at times. The total number of paradise duck observed was 207, of which 47 were counted between Molesworth and Red Gate, 108 between Red Gate and Tarndale, and a flock of more than 52 birds was seen on Tarndale Flats. Of these 12 were single birds, 15 were in pairs while the remainder was in flocks from three to 52 birds. Obviously the majority of ducks were already mated with the exception of the large flock which may have been formed by immature birds. It should be remembered that the paradise duck in the beginning of the breeding season is frequently seen in trios, one duck accompanied by two drakes. It is likely that the majority of the paradise duck population was already in their respective breeding grounds. The density of the paradise duck population was about eight birds to a mile for the whole distance and about 17 birds to a mile of river flat.—K. A. Wodzicki, Wellington.

BIRD LIFE AT "SUNDRUM," SOUTH CANTERBURY.

By David H. Graham, Lower Hutt.

From May 24 to June 19, 1947, Miss Jessie Jackson and I spent a working holiday at the guest house of Mr. and Mrs. W. Cole, of "Sundrum." It was not our intention to study bird life, but to our surprise and pleasure on each occasion we had time off for a walk, more and more native birds were mentally recorded so that with the usual flair of naturalists we began to keep copious notes of both native and introduced birds.

"Sundrum" is a guest house about two miles from Woodbury and seven from Geraldine, with the Waihi River running through the farm, which is of about 80 acres in extent. Throughout this farm are clumps of native trees growing in their natural state, with many exotic trees about the place. Throughout the farm there are thousands of native trees, plants, shrubs and creepers, from seedlings to trees 30 or 40 feet in height, making an ideal sanctuary for our native birds as well as the introduced ones. The majority of native trees comprised totara, ribbon-wood, broadleaf, rimu, white pine, miro, matai, kowhai, mahoe, makomako, whitey-wood, matipo, bush lawyer (two species), lancewood, kaikomako, and many others. The place was once heavy, virgin bush and after being milled the young trees and plants were left to grow. The farm is grassed and fortunately for the native trees, only a few house cows are kept and the farm is lightly stocked with sheep, so that there is no destruction of growth and the plant vegetation has every chance to seed and increase. In Mr. and Mrs. Cole, we have a couple who are using every endeavour to assist in the increase of native birds, and no shooting is allowed. Further, Mr. Cole has a number of honey-pots for bellbirds and white-eyes and these are kept well filled during the non-flowering season. On the property is a weeping totara and a small one which has been grown from a cutting. These form an interesting addition to the beauties of the area.

Following is a list of species:—

Black shag (*Phalacrocorax carbo*).—These could be seen almost every day flying overhead; as many as seven at one time were noted flying eastward towards the sea.

Bittern (*Botaurus poiciloptilus*).—Not seen by me, but Miss Jackson saw one on a previous visit to "Sundrum."

Grey duck (*Anas poicilorhyncha*).—Were not seen, but often heard at night; said to be common at times.

Bush hawk (*Falco novaeseelandiae*).—One to three were seen every day flying over.

Harrier (*Circus approximans*).—One or two were seen on several occasions. A dead one was found below a power line.

Marsh Crake (*Porzana pusilla*).—This shy bird was seen on several occasions; never more than two at one time and always on a strip of grassland adjacent to dense clumps of bush near a damp, overgrown riverbed. Their unusual notes, a ticking or chattering sound, were heard at night; the birds were calling to each other across the drive. Identi-

fication was confirmed by reference to a specimen in the Canterbury Museum.

Black-backed gull (*Larus dominicanus*).—Numerous and often seen flying over; once saw 23 standing on grass land. Abundant during stormy weather; flying to the coast as the weather improved.

Pigeon (*Hemiphaga novaeseelandiae*).—Often seen in twos and threes and on one occasion six were seen flying and two were sitting in a tree. Very tame, inhabiting trees near the homestead. According to Miss Jackson and Mr. Cole they are increasing. Saw a pair feeding on kowhai leaves. This bush, with berry-bearing trees, should give ample food.

Shining cuckoo (*Chalcites lucidus*).—Not seen by us. Mr. Cole states they are regular visitors to "Sundrum."

Little owl (*Athene noctua*).—Not seen by us but Mr. Maud saw a number of bell-birds giving one a thrashing. It was not seen again.

Kingfisher (*Halcyon sanctus*).—Only one specimen seen on riverbed. Said to be common during the summer months.

Rifleman (*Acanthisitta chloris*).—From two to four were seen on one day; very tame. Quite common during the nesting season. It builds in stacks of firewood and in farm sheds, according to the owner of "Sundrum." All regular visitors say they are increasing.

Bush wren (*Xenicus longipes*).—At least a dozen of these birds were seen by us one day feeding along the branches of withy willows growing on a groyne. Mr. Cole states they are common during the summer months. The birds worked their way along the branches but spent equally as much time searching among fallen leaves and debris on the ground. They were active and elusive and when approached nearer, would utter a note like "seep, seep" before moving away. Not in any instance did they stray far from cover and moved or ran along the branches as much as possible under cover of twigs and leaves, or, when going to another branch, would move in short flights. They always carried themselves parallel with the branch, or, if they alighted on the ground or another branch, would stand erect and then lower themselves and begin to feed. They were most active in their movements, and with their short truncated tail and straight bill, made me certain they were wrens when I first saw them. A subsequent visit to the Canterbury Museum and a discussion with Dr. R. A. Falla and with Mr. L. McCaskill proved the birds to be this species.

Pipit (*Anthus novaeseelandiae*).—Only two specimens seen.

Grey warbler (*Pseudogerygone igata*).—Often seen feeding; on one day saw six.

Yellow-breasted tit (*Petroica macrocephala macrocephala*). — Two seen, 25/5/47, at "Sundrum"; two about two miles up Waihi Gorge on 26/5/47; and a pair in Turton's Bush, 19/6/47. As many as nine seen in one day. Very tame.

Fantail (*Rhipidura fuliginosa*).—Pied fantails were very common, more especially about the riverbed and it was not uncommon to count 20 flying between patches of bush or across a narrow strip of water catching insects. Counted 45 on one walk through this property. Two pairs of black fantails seen; did not mix with the pied fantails while we were there.

Brown creeper (*Finschia novaeseelandiae*).—From two to four seen at one time and eight in one day's walk about the farm. Two seen in Turton's Bush about a mile away.

White-eye (*Zosterops lateralis*).—As many as six were seen in one day; said to be very common during the summer months. Not once did I see one making use of honey pots or pieces of fat tied to trees near the house.

Tui (*Prothemadera novaeseelandiae*).—Only one seen, at the top of a matai.

Bell-bird (*Anthornis melanura*).—The most abundant native bird at "Sundrum" and exceedingly tame, coming each morning to sit on the wistaria which covers the sides of the house, and often sitting not three feet distant while I shaved. From the first thing in the morning till nightfall they were heard singing. There must be hundreds of these songsters within a radius of a mile from the house. In almost every clump of bush could be seen and heard one or two of these birds. Mr. Cole has a number of honey pots on a porch in front of the house and in a fruit tree at the back door. He keeps these filled during the winter and first one and then another bird would come for nectar almost all day. Birds often came to the porch while guests were having morning or afternoon tea and supped nectar only a few feet away. All the regular guests affirm that they are increasing.

INTRODUCED BIRDS.

Goldfinch (*Carduelis carduelis*).—Numerous about the farm and adjacent grass lands, especially in those parts where thistles were growing. As many as forty were counted in one flock.

Sparrow (*Passer domesticus*).—Abundant; very tame and always round the sun porches ready to be fed with crumbs by guests. Often came into bedrooms seeking food from breakfast trays.

Thrush (*Turdus ericetorum*).—Common throughout the farm, especially about the homestead and though they came to watch the sparrows eating crumbs, not once did I see a thrush attempt to pick up a crumb.

Blackbird (*Turdus merula*).—Common, about equal in abundance with the thrush. Everywhere about the farm and eating crumbs with sparrows at afternoon tea.

Hedge sparrow (*Prunella modularis*).—Seldom seen near the house, but seen in twos and threes further afield, especially in hedges and thickets of exotic trees. Seemed very shy. About eight would be the limit to be seen in a walk of a mile about the farm.

Skylark (*Alauda arvensis*).—Seen in twos and threes; never more than six in a mile walk, always in open pasture.

Starling (*Sturnus vulgaris*).—Murmurations of starlings often seen away from homestead, though single ones came to feed round garbage pails at the back door. Up to 80 seen at dusk flying in circles before taking off to roosting place.

White-backed magpie (*Gymnorhina hypoleuca*).—Up to six seen at one time. More tame and confiding when in a party of six than when singly or in pairs. Heard producing bubbling-like note when perching in trees at night time.

THE SNARES ISLANDS EXPEDITION, 1947.

In November and December, 1947, a party of 10 spent 12 days at the Snares Islands, 62 miles south of the South Cape of Stewart Island. The expedition was organised and led by Dr. R. A. Falla, and its members included Dr. Robert Cushman Murphy (American Museum of Natural History), Mrs. Murphy, and four members of the Ornithological Society of New Zealand: Messrs. E. F. Stead, R. A. Wilson, F. L. Newcombe, and C. A. Fleming. This quite unofficial narrative of the expedition may be of interest to readers of "New Zealand Bird Notes."*

The expedition travelled in the 73ft. twin-screw motor launch "Alert" (known in the ports of New Zealand as the "Sea Scout launch"), with a crew of three under Captain A. J. Black, on whose skilful and confident handling of the vessel much of the success of the venture depended. "Alert" left Bluff early in the afternoon of November 21st, crossed to Half Moon Bay, and then to Port Pegasus. Weather-bound for two days at Pegasus, the party made profitable excursions by land and water. Ashore, kiwi "prods" in the moss were plentiful and red-fronted parrakeets (*Cyanoramphus novaeseelandiae*) were seen; Nelly Island (of Guthrie Smith) justified its name with a single half-grown giant petrel (*Macronectes giganteus*) chick; black oystercatchers (*Haematopus unicolor*) in pairs were seen at several points; and blue shags (*Stictocarbo punctatus steadi*) dived on the calm waters of the harbour. In the evenings mottled petrels (*Pterodroma inexpectata*) flew overhead uttering their cry of "te-te-te-te-te." With the ship's searchlight we could see them circling, often in pairs, and others, apparently engaged in some courtship display, were disturbed on the surface of the water. On Noble Island, breeding crested penguins (*Eudyptes pachyrhynchus pachyrhynchus*) were visited, and, there and elsewhere, on the exposed outer cliffs, scattered inaccessible nests of the blue shag were located, perhaps for the first time since this shag was described as distinct.

After a night passage, "Alert" made the Snares at dawn on November 24, regular flights of diving petrels (*Pelecanoides urinatrix*) from the island indicating the direction of land before it was definitely sighted. We approached the rugged Western Reef in a rising northerly; angry seas boiled round sunken crags and cascaded from the kelp-fringed precipices of the chain of islets which old-time sealers called a "reef," even though they rise to heights of over 200ft. Rows of nesting mollymawks decorated the ledges and summits of some of the islets, and flocks of 30 or more, settled upon the heaving waters, rose at the vessel's approach. They belong to a race of the white-capped mollymawk (*Diomedea cauta*) which was thus confirmed as a breeding species at the Snares. Circling the reef, "Alert" made for the south-western cape of the main Snares Island, some three and a half miles away, through myriads of muttonbirds (*Puffinus griseus*) which darkened a horizon already indistinct with driving rain squalls. Passing south about the island and its smaller outliers, we made northward toward the boatharbour, but wind and sea had veered east of north, making the landing there unworkable, so the pick was dropped in 22 fathoms close

* The editor is grateful to Dr. R. A. Falla for permission to publish this account in "Bird Notes."

under the towering cliffs of the south-western headland, where most of the day was spent. Fur seals, hauled out on the talus made the rocks re-echo with their barking calls; Antarctic terns (*Sterna vittata*) had a small colony from which they called loudly to attack visiting skua (*Catharacta skua lonnbergi*) and black-backed gulls (*Larus dominicanus*); cape pigeons (*Daption capensis*) circled the cliffs and some entered cran- nies in them: later, sitting birds were clearly seen from the boat. From the *Olearia lyalli* scrub capping the summit plateau, 600 feet above song of thrush (*Turdus ericetorum*) and fernbird (*Bowdleria punctata caudata*) drifted down. By afternoon, the sea had eased, and by back- ing into the boatharbour and making fast to trees and rocks, "Alert" was able to land the party and all its gear before dark. The night was spent dodging rain drips in the leaky castaway depot to the accompani- ment of a muttonbird chorus, but next day, providentially fine, saw the erection of a comfortable camp: five sleeping tents linked by muddy trails with the depot, and a mess tent, constructed under the experienced direction of Major R. A. Wilson. "Alert" left the island that morning and the expedition settled down to its work. Fine weather was slow in coming, but much could be done in the rain, and the few days of sun were used to full advantage.

Snares Is. is roughly triangular in plan, with promontories reaching north, south-west and south-east, the greatest length of the island not greatly exceeding $1\frac{1}{2}$ miles. From the summit on the south-west block, 620 feet high, a knife-edge ridge leads to a surface falling gradually east and north, bounded nearly everywhere by cliffs. Deep gulches with vertical walls, outlying stacks, reefs, and islets, all much smaller than the main, diversify the coastal scene. Olive-green *Olearia* clothes the surface of the island, varied locally by yellow-flowered *Senecio stewartii*, with extensive coastal fringes and other irregular patches of tall Sub- antarctic tussock (*Poa foliosa* and *P. astoni*). None of the browsing animals once liberated as food for castaways has survived at the Snares, and the group is also free from predatory mammals such as rats and mice; indeed, apart from European birds which have colonised, unaided, during the past 75 years, bird life on the island cannot have changed since Kirk, Chapman and Reischek made it known in the eighties of last century, or even since the sealing days more than half a century previously.

Crested penguins (*Eudyptes pachyrhynchus atratus*) were breeding in rookeries of from a dozen to a thousand or more nests, in clearings in scrub or beneath the trees. The north-eastern landing places were thronged with idle birds, including yearlings. Parties of adults landed and departed at intervals through the strong swell which usually swept around the coasts: a fascinating sight from the top of a cliff, and with an added excitement if a hungry fur seal was patrolling the surge. In the rookeries, fat downy chicks nestled, emu-like, with their heads between the guarding parent's legs, or, if more advanced, congregated in a "creche" under the conscientious care of two or three adult birds, "nursemaids" who guided their charges to safety at the approach of danger. The querulous peeping of the chicks scarcely ceased, day and night. Rockhopper penguins (*Eudyptes crestatus*) so abundant at some of the Sub-Antarctic Islands, are extremely rare at The Snares.



Photo: C. A. Fleming.

A typical creche in one of the larger Snares Crested Penguin Colonies. Relatively few adult birds attend a mob of chicks and shepherd them to safety on the approach of skua or man.



Photo: C. A. Fleming.

TWO ADULT SNARES ISLAND CRESTED PENGUINS with a small creche of chicks. Aggressive behaviour from bird on right has been stimulated by the approach of the photographer.

PLATE VI.

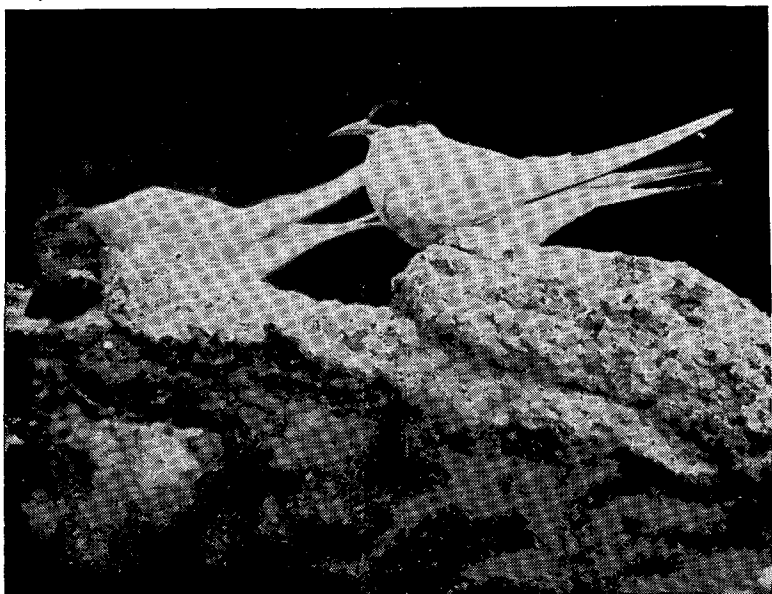


Photo: C. A. Fleming.

A PAIR OF ANTARCTIC TERNS on the nesting rock at the Snares.



Photo: C. A. Fleming.

SNARES ISLAND TOMTIT pausing on a fern frond after
delivering food to nestlings.

Over the whole surface of the island, especially in the tussock areas, the Snares fernbird is unbelievably abundant, and its calls are one of the island's characteristic sounds. Nests found in the tussock were in places less than a chain apart, and frequent territorial displays attested the density of the population. The Snares black tomtit (*Petroica macrocephala danne*) is equally conspicuous, though its territory seems to be at least three times as large as that of the fernbird. Disturbed peat around the camp always attracted down one or more tits which were tame enough to perch on one's boot and to enter the tents. The Snares snipe (*Coenocorypha aucklandica huegeli*) is probably as abundant as the tit but its secretive, semi-nocturnal habits made it less obvious. Its nesting season had just begun, and many pairs were still together, walking quietly through the muddy lanes between tussocks, feeding in the odorous scaps which drained every penguin colony, and occasionally uttering their repeated whistling call. Apart from the European birds (thrush, blackbird (*Turdus merula*), starling (*Sturnus vulgaris*), sparrow (*Passer domesticus*), chaffinch (*Fringilla coelebs*), goldfinch (*Carduelis carduelis*), redpoll (*C. cabaret*), the only other non-marine species at the Snares are the grey duck (*Anas poicilorhyncha*) and the silveryeye (*Zosterops lateralis*): the expected pipit (*Anthus novaeseelandiae*) was never seen, and must be exceedingly rare, if, indeed, its record from the Snares is valid.

Across the boatharbour from our camp, Antarctic terns and silver gulls (*Larus novaehollandiae*) had a small but healthy breeding colony, and others were scattered at irregular intervals around the coast. Black-backed gulls at the Snares probably number less than a dozen in all; perhaps they find life difficult with the skua as a neighbour. Of the latter there is a vigorous population; in most nests chicks had hatched and were being reared on daily offerings of kuaka, muttonbird, prion and mottled petrel.

During the day, muttonbirds were always visible out at sea; on land their ubiquitous burrows, the calls that came when we walked over them, and scattered surface-laid eggs reminded us of the existence of incubating troglodytes below, but every evening they proved to us that they alone among Snares Island birds, are to be numbered, not in thousands and in tens of thousands, but in millions. At the Snares, muttonbirds come ashore earlier in the evening than at most breeding colonies. At about 6 p.m., in full daylight, a curtain of flying birds is drawn across the sky above the island; after sunset the circling hosts are so dense that the sound of their pinions in the air rises above the breaking of the swell, and, later still, a chorus of greeting birds comes from all parts of the island. Soon after 10 o'clock the muttonbirds become silent: many, in fact, are asleep on the ground, head under wing, until with the approaching dawn the chorus awakes, and the birds stream seawards. By the time the muttonbirds quieten other petrels are in evidence: kuaka (diving petrel) frequently hit our tent, and their euphonious crooning was our lullaby. Mottled petrels became audible some time before 10, and seemed plentiful enough in the air above, but were not encountered on the ground, though the skuas found them. Fairy prions (*Pachyptila turtur*) nested deep in rock crevices among the vast boulders piled along the shores. Broad-billed whalebirds (*P. vittata*) proved elusive, but had

been captured freely by some skuas. Not a sign was seen of the large race of fluttering shearwater (*Puffinus gavia huttoni*) reported from the Snares. A few nellies frequented the eastern shores (one day two were ashore on the rocks), and royal albatross (*Diomedea epomophora*) also showed interest in the land, but in neither case was breeding proved. The handsome Buller's mollymawk (*Thalassarche bulleri*) which at other seasons is such a conspicuous inhabitant of the Snares, had not yet come ashore, but its nests were found in large numbers above the coastal cliff, and even some distance inside the bush margins.

"Alert" returned on December 4, and on the same day Dr. Falla and Captain Black landed on one of the islets of the Western Reef. This was the highlight of the trip, for there is no record of such a landing since the days of the sealers who handed down the almost legendary report of meeting cape pigeons there: certainly this was the first time a scientist had been ashore on those forbidding rocks. Fur seals dominated the beaches; white-capped mollymawks were nesting nearby on adjacent islets; populous penguin colonies on the bare rocky slopes rivalled those of the Bounty Islands for spectacle; and Dr. Falla was able to settle one of the outstanding problems of seabird distribution by studying at close quarters the cape pigeons which were sitting on eggs in every cranny. Weather prevented a repetition of the landing on the following day; in fact, there are probably few days in an average year when conditions of wind and swell would allow the approach of a boat.

On December 6 camp was broken, "Alert" bore the party back to Stewart Island in perfect weather—oily swell and brilliant sunshine—and reached Bluff on Sunday, December 7.—C.A.F., 27/12/47.

IDENTIFICATION OF BIRDS BY RADAR.

By C. A. FLEMING, Wellington.

During the war, Dr. Elizabeth Alexander (Radio Div. Lab., Department of Scientific and Industrial Research) engaged on secret radar research in the Cook Strait area, inquired as to the probable identity of birds which caused characteristic effect on the radar screen at night. One, relatively small, fed on the surface of the water in large flocks, and rose in characteristic fashion in front of advancing vessels, "peeling off" the surface of the sea and settling again behind after the disturbance passed. Another larger bird seemed more solitary, and flew in wide sweeps over the surface.

Gulls and terns roost at night, but petrels are known to be active at night, so, in view of the limited number of petrel species abounding in Cook Strait, it was suggested that the flocks of small birds were fluttering shearwaters (*Puffinus gavia*) whose daytime feeding habits closely resemble the description given. The larger solitary birds might be anything from sooty shearwater (*P. griseus*, the muttonbird) to albatrosses. These birds were observed at night from land some 10 miles away—surely a record, even for a tentative identification.

Birds and fish give characteristic disturbances on the radar screen, and failure to distinguish a breaching whale from a surfacing "sub.", or a low-flying frigate-bird from a periscope caused a number of false alarms on merchant vessels during the war.

STILTS NESTING AT ARDMORE.

SEASON 1946-47.

By A. F. Stokes, Ardmore, Papakura.

Two adult and three young stilts (*Himantopus himantopus*) reappeared on my farm on May 16, 1946, no birds having visited the area since March 29. These were doubtless the parents and brood of the previous season, less one chick. Since the brood learned to fly the reappearance of this chick was erratic, the last record of the whole four together being March 29, 1946. (See Vol. 2, No. 2, page 26.) It is, therefore, reasonable to suppose, owing to its earlier behaviour, that this chick had joined up with other stilts.

In the winter months the weather seems to influence their visits. From May 16 to July 30 the party of two adults and three young came on twelve occasions, nine of which were wet days. Probably most of the fine weather was spent on the mudflats of the Manukau, only four miles distant to the west.

A careful watch was kept to discover the direction they took to and from my farm. This was found several times to be the west so that the balance of their time presumably was spent at the Papakura Creek, a branch inlet of the Manukau Harbour. The Clevedon estuary to the north-east is nine miles away. They were never seen to fly to or from Clevedon.

The two adult birds first separated themselves as a pair on July 14. Two of the chicks seemed to play at pairing, leaving the third one by itself. There could, of course, be no prospect of these young ones breeding as they were only now assuming the darker plumage of the later juvenile stage. On August 1 another adult pair joined the party, but only stayed one day. These were much more timid than the others, which fact revealed how used to the place the family party had become. From August 14 to 28 the adult pair stayed and gave indications of nesting near the site of last year, but nothing came of it.

At last on October 9, this pair was found with a nest and one egg in a wet patch on Mr. Ray Brown's farm, about 700 yards from the first site on my farm, with a main road between. On October 13 they had **started incubation** of three eggs. Two hatched on November 8 and the third on November 9. This would place the incubation period at about twenty-seven days. When seen on November 9 all three chicks were in a little heap two yards from the nest. The old birds now tried to do as they had done the previous season, i.e., to take the chicks to the first site on my farm. On November 11 they had moved them 300 yards but the hedges and ditches at the main road must have deterred them for they had returned to the nesting field on November 12, losing one chick in this adventure. Another attempt was made on November 13, at a different point on the main road. Here the two chicks were rescued from the road ditch, nearly drowned. My family revived them in warm water, but one died the next morning and the other got out of its box and was killed by a neighbour's cat. This was a most regrettable end to their short but extremely adventurous lives.

It was noted that the old birds moved the chicks by flying a short distance and then calling them. Also it was found that the chicks, even at this tender age, could swim short distances.

Upon the loss of their chicks the parents went away and brought

back their brood of the previous year, making a great fuss of them for two days, the juveniles then leaving. The parents now frequented the first nesting site of 1944 and I found there on November 25 their nest with one egg. On Nov. 26, at 4 p.m. another egg was laid and the bird sat constantly from that evening. Examination of the nest on Nov. 29 showed four eggs. On December 21, at 6.30 a.m., there were two newly-hatched chicks in the nest and one ten yards away being brooded by the male bird. By 8.30 a.m. the three chicks were running about quite smartly and feeding. The female still sat during Dec. 22, while the active chicks, keeping close together, employed themselves busily, watched over by the male. The fourth little chap hatched on Dec. 23 and quickly joined the family party. It was darker in colour than the others. The average incubating period in this case would be twenty-five days. This shorter period may have been brought about by harder sitting owing to urgency caused by the lateness of the season and also by the hotter weather. The female bird now seemed to think that she had done her share of the task and spent much of her time washing and preening, leaving the care of the chicks to the conscientious male. On January 3 two of the young birds disappeared, probably taken by vermin. On Jan. 18 the remaining two were running about and squeaking a great deal. On Jan. 21 they made short flights of about three yards.

H. R. McKenzie and F. Murray arrived from Clevedon on Jan. 22 to ring them. The stronger bird made a round-about flight of about two minutes, F. Murray doing some hard running and good anticipation, catching it almost as soon as it landed. Its ring number is 47-1 on the right leg. The less advanced bird made a short flight and then hid in the grass, where it could not be found. We all went into hiding until one of the parents called it out. It was soon caught and had placed on its right leg ring No. 47-2. The difference in the development of the two birds was very marked in size, strength, power of wing and of voice, but this may not be conclusive evidence to the effect that the weaker bird was the last of the four to be hatched. In any case, the stronger bird could definitely be accepted as one of the first three hatched, so that the time from hatching to the first flight was thirty-two days. If the weaker bird was the last one hatched it flew in thirty days.

The rings used were plain white metal, very light. If a similar opportunity occurs next season I hope to be able to use coloured rings. There would be little chance of sighting ringed birds on the extensive shores of the Manukau Harbour, but the rings would be most helpful when the birds come back to the farm where they were reared.

Of the clutch of the previous season the first two to fly did so at thirty-three days (see Vol. 2, No. 2, page 26) while the other two flew at thirty-five and thirty-six days respectively. The two newly-ringed youngsters now developed rapidly in flight until on February 1 the whole family flew away. The male and two young returned, but left again for good on February 2nd.

There is unfortunately only a short story of the more timid pair which came on August 1. These (presumably the same birds) came again on October 10 and 27. Their nest with one egg was found in Mr. Brown's paddock on November 3, a little distance from that of the first pair. On Nov. 5 between 8 a.m. and 5 p.m. a second egg was laid. A few days

later a cow put its foot on the eggs and the birds left the vicinity. From the small number in the clutch and their hasty departure, I presume that they were young birds and that they may return with more determination next season.

HUTTON'S SHEARWATER (*Puffinus gavia huttoni* Math.) IN NEW ZEALAND.

By V. I. Clark and C. A. Fleming, Wellington.

In 1912, Gregory Mathews, in his "Birds of Australia," Vol. 2, published a description of a new subspecies (**huttoni**) of the common Australian and New Zealand fluttering shearwater (*Puffinus gavia*) from the Snares Islands,* based on a specimen in the Rothschild Museum, collected by Henry Travers in January, 1890. He recorded an Adelaide specimen as belonging to the new race, which is larger than other forms of the species. In 1937 a storm-killed example from West Australia was sent to Mathews who mistook its relationship and described it as *Puffinus leptorhynchus* n. sp. believing it to be related to the Manx shearwater rather than to the fluttering shearwater. In 1939, Dr. D. L. Serventy collected two specimens at sea off Kangaroo Island, South Australia, and his detailed account of them, and of the history of the subspecies appeared in the Emu for October, 1939, where full literature references may be found. Serventy concluded that *Puffinus gavia huttoni* is a valid and distinctive subspecies, and included in it the Snares Island birds (there are apparently three skins in existence, none of them in New Zealand), a New South Wales storm-killed bird, the West Australian example and his two Kangaroo Island skins. Among dozens of fluttering shearwater examined and measured from the Auckland west coast and other New Zealand districts, none had turned up which could be assigned to the large race **huttoni**, except, perhaps, some of those collected by the Whitney expedition in 1926.

It was therefore a pleasant surprise when one of us (C.A.F.) in 1940 recognised as *Puffinus gavia huttoni* a somewhat moth-eaten, dried, flat skin from Kapiti Island in the Dominion Museum. It had been sent in some years before by Mr. A. S. Wilkinson, who had recognised its distinctness from the usual form of *gavia*, but it had never been examined nor reported upon. In April, 1947, three large skulls were recognised among the remains of small shearwaters at Pukerua Bay (V.I.C.); from their condition it appears almost certain that they had been washed ashore during the severe storm of February 17, 1947. One of the three larger-sized heads was kept, and it is clearly a specimen of **huttoni**. Finally, in October, 1947, a further example came ashore at Pukerua Bay, fresh, and in good feather, but was badly mauled by black-backed gulls before it was collected by V.I.C. These occurrences lead us to believe that this petrel, hitherto considered rare in New Zealand, may be of regular occurrence, and, since it can be recognised by anyone who can take measurements, we suggest that its distinctness from the common fluttering shearwater should be emphasised by the allocation of a different vernacular name, Hutton's shearwater.

Hutton's shearwater may be recognised by its dimensions alone: the

* No later visitors to the Snares have seen this petrel and there is a possibility that Travers's specimens were wrongly labelled.

bill is up to 3mm. longer, and yet not much wider than that of the fluttering shearwater, and the resulting narrower shape is noticeable when the two are compared. The plumage is practically the same as in *P. gavia gavia*, although the Kapiti skin is particularly dark on the back and both the Kapiti and the last Pukerua Bay bird have darker axillaries than the fluttering shearwater (wholly brown, without white tips). Dimensions are compared in the following table. Fluttering shearwaters from northern New Zealand and New South Wales (*Puffinus gavia byroni* (Math.) have been distinguished from those of the Cook Strait breeding area (*P. g. gavia* Forst.) by some workers, but there are too few of the latter available to tabulate them separately.

Puffinus gavia gavia/byroni (extreme dimensions of 35 Australian and New Zealand examples, from Serventy, 1939).

Wing.	Tail.	Tarsus.	Culmen
180—221	58—68	36—46	30—35mm.

Puffinus gavia huttoni (extreme dimensions of six Snares and Australian examples, from Serventy, 1939).

Wing.	Tail.	Tarsus.	Culmen.
207—228	64—71	40—43	35—38mm.

Puffinus gavia huttoni (three examples from Cook Strait).

	Wing.	Tail.	Tarsus.	Culmen.
A	228	68	44	38mm.
B	—	—	—	37mm.
C	228	67 (approx.)	44	37mm.

A—Skin from Kapiti, Dominion Museum, collected by A. S. Wilkinson.

B—Dried head, Pukerua Bay, April, 1947, collected by V.I.C.

C—Fragmentary specimen, Pukerua Bay, October, 1947, collected by V.I.C.

Although the Snares Islands, 62 miles south of Stewart Island, are the only known reported breeding ground of Hutton's shearwater, others may exist, but it is probably safe to think of the above Cook Strait birds as widely dispersed members of that southern population. On the other hand, it is remotely possible that the Cook Strait birds are not the same as the Snares one: only more definite information can settle the problem.

Reference.—Serventy, D. L., 1939. The White-breasted Petrel of South Australia. *Emu*, vol. 39, pt. 2, pp 95-107.

SEABIRD MORTALITY IN FEBRUARY, 1947.

By J. M. Cunningham, Masterton.

In mid-February, 1947, a southerly storm of unusual severity hit the southern part of the North Island. Widespread damage and some flooding was the result in the Wairarapa, and at sea large numbers of birds of several species perished. A visit to the Wairarapa by Mr. H. R. McKenzie happily coincided with this storm, and his experience of northern petrels was invaluable on February 16, when a visit was made by the writer with Messrs. McKenzie, R. H. D. Stidolph and P. J. Parr, to Lake Ferry. This is at the south-east extremity of Lake Onoke, which is separated from the sea by Palliser Spit, access to which is made from the western side of the lake. The gale, though still strong, was by this time abating, and it was a fine experience to see several shy mollymawks (*Thalassarche cauta*) and Buller's shearwaters (*Puffinus bulleri*) flying within a few yards of us over the lake, and beating along the line of breakers across the spit. One or two other birds could be seen at

sea, but owing to the distance we were unable to identify these.

Specimens were taken from the shores of the lake here, and the writer and Parr collected many corpses from the Spit the following week, when Stidolph visited the northern end of Lake Wairarapa, at Featherston Domain. Here he found corpses of six species, washed up on a shingly beach. Messrs. McKenzie and H. L. Secker collected further specimens from Petone beach and Lyall Bay, Wellington, respectively: a grey-backed storm petrel (*Garrodia nereis*) was sent to the writer for identification by Mr. W. Knight from Paraparaumu Beach, and Major R. A. Wilson inspected two miles of beach between the Rangitikei and Manawatu rivers, finding only a penguin. Mr. V. I. Clark recorded some interesting corpses from Pukerua Bay, but Mr. C. H. Skuse was unable to find any corpses on Hokio Beach, Levin: the wind here was practically parallel with the coastline. Finally, a number of birds were washed ashore or blown inland at Wanganui, and were recorded by Mr. J. Moreland. It is of interest to note that no birds from westerly beaches were sent in in response to newspaper requests, as in a storm in the previous November. I am indebted to all the foregoing for placing their information before me, to Messrs. C. A. Fleming and E. G. Turbott for confirming various identifications, and to Dr. W. M. Hamilton for calculating the standard deviations in appendix 2. I particularly wish to thank the Assistant Director of Meteorological Services, Wellington, for his valuable reports of the storm, and for the tables and maps which he willingly made available.

LIST OF SPECIMENS.

Little blue penguin (*Eudptula minor*).—Wilson collected one between the Rangitikei and Manawatu rivers.

Diving petrel (*Pelecanoides urinatrix*).—Stidolph found a single bird at the Featherston Domain.

Grey-backed storm petrel (*Garrodia nereis*).—A single bird was found by Knight in a dying condition on Marine Parade, Paraparaumu Beach.

White-faced storm petrel (*Pelagadroma marina*).—Stidolph found a single specimen at Featherston Domain: it may, however, have been the victim of a previous storm.

Broad-billed prion (*Pachyptila vittata*).—This species is generally found on west coast beaches after prolonged westerly storms, particularly in July and August. The history of the February storm was such that destruction of prions on a large scale was not to be expected. A wing, possibly attributable to this species, was found at Lake Ferry, and McKenzie reported two prion wings from Petone. Two birds found at Ohariu Bay, Wellington, were reported to Secker, who states that one he examined was of this species.

Fairy prion (*P. turtur*).—Two corpses found at Featherston Domain by Stidolph.

Buller's shearwater (*Puffinus bulleri*).—On February 16, when the wind was decreasing, three or four of these birds were seen flying over the breakers and over Lake Onoke, on the waters of which, sheltered by the Spit, they sometimes settled. The following week 21 corpses were collected from the Spit, and one from Featherston Domain. On subsequent visits small numbers were found, probably having been missed in

February, and it is likely that along this stretch of coast the mortality exceeded twelve to each mile. Measurements of those collected are given in Appendix 2. Secker collected a male from Tongue Point, Wellington, and a female from Lyall Bay. These were examined by Fleming who states that the gonads, which were considerably regressed, suggested that the birds were mature but were not breeding in the 1946-47 season. There was evidence of moult of some of the neck, interscapular, scapular, rump and belly feathers, but not of flight feathers.

Sooty shearwater (*P. griseus*).—Tongue Point, two corpses, not moulting, reported by Secker. Clark found two corpses at Pukerua Bay on 20/4/47, apparently dating from February (N.Z. Bird Notes.) One was washed ashore at Wanganui, February 16 (Moreland).

Fluttering shearwater (*P. gavia*).—Reference is made elsewhere in this issue to eight corpses including three *P. g. huttoni*, dating from February, found at Pukerua Bay, 20/4/47, by Clark.

Wandering albatross (*Diomedea exulans*).—Three immature (first year) birds were found on Palliser Spit. Secker, who found two at Tongue Point on February 23, states that these were in the usual early juvenile phase. McKenzie inspected a live bird (later released) not quite in full adult plumage, at Petone Beach, and another first year bird was washed ashore at Wanganui, to be ringed and released by Moreland. The available bill measurements are (exposed culmen):—Palliser Spit, 148mm; Tongue Point, 138mm.; Tongue Point, 142mm.; Wanganui, 143mm. Murphy (1936) who gives the extreme measurements of 32 males from the New Zealand region as 144mm. to 170mm., mentions that strikingly small adults, as well as others of maximum size, occur among series from the New Zealand area.

Royal albatross (*D. epomophora*).—Fleming informs me that the plumage and measurements (wing 648, culmen 165) of an adult found at Lake Ferry were of the Chatham Islands-Otago race *sanfordi*, Murphy. Secker found another, wing 650, culmen 170, at Lyall Bay in May, and believes it a relic from the February storm.

Grey-faced petrel (*Pterodroma macroptera*).—Several corpses were found at Lake Ferry, and eight were collected from the Spit the following week, when Stidolph also found three at Featherston Domain. One was sent to Auckland where Turbott confirmed it was a typical specimen of the New Zealand breeding subspecies *gouldi*. It was a non-breeding male.

White-capped (shy) mollymawk (*Thalassarche cauta*).—Several birds of this species were seen flying over the breakers from Lake Ferry on February 16, and on occasions they flew over the lake within 20 yards of the shore. The following week thirty-four corpses were counted on the Spit, and Stidolph found three at Featherston Domain. All appeared to belong to the Bounty Island race *salvini* Rothschild. Secker found six at Lyall Bay (the culmens of three being 128, 130.75 and 131mm.). Four of these were examined by Fleming, who believes they were of this subspecies. A live bird was blown into a garden at Petone, and later released. Fleming identified this from an unpublished photograph in the "Evening Post" files as a shy mollymawk and not a Buller's mollymawk (*T. bulleri*) as had previously been reported. McKenzie reported five dead and a live bird from Petone Beach, and More-

land found a live bird at Wanganui on February 16, and two dead the following day.

Gannet (*Moris serrator*).—One was found at Petone by McKenzie.

To summarise.—There was a particularly heavy mortality of shy mollymawks, the only species of mollymawk known to have suffered. Corpses were found on the southern coast, Wellington Harbour, and also at Wanganui. Royal and wandering albatrosses were also affected, only the latter, however, being found at Wanganui as well as the southern coast. Of the smaller species, it is of interest to note the large number of Buller's shearwaters and grey-faced petrels found on Palliser Spit. The occurrence of these birds here, and some distance inland, but not at Wellington or Wanganui, inevitably leads to the question: "Where were the birds when the storm developed?" Though Buller's petrel has on occasions been reported (Fleming, 1939) from Chatham Island waters and Cook Strait (the species was described by Buller, 1888, from a specimen found on the Waikanae Beach), the grey-faced petrel is not usually found south of latitude 40. (Falla, 1937.) Both, however, breed in the East Cape area (Falla, 1934, and Fleming, unpublished). Is it possible that these birds were first blown southwards, only to be turned north again by the southerly gale?

The meteorological data seems to support this view. For the week preceding the gale, the predominant winds over the southern part of the North Island were from the south-east quarter. On February 11 and 12 there were strong north-easterlies, mainly of force about 6 (Beaufort scale, 22-27 m.p.h.) offshore from East Cape southwards. On February 14 and 15 a depression which formed near Farewell Spit moved rapidly in an east-north-east direction, the centre passing south of Napier. Such depressions often form further west, and are usually then preceded by strong northerlies, which veer to southerlies as they cross the island to the east. This storm, however, developing as it did over the Wellington province, was not preceded by northerlies in this area. From February 11 to 13 winds at Wanganui were of a light nature, rather variable, but during Feb. 14 the southerly reached the area with strong gale force (about 7 to 10: 28 to 56 m.p.h.). The winds in the Wellington area reached a maximum during the night of Feb. 14: inland, an anemometer at Ohakea aerodrome recorded a maximum gust of 94 m.p.h. during the storm.

Examining the list of species and bearing the above data in mind, it becomes clear that any birds feeding off the East Coast of the North Island would be likely to be blown far south and south-west by the strong north-easterlies. There, at sea, they might well have remained unnoticed unless caught up in the margin of the moderate south-easterlies, to be blown inland or washed ashore as the wind strengthened and veered more directly from the south and south-west. Birds in the Taranaki Bight would be blown ashore by the southerlies also, as were mollymawks, albatrosses and a mutton bird. The fact that grey-faced petrels and Buller's shearwaters were found only on Palliser Spit gives weight to the supposition that they were not in Taranaki Bight-Cook Strait waters but were in fact blown south from East Cape waters. The occurrence of the larger mollymawks and albatrosses at Wanganui as well as Wellington Harbour and Palliser Spit points to their wider distribution,

as do the records of the sooty shearwater from Wellington, Pukerua Bay and Wanganui. On the other hand, the non-breeding condition of *Pterodroma macroptera* and *Puffinus bulleri* might mean that they were feeding further south from their known breeding stations, and were indeed off Palliser Bay when the southerly arose.

LAND BIRDS.

Reports were published in the daily papers of heavy mortality of small birds, mainly sparrows (*Passer domesticus*). In several localities, including Masterton, sparrows were reported to have been collected by the bucketful under their roosts in pine plantations, and it appears that in certain localities almost the entire local populations perished. At Westmere, 15 miles south-east of Masterton, sparrows have not yet (September, 1947) begun to appear in any numbers again. I found nothing to suggest, however, that fantails (*Rhipidura fuliginosa*), silver-eye (*Zosterops lateralis*), or warblers (*Pseudogerygone igata*) were affected. It may have been that the low temperature (see appendix 1) combined with the wind and heavy rain, coincided with a peculiarly weak physiological condition of the sparrows. Most of the southern part of the island received 4 inches of rain for the 24 hours ended 9.30 a.m., February 15, and 2in. to 3in. in the following 24 hours. Isolated areas received as much as 9in. or more in this period.

APPENDIX 1.—(WIND SPEEDS AND DIRECTIONS.)

The following wind speeds and directions were taken from the Meteorological Station at Kelburn, Wellington, as the anemometer at Rongotai Aerodrome, on the coast, was unfortunately not operating at the time. During southerly gales, however, the latter usually reads about 20 m.p.h. higher than the Kelburn instrument. The records are averaged (approximately) for three-hourly periods.

Date	Three hours ending.	Direction (degrees)	Average Speed (m.p.h.)	Maximum Gust (m.p.h.)
Feb. 13	21 hours	160	8	19
	24	160	7	18
Feb. 14	03	180	13	26
	06	200	15	29
	09	200	18	36
	12	220	19	39
	15	190	23	43
	18	180	24	47
	21	180	30	56
	24	200	34	67
Feb. 15	03	200	43	80
	06	200	47	78
	09	210	42	74
	12	200	41	69
	15	190	35	62
	18	170	34	63
	21	170	28	56
	24	170	30	57

The following estimates of wind speeds and directions are from Wanganui, the force being on the Beaufort scale:—

Date	6 a.m.	8.30 a.m.	11.45 a.m.	2.30 p.m.
Feb. 11	E-S-E 2	E 4	S-E 5	S-E 5
12	E 2	E 1	N-E 1	S-E 3
13	N-E 1	Calm	W 3	W 3
14	N-E 2	N 1	Calm	S 8
15	S-W 10	S-W 8	S 10	S 10
16	S 8	S 7	S 3	S 7

TEMPERATURES.

The hourly figures supplied by the Meteorological Service were averaged to show in more significant form the temperatures at Kelburn: it will be seen that although the minimum did not drop to a very low figure, the temperatures for Feb. 14 and 15 were well below those of the previous few days. What figures are available from Waingawa, near Masterton, do not, however, show so pronounced a fall. The Kelburn figures are:—

	1—5 hrs.	6—10 hrs.	11—15 hrs.	16—20 hrs.	21—24 hrs.
Feb. 11	51	60	65	58	56
12	56	64	78	75	65
13	61	68	81	61	56
14	52	48	47	47	47
15	46	44	44	46	49

APPENDIX 2—(MEASUREMENTS.)

	Mean.	Standard Deviation. Plus/Minus	Range.	Number in Sample.
<i>Pterodroma macroptera</i>—				
Exposed Culmen	36.92	1.02	35 —38	6
Culmen, Depth	19.00	.63	18 —19.5	6
Culmen Width	15.67	.75	14.5—16.5	6
Tarsus	44.67	.52	44 —45	6
Mid Toe and Claw	66.67	.75	65.5—67	6
<i>Puffinus bulleri</i>—				
Exposed Culmen	41.33	1.69	38.5—44.5	21
Culmen Depth	15.04	1.06	12 —16.5	21
Culmen Width	12.14	.98	11 —15	21
Tarsus	52.45	1.80	49 —56	21
Mid Toe and Claw	66.26	4.30	61 —68.5	21
Wing (straight end)	284.06	9.64	268 —300	16

Correlations for various measurements of the *Puffinus bulleri* series are as follow:—

Length and Width of Culmen	r equals plus .46
Length and Depth of Culmen	r equals plus .52
Length of Culmen and Tarsus	r equals plus .63
Depth and Width of Culmen	r equals minus .10
Tarsus and Toe	r equals minus .07

For 19 degrees of freedom at the 1% level of significance — .549

For 19 degrees of freedom at the 5% level of significance — .433

The first three correlations are therefore significant, the length and width of culmen, and the length and depth of culmen at the 5% level, and the length of culmen and tarsus at the 1% level of significance.

REFERENCES.

- Buller, W. L., 1888, 2nd Ed. "A History of the Birds of New Zealand."
- Falla, R. A., 1934. "The Distribution and Breeding Habits of Petrels in Northern New Zealand," Rec. Auck. Inst. Mus., Vol. 1, No. 5, July, 1934.
- Falla, R. A., 1937.—B.A.N.Z.A.R.E. Reports, Ser. B, Vol. 2, p 180 under.
- Fleming, C. A., 1939.—"Birds of the Chatham Islands." Emu, Vol. xxxviii., pt. iv., January, 1939.
- Murphy, R. C., 1936.—"The Oceanic Birds of South America."
- New Zealand Bird Notes.—Vol. 2, No. 7, Jan., 1948.
- Summarised Classified Notes.

BREEDING OF RED-CAPPED DOTTEREL IN NEW ZEALAND.

By R. A. Falla, Wellington.

On August 5, 1947, Mr. L. A. Shand, of Christchurch, reported the early nesting on the gravel bed of the Ashley River of what he took to be a banded dotterel (*Charadrius bicinctus*). His interest was aroused not only by the early date but by the absence of any banded markings on the sitting bird. Before I had an opportunity of examining the nest with him it was washed away, with its two eggs, by a three-foot rise in the stream.

A few weeks later, however, the bird was found by Mr. Shand to be sitting on a further two eggs higher up on the same shingle island. The bird had been sitting for something over two weeks, when on September 10 in company with Mr. Shand, Miss N. Corne and Mr. J. R. Eyles, I was able to visit the site and examine the bird at very short range. As far as can be asserted without examining the bird in the hand and comparing it with Australian specimens it appeared to be a female red-capped dotterel (*Leucopoliis ruficapillus*). The plumage was entirely pale grey on the upper surface with faint lighter flecks, the only dark marking at all conspicuous being a patch on either side of the breast just above the bend of the wing. Chestnut markings were faint on the front of the crown and behind the ear. Legs and feet were black. In flight the narrow white bar on the wing was visible, and the white outer tail feathers on either side. Call note heard was a faint "wit-wit-wit," and when the bird left the nest she gave a "distraction display" by crouching close to the ground and flicking the half-opened wings. There were two eggs in the nest of buff ochre ground colour, with irregular streaks and blotches of brown, measuring 30 by 23 millimetres, and 29 by 22 millimetres. Time available for observation on this date was short but there was no sign in two hours of any mate in the vicinity, although banded dotterel in pairs and skirmishing parties were numerous. The eggs, even when the bird had been just flushed, appeared to be stone cold, and it seemed likely that they were not in process of incubation. After the lapse of more than the normal period of incubation and in view of the threat of floods (which later swept the area clean) the two eggs were taken and examined. One was infertile and in the other an embryo had formed and died. In appearance they resembled Australian eggs of *ruficapillus*.

Although it seems likely that this little plover is a representative of the Australian form the possibility is by no means ruled out of its being one of the many Northern Hemisphere representatives of the widely distributed species *L. alexandrius*. However, as excellent photographs* were subsequently obtained by Mr. K. Bigwood there seems little doubt about the identification. It is also of considerable interest to record that during the visit of Messrs. Bigwood and Shand the eggs were brooded and sat upon at intervals by a banded dotterel (*C. bicinctus*) reported to be a male.

After the flood mentioned above the red-capped dotterel was not again seen.

* The Society is indebted to Mr. Bigwood for the donation of an excellent photograph of this bird, a reproduction of which appears in this issue.—Ed.



Photo copyright: K. Bigwood.
RED-CAPPED DOTTEREL SITTING ON NEST, ASHLEY RIVERBED, CANTERBURY.

PLATE VIII.



Photo: W. P. Mead.
SPOONBILLS AT WAITOTARA, 23rd OCTOBER, 1946.

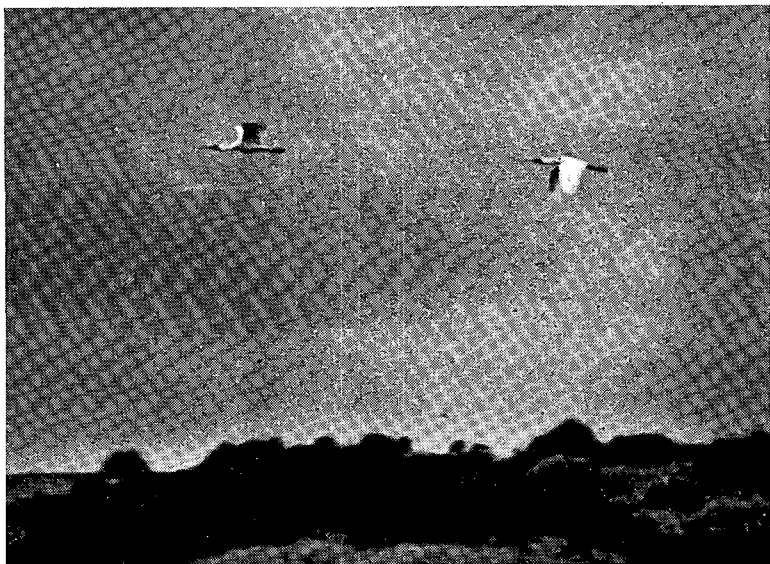


Photo: W. P. Mead.
SPOONBILLS IN FLIGHT, WAITOTARA, 23rd OCTOBER, 1946.

ROYAL SPOONBILL IN NEW ZEALAND.

By R. H. D. Stidolph, Masterton.

There is some evidence that the royal spoonbill (*Platalea regia*), hitherto regarded as an irregular visitor to New Zealand from Australia has bred in this country in recent years. First recorded in New Zealand in 1861, odd birds have been seen at intervals, according to published records, until about 1934; there are six such occurrences.

On November 20, 1943, in company with Mr. A. S. Wilkinson, a visit was paid to the mouth of the Manawatu River, near Foxton. Four large white birds, seen in the distance standing on the bank of the river, were at first thought to be white herons (*Casmerodius albus*) but a closer inspection showed them to be royal spoonbills. They were preening their feathers and on being disturbed, flew to a snag projecting from a fairly extensive mudflat and settled on it.

In May, 1946, four royal spoonbills appeared at Lake Ellesmere, Canterbury (R. A. Falla). At that time the four formerly recorded near Foxton were not to be seen in that locality. Later, only three birds were reported in the Lake Ellesmere area, and they were seen there until some time in June. Three birds were seen again at Foxton on July 15, 1946 (K. A. Wodzicki). Residents stated that three were there on October 24, 1947, but on October 25, only one bird was to be seen when I visited the locality in company with several other members of the Ornithological Society.

The spoonbill has been recorded also from coastal localities north and south of the Manawatu River. Residents of the Ohau River mouth reported two birds as inhabiting that locality in 1942 and 1943. In 1944 it is stated that a young one, with fluff still on its head, was in company with the two adults. This was reported independently by two residents of that locality. Further, Mr. A. E. Sands, of Foxton Beach, reports two royal spoonbills being seen there in 1944 with two smaller young birds. He was positive the latter were young ones.

Occurrences north of the Manawatu have been recorded at the Waitotara Estuary, where one was seen in the whitebait season, 1945, by Messrs. Mills and MacGregor, and on October 23 and 28, 1946, two were seen in the same locality. (W. P. Mead.) These latter birds were photographed by Mr. Mead. (See this issue.)

There is insufficient evidence to indicate whether or not these recent occurrences all refer to the same or different birds; the maximum number seen at one time was four.

Apart from these records, odd birds have been recorded in recent years at Stewart Island, 1943, and Manakau Harbour, 1945, both winter occurrences. (N.Z. Bird Notes.)

There is no doubt that the royal spoonbill is mistaken frequently for the white heron and it is possible that actual occurrences of the former species are more numerous than hitherto has been supposed. There is no reason to confuse these two species provided a good view is obtained, as in addition to its remarkable spoon-shaped bill, the spoonbill flies with its neck extended, whereas the heron's is retracted. The spoonbill has a noticeably different stance from that of the heron, holding its body much more horizontally and having a lankier appear-

ance about the legs. When feeding, the spoonbill moves its head and bill from side to side with a scythe-like motion, as it walks slowly forward in shallow water.

HABITS OF SHINING CUCKOO.

By ROSS H. MICHIE, Kaitaia.

I heard the first shining cuckoo (*Chalcites lucidus*) on the morning of September 25, 1947 at about 10.30, flying over, making a flight call, a drawn-out "wheeo," at intervals. It was not until October 2 (a week later) that I heard the next. From that day on they have been seen and heard almost daily.

The long-tailed cuckoo (*Eudynamis taitensis*) is seldom seen or heard about here, and I think this applies to North Auckland generally. Although always on the watch for it, I have only seen one bird here in 26 years, and heard it on four or five occasions, the last being in a piece of bush in the vicinity of Pandora (Spirits Bay) in October, 1946. The comparative absence of this bird about here is possibly because there are no whiteheads (*Mohoua albicilla*) in the North, this being the bird on which the long-tailed cuckoo usually shoulders the responsibility of bringing up its family.

When I was a boy I found two nests of the grey warbler (*Pseudogerygone igata*) each containing a shining cuckoo's egg, and two nests containing a cuckoo chick in each.

About nine years ago at about 8 o'clock on a summer morning I was carrying my cream out to the road when I noticed a shining cuckoo sitting on the fence apparently trying to swallow something too large for it. I stopped immediately and watched. It sat there for about a minute jerking its head back, with its beak pointing almost straight up. It then deliberately dropped something and flew away. On investigating I found it was a fresh egg of a chaffinch (*Fringilla coelebs*) that it had sucked. A second experience occurred about two years later. Within a chain of our house is a small native bush reserve fringed with a little tea-tree, about an acre and a half in all. One morning I noticed a shining cuckoo sitting on a small teatree about three feet from the ground, going through the same performance as already described. After a minute or so it dropped the shell and flew away. I found that it had sucked a grey warbler's egg, and within a few inches of this eggshell was another which had apparently been sucked the day before or prior to that. The inside of the shell was perfectly dry. The cuckoo had evidently found the same twig a convenient place on each occasion. I made a thorough search for the warbler's nest without success. I have no recollection of anyone having seen a shining cuckoo sucking eggs.

Do cuckoos return to the same locality each year? A few years ago a cuckoo that frequented our bush reserve for a few months had a variation in its song. It would give about half a dozen of its "cooing" notes in the usual way, then step up an octave, starting off with the "coooo" on the higher note of the previous "coooo" and carrying on till breaking into the "wheeo, wheeo" of the latter part of its song. This song was repeated over a period of two or three months. The following season we heard the same kind of song for a similar period and presumed it would be the same bird. We have not heard it since.

BLACKBIRDS EATING CARROTS.—On February 22, 1947, black-birds (*Turdus merula*) left the green apples on the trees in favour of carrots, rejects left lying on the ground and partly chopped by the rotary hoe. Blackbirds evidently know a good food and promptly got to work picking the insides out of these coreless carrots which are sweeter than ordinary ones. Only the shells were left. The blackbird is very numerous in the district.—Mrs. C. W. McLatchie, Hilderthorpe, N. Otago.

INDEX.

* Denotes illustration.

- Acanthisitta chloris*. See Rifleman
Acrotheres tristis. See Myna.
 Albatross—Light Mantled Sooty . . 157
 Royal . . . 22, 39, 157, 184, 190
 Wandering . . . 39, 115, 157, 190
Alauda arvensis. See Skylark.
Alectoris chukor. See Chukor.
Anarhynchus frontalis. See Wrybill.
 Anas—
 aucklandica chlorotis. See Duck, Brn.
 gibberifrons. See Teal, Grey.
 platyrhynchos. See Duck, Mallard.
 poicilrhyncha. See Duck, Grey.
 supercilliosa. See Duck, Grey.
 rhynchotis. See Shoveller.
 Anderson, Miss S. I. 37, 80
 Andrews, T. 155
 Annual Meeting—1946, 1; 1947, 89
Anthornis melanura. See Bell-bird.
Anthus novaeseelandiae. See Pipit.
Apteryx australis. See Kiwi, Brown.
 " *haastii*. See Kiwi, Large Spotted
Arenaria interpres. See Turnstone.
 Arthur's Pass 132
Athene noctua. See Owl, Little.
Aythya novaeseelandiae. See Teal, Black
 Barton, I. E. 37, 131, 155
 Bell, R. D. 155
 Bellbird, 53, 96, 105, 141, 147, 173, 180
 Bittern 41, 116, 126, 159, 178
 Blackbird, 10, 16, 55, 96, 106, 120, 126,
 132, 144, 145, 154, 175, 180, 183;
 Study, 127; Eating Carrots, 197.
Botaurus poeciloptilus. See Bittern
 Boulton, A. A. 37, 155
Bowdleria punctata. See Fern-bird.
Branta canadensis. See Goose, Canadian.
 Buddle, G. A.—37, 154; Notes on Birds
 of Mokohinau, 69; Breeding of Red-
 billed Gull, 71; New Sanctuary off
 Karaka Pt., 128; Gannets of Three
 Kings, 129.
 Bull, P. C.—37, 154; Further Record of
 P. leucoptera, 29; Gannets at Mercury
 Island, 63.
 Bunting, Cirl 154
 *Burgess Island 28
Calidris acuminata. See Sandpiper, Sib-
 erian pectoral.
 canutus. See Knot.
 melanotos. See Sandpiper, American
 pectoral.
 ruficollis. See Stint, Red-necked
Callaeb cinerea. See Crow, orange-wat.
 " *wilsoni*. See Crow, blue-wattled.
 Canterbury, North 120
Carduelis cabaret. See Redpoll.
 " *carduelis*. See Goldfinch.
Casmerodius albus. See Heron, white.
Catharacta skua lonnbergii. See Skua,
 Southern.
 Chaffinch—54, 96, 106, 120, 132, 143,
 145, 154, 174, 183, 196.
Chalcites lucidus. See Cuckoo, Shining.
Charadrius alexandrinus. See Dotterel,
 Red-capped.
 " *bicinctus*. See Dotterel, Banded.
 " *leschenaulti*. See Dotterel, Sand.
 Cheesman, O. 155
 Chisholm, M. R. 155
Chlidonias albigstrata. See Tern, black-
 fronted.
 " *leucoptera*. See Tern White-wing-
 ed marsh.
Chloris chloris. See Greenfinch.
 Chukor 43
 Clark, V. I.—37, 155; Further Visit to
 Waiheke Gannetry, 152; Hutton's
 Shearwater in N.Z., 187.
Circus approximans. See Harrier.
 Cockatoo, White 49
 Cockroft, T. 155
Coenocorypha aucklandica huegeli. See
 Snipe, Snares.
Columba livia. See Pigeon, Rock.
Colymbus cristatus. See Grebe, Crested
Corvus caecilia. See Crow, Australian
 " *coronoides*. See Raven, Australn.
 " *frugilegus*. See Rook.
 Cox, T. W. 30
 Crane, Marsh 43, 96, 97, 161, 178
 " *Spotless*. 43, 116
Creedon carunculatus. See Saddleback.
 Creeper, Brown 52, 172, 180
 Cromwell 126
 Crow, Australian 70, 122
 " *Blue-wattled* 54, 97, 174
 Cuckoo, Long-tailed—50, 78* 96, 103,
 118, 132, 140, 147, 170, 196;
 Young in nest, 77.
 " *Shining*—11, 49, 96, 103, 118, 139,
 147, 154, 170, 179; Habits, 196.
 Cunningham, J. M.—13, 15, 37, 82, 124,
 154, 155; New Red-Billed Gull
 Colony, 12; Horuhoru Gannetry,
 111; Seabird Mortality (1947),
 188.
 Curlew 46, 97, 103, 118, 165
Cyanoramphus auriceps. See Parrakeet,
 yellow-fronted.
 " *malherbei*. See Parrakeet, orange-
 fronted.
 " *novaeseelandiae*. See Parrakeet, red-
 fronted.
Cygnus atratus. See Swan, Black.
 " *olor*. See Swan, White.
 Dabchick 23, 38, 115, 156
Dacelo novaeguinae. See Kookaburra.
 Daniell, R. A. 37, 155
Daption capensis. See Pigeon Cape.
 Dart & Routeburn Valleys . . 144, 145*
 Deeming, Mrs. M. A. E. . . . 15, 37, 155
Demigretta sacra. See Heron, Reef.
Diomedea epomophora. See Albatross,
 Royal.
 " *exulans*. See Albatross, Wandering.
 Dollar Bird 118
 Donations 108
 Dotterel, Banded—4, 6, 45, 116, 126,
 146, 154, 163, 194.

- Dotterel, N.Z. 4, 45, 117*, 164
 „ Red-capped, 164, 194*; Breeding in N.Z., 194.
 „ Sand 4
 Dotterels, Puzzling, at Ruakaka . . . 75
 Duck—Blue 7, 42, 146
 Brown 42, 160
 Grey, 15*, 41, 116, 146, 154, 160, 178, 183.
 Grey-Mallard cross 160
 Paradise, 41, 132, 146, 160, 177
 Ducks 79, 108
 Dunedin Nat. Field Club . . . 37, 132, 155; Bird Life in Dart & Routeburn Valleys, 144.
 Edwards, S. 5, 37, 155
Emberiza citrulus. See Bunting, Cirl.
 „ *citrinella*. See Yellow-hammer.
Erolia testacea. See Sandpiper, Curlew.
Eudynamis taitensis. See Cuckoo Long-tailed.
Eudytes crestatus. See Penguin, Rock-hopper.
 „ *pachyrhynchus*. See Penguin, Drooping-crested.
 „ *sclateri*. See Penguin, Erect-crested.
Eudyptula albosignata. See Penguin, White-flipped.
 „ *minor*. See Penguin, Little Blue.
Eurystomus orientalis. See Dollar-bird.
 Exchanges 133
Falco novaeseelandiae. See Hawk, Bush.
 Falcon. See Hawk, Bush.
 Falla, R. A. 37, 80, 108, 148, 155
 Fantail 16, 52, 96, 104, 120, 126, 140, 147, 154, 172, 179, 192.
 Fernbird 51, 119*, 120, 171
 Snarcs 182
Finschia novaeseelandiae. See Creeper, Brown.
 Fleming, C. A. —32, 37, 72, 82, 155, 176; Census of Gannets, 17; Present Distribution of N.Z. Robin, 24, 150; Breeding of Red-billed Gull, 27; Wild Peafowl in Wanganui District, 36; Oaia Gannetry, 62; Gannets at Mercury Is., 63; Horohoro Gannetry, 109; Colville Ganneries, 113; Summary of Work at Waihake Gannetry, 152; Identification of Birds by Radar, 184; Hutton's Shearwater in N.Z., 187.
 Fleming, Mrs. C. A. 155
 France, G. C. 37
Fringilla coelebs. See Chaffinch.
Gallirallus australis. See Weka, S.I.
 „ *greyi*. See Weka, N.I.
 Gannet—40, 70, 97, 102, 110*, 116, 138, 153*, 158; Census, 17; Winter, diving, 33; Oaia, 62; Mercury Is., 63; Horohoro, 109, 11, 152; Colville, 113; Mahuki, 128, 154; Karaka Pt. (off) 128; Three Kings, 129, 154; Storm, 191.
Garrodia nereis. See Petrel, grey-backed; Storm.
 Godwit, Bar-tailed 4, 46, 117, 165
 „ Hudsonian, in Auck. Prov. . . . 35.
 Goldfinch 54, 96, 106, 120, 134, 145, 154, 174, 180, 183.
 Goose, Canadian 154, 161
 Graham, D. H. 155, 178
 Great Barrier, Mohuki Gannetry, 128*
 Greenfinch 15, 54, 96, 106, 120, 134, 145, 154, 174.
 Grebe, Crested 154
 Gull—Black-backed, 47, 70, 88*, 96, 103, 118, 132, 133, 138, 146, 154, 167, 179, 182.
 „ Black-billed 48, 126, 132, 145, 154, 168.
 „ Red-billed, 12, 23, 27*, 47, 66, 69, 71*, 73*, 97, 103, 118, 129, 138, 167, 183; New Colony, 12; Breeding, Mokohinau, 27, 71; Unusual Nest Site, 73; Breeding Habits, 121.
 Gurr, L. 55, 155; Measurements of Birds, 57.
 Guy, G. 132, 133, 154, 155
Gymnorhina hypoleuca. See Magpie, White-backed.
 „ *tibicen*. See Magpie, Black-backed.
Haematopus finschi. See Oyster-catcher, S.I., pied.
 „ *reischeki*. See Oyster-catcher, N.I.
 „ *unicolor*. See Oyster-catcher, Black.
Halycon sanctus. See Kingfisher.
 Halkett 154
 Halkett School Group 154, 155
Halobaena caerulea. See Petrel, Blue.
 Hamilton, W. M., Mahuki Gantry., 128
 Harrier 43, 69, 80, 96, 102, 116, 122, 126, 127, 139, 146, 154, 161, 178.
 Hawk, Bush, 16, 42, 96, 97, 116, 161, 178.
 Hedge-sparrow 10, 72, 96, 106, 120, 144, 145, 149, 154, 175, 180.
Hemiphaga novaeseelandiae. See Pigeon.
 Herbert 80
 Heron—Reef 41, 116, 159
 White 40, 116, 159
 White-faced, 41, 159; in Golden Bay District, 123.
Himantopus himantopus. See Stilt.
 Hodgkins, M. H. 37
 Hogwood, Miss M. 155
 Hornby School, 10; Breeding Habits of Starlings, 8.
 Hunt, W. F. I. 155
 Hursthouse, E. W. 155
Hydroprogne caspia. See Tern, Caspn.
Hylochelidon nigricans. See Martin, Australian, Tree.
Hymenolaimus malacorrhynchus. See Duck, Blue.
Hypotaenidia philippensis. See Rail, Banded.
 Iorns, B. 155
 Johnson, M. 16, 37, 155
 Kaka 16, 49, 96, 103, 118, 139, 147, 169
 Kakapo 97, 169
Kakatoe galenta. See Cockatoo, White.
 Kea, 11, 49, 120, 132, 147, 154, 169
 Kingfisher 50, 96, 104, 120, 140, 154, 170, 179.
 Kiwi 16, 36*, 155
 „ Brown 37, 96, 99, 115, 135, 155
 „ Large Spotted 37, 97
 Knot 5, 15, 46, 118, 164
 Kookaburra 50, 171
Larus bulleri. See Gull, Black-billed.
 „ *dominicanus*. See Gull, Black-bckd.
 „ *novashollandiae*. See Gull, Red-bild.
Leucopollus ruficapillus. See Dotterel, red-capped.
 Lilburne, D. N. 37
Limosa haemastica. See Godwit, Hud.
 „ *lapponica*. See Godwit, Bar-tailed.
 Lindsay, C. J., 155; Unusual Nest Site of Red-billed Gull Colony, 73; White-faced Heron in Golden Bay, 123.
 Little Barrier Is., 92*, 93*; Birds of, 93, 133; Visit to, 134.
Lobibyx novashollandiae. See Plover, Spur-winged.
 McCaskill, L. W., 155; Magpies in N.Z., 11.
 McKenzie, G. K. 155
 McKenzie, H. R., 37, 155; Puzzling Dotterels at Ruakaka, 75.
 McLatchie, Mrs. C. W. 155, 197
 McIntock, Mrs. R. V. 37, 155
Macronectes giganteus. See Petrel, Gnt.
 Magpie 16
 „ Black-backed 11, 176
 „ White-backed, 11, 55, 120, 127, 144, 154, 175, 180.
 Marples, B. J. 148
 Martin, Australian Tree 131
 Matheson, D. 37
 Matthews, W. 37
 Mead, W. P. 37, 80, 155

Measurements of Birds 57, 61*
 Members 14, 31
 Membership List 83, 124, 133
 Middleditch, J., 37, 155; Birds near
 Cromwell, 126.
Miro australis. See Robin.
Moa 16
Mohoua albigilla. See Whitehead.
ochrocephala. See Yellowhead.
 Mokohinau Island 27, 69
 Mollymawk, Black-browed 101
 „ Buller's 157, 184, 189
 „ Grey-headed 22, 39, 157
 „ White-capped, 22, 39, 157, 181, 188,
 190.
 Moreland, J. M. 155
 Morepork, 16, 50, 96, 103, 118, 139,
 147, 170.
Moris serrator. See Gannet.
 Munro, G. C. 155
 Murphy, R. C. 132
 Murray, Fraser, 155; Tui Nesting at
 Clevedon, 181.
 Mutton Bird. See Shearwater, Sooty.
 „ Tasmanian. See Swater, short-tail.
 Myna 14, 55, 63, 175
 Nelly. See Petrel, Giant.
Nestor meridionalis. See Kaka.
 „ notabilis. See Kea.
Ninox novaeseelandiae. See Morepork.
 North Canterbury Acc. Society 37
Notiomystis cincta. See Stitch Bird.
Notophox novaehollandiae. See Heron,
 White-faced.
Numenius madagascariensis. See Curlew
 „ phaeopus. See Whimbrel.
 O'Connor, A. C. 37
 Oliver, W. R. B. 127, 149
 Orun, P. H. 37
 Owl, Australian Barn 171
 „ Little, 9, 10, 50, 145, 154, 170, 179
 Oyster-catcher 97, 116, 124, 163
 „ Black 44, 145, 147, 162, 181
 „ N.I. Pied 44, 162
 „ S.I. Pied, 4, 44, 126, 145, 162
Pachyptila belcheri. See Prion, Slen-
 der-billed.
 „ desolata. See Prion, Dove.
 „ salvini. See Prion, Salvin's.
 „ turtur. See Prion, Fairy.
 „ vittata. See Prion, Broad-billed.
 Parengarenga and Far North 115
 Parkin, C. 155
 Parrakeet 49, 118, 147, 170
 „ Orange-fronted 96, 97
 „ Red-fronted, 49, 69, 96, 103,
 139, 169, 181.
 „ Yellow-fronted 49, 96, 103, 139,
 147, 169.
Passer domesticus. See Sparrow.
Pavo cristatus. See Peafowl.
 Peafowl, Wild in Wanganui District, 36
Peleccanoides urinatrix. See Petrel, Divg.
Penguin—Drooping Ostd., 37, 181, 182*
 „ Erect Crested 155
 „ Little Blue, 37, 66, 69, 96, 100,
 115, 135, 156, 189.
 „ Rock-hopper 182
 „ White-flippered, 38, 133, 156.
Petrel—Black, 39, 96, 100, 124, 135,
 144*
 „ Black-winged 11
 „ Blue 22, 97
 „ Cook's 39, 96, 101, 137, 157
 „ Diving, 22, 38, 66, 96, 100, 156,
 181, 189.
 „ Giant 20, 38, 101, 135, 156, 181
 „ Gould's 29
 „ Grey 22
 „ Grey-backed Storm 189
 „ Grey-faced, 70, 96, 100, 136, 190,
 193.
 „ Mottled 22, 39, 97, 181
 „ White-chinned 157
 „ White-faced Storm, 38, 70, 101,
 135, 156, 189.
 „ White-headed 22, 39
 Petrels, Cast Ashore in Gale 19

Petroica macrocephala danne. See Tit.
 „ Snares Black.
 „ macrocephala. See Tit, Yellow-
 breasted.
 „ toitoi. See Tit, Pied.
Phalacrocorax carbo. See Shag, Black.
 „ melanoleucus. See Shag, White-
 throated.
 „ sulcirostris. See Shag, Little Black.
 „ varius. See Shag, Pied.
 Pheasant 16, 116, 154, 161
 Phillips, W. J., 120, 127; Winter Div-
 ing of Gannets, 33; Unusual Nest-
 ing site of Red-billed Gull Colony, 73
Phoebetria palpebrata. See Albatross,
 Light-mantled Sooty.
 Pigeon, 16, 48, 96, 103, 118, 139, 147,
 169, 179.
 „ Cape 38, 156, 182
 „ Rock 49, 154, 169
 Pipit, 51, 69, 96, 98, 104, 120, 126,
 134, 146, 154, 171, 179, 183,
 184.
Platalea regia. See Spoonbill, Royal.
Platycerus eximius. See Rosella.
 Plover, Lesser Golden 4, 6, 44, 116, 163
 „ Spur-winged 45, 80, 164
Pluvialis dominica. See Plover, Lesser
 Golden.
Pluviorhynchus obscurus. See Dotterel,
 N.Z.
Poliocephalus rufopectus. See Dabchick.
Porphyrio poliocephalus. See Pukeko.
Porzana pusilla. See Crane, Marsh.
 „ tabuensis. See Crane, Spotless.
 Potts, N. 7, 11
Prion, 133; Destruction in Storm, 64.
 „ Broad-billed, 19, 38, 65, 156,
 183, 189.
 „ Dove 22, 156
 „ Fairy, 20, 66, 96, 97, 183, 189
 „ Lesser Broad-billed 156
 „ Salvin's 22
 „ Slender-billed 22, 38, 66, 156
Procellaria aequinoctialis. See Petrel,
 White-chinned.
 „ cineria. See Petrel, Grey.
 „ parkinsoni. See Petrel, Black.
Prosthemadera novaeseelandiae. See Tui
Prunella modularis. See Hedgeparrow.
Pseudogerygone igata. See Warbler,
 Grey.
Pterodroma cooki. See Petrel, Cook's.
 „ inexpectata. See Petrel, Mottled.
 „ lessoni. See Petrel, White-chinned.
 „ leucoptera. See Petrel, Gould's.
 „ macroptera. See Petrel, Grey-faced.
 „ nigripennis. See Petrel, blk-winged.
 „ parkinsoni. See Petrel, Black.
Puffinus assimilis. See S'water, Allied.
 „ bulleri. See Shearwater, Buller's.
 „ carneipes. See S'water, Flesh-footed.
 „ gavia. See Shearwater, Fluttering.
 „ g. huttoni. See S'water, Hutton's.
 „ griseus. See Shearwater, Sooty.
 „ tenuirostris. See S'water, short-tail.
 Pukeko 43, 96, 102, 116, 134, 162
 Quail, Brown 43, 96, 102, 116, 134
 „ Californian, 16, 43, 116, 154, 161
 Rail, Banded 43, 96, 102, 116, 138, 161
 Raven, Australian 97, 106, 122
 Redpoll 54, 120, 145, 154, 174, 183
 Reviews—How to Study Birds, 13;
 Working List of N.Z. Birds, Emu,
 32; Blackbird, 55; Birds of South-
 west Pacific, 55; Emu, 56; Waika-
 nae Estuary, 81; Modern Bird
 Study, 123; Undescribed Form of
 Black Petrel, 124; Avian Evolution
 in N.Z. and Aust., 148; Podgy the
 Penguin, 148; Letters from Skok-
 holm, 148; Birds of Philippines,
 176; Native Animals of N.Z., 176.
Rhipidura fuliginosa. See Fantail.
 Rifeman, 16, 50, 96, 104, 140, 146, 171
 179.

- Roberts, C. M. 155
 Roberts, T. M., 25, 31, 37, 155; Further
 Visit to Waiheke Gannetry, 152.
 Robertson, Bruce, Blackbird Study, 127
 Robertson, F. H. 155
 Robin, 16, 52, 96, 104, 140, 147, 151*,
 172; Present Distribution, 24,
 150.
 Rook 70, 154, 176
 Rosella 49, 170
 Saddleback 96, 97, 98
 Sandpiper, Curlew 46
 " pectoral, American 46, 165
 " pectoral, Siberian 46, 165
 Sanson, Mrs. O. 37
 Savell, A. A. 14, 74, 80, 155
 Scarlett, R. J. 37, 124
 Scaup. See Teal, Black.
 Seabird Mortality (1947) 188
 Secker, H., 132, 155; Roosting Habits
 of Starlings, 76.
 Serventy, D. L., 63; Aust. Raven as
 Straggler, 122.
 Shag—Black, 39, 74, 97, 115, 146, 154,
 157, 178.
 Blue 40, 158, 181
 Little Black 40, 158
 Pied, 25, 39, 66, 70, 96, 101, 115,
 138, 158.
 Spotted 30, 40, 158
 White-throated 40, 97, 115, 158
 Shaw, D. W. 155
 Shearwater—Allied 96, 97
 Buller's, 38, 135, 156, 188, 189,
 193.
 Flesh-footed 38, 135, 156
 Fluttering, 22, 39, 66, 70, 96, 97,
 115, 135, 157, 184, 187, 190.
 Hutton's 187
 Short-tailed 39, 63, 125
 Sooty, 38, 65, 97, 157, 181, 183,
 190.
 Shoveller 42, 160
 Sibson, R. B., 31, 34, 37, 56, 155;
 Migrant Waders near Auckland,
 4; Petrels Cast Ashore in Gale,
 19; Hudsonian Godwit in Auck.
 Prov., 35; Oaia Gannetry, 62;
 Visit to Little Barrier Is., 134.
 Silver-eye. See White-eye.
 Skua 48, 168
 Arctic 23, 48, 138, 168
 Pomarine 46, 168
 Southern 23, 169, 182
 Skylark, 75, 96, 106, 120, 144, 154,
 175, 180.
 Snares Expedition, 1947 181
 Snipe, Snares 183
 Sparrow, House—54, 72, 96, 106, 120,
 144, 145, 154, 174, 180, 183,
 192.
 Spoonbill, Royal, 41, 159, 195*; In
 N.Z., 195.
 Starling, 8, 15, 69, 72, 96, 106, 112,
 120, 132, 144, 145, 154, 175,
 180, 183; Breeding Habits, 8;
 Roosting Habits, 76.
 Stead, E. F. 37
 Stein, P. A. S. 155
 Stercorarius parasiticus. See Skua,
 Arctic.
 " pomarinus. See Skua, Pomarine.
 Sterna nereis. See Tern, Fairy.
 " striata. See Tern, White-fronted.
 " vittata. See Tern, Antarctic.
 Stictocarbo punctatus. See Shag, Spotted.
 " steadi. See Shag, Blue.
 Stidolph, R. H. D., 32, 35, 37, 56, 79,
 80, 82, 123, 124, 155; Breeding
 Habits of Red-billed Gull, 121;
 Royal Spoonbill in N.Z., 195.
 Stilt, 4, 46, 118, 134, 146, 149, 154,
 165; Nesting at Ardmore, 26, 185
 Stitchbird 96, 105, 142
 Stokes, A. F., Stilts Nesting at Ard-
 more, 26, 185.
 St. Paul, J. W. 37, 155
 St. Paul, R. 37, 155
 Strang, D. N. 155
 Strigops habroptilus. See Kakapo.
 Sturnus vulgaris. See Starling.
 Sundrum, S. Canterbury Bird-life . . 178
 Swan—Black 42, 116, 154, 160
 White 16, 160
 Syncoicus ypsilophorus. See Quail, Brn.
 Tadorna variegata. See Duck, Paradise.
 Teal—Black 42, 116, 160
 Grey 42, 160
 Tern, Antarctic 182*
 Black-fronted, 46, 126, 145, 154,
 166.
 Caspian 23, 47, 118, 154, 166
 Fairy 47, 103, 167
 White-fronted, 10*, 12, 47, 69,
 97, 103, 112, 118, 121, 138,
 167.
 White-winged Marsh 46
 Thalassarche, bulleri. See Mollmawk,
 Buller's.
 " cauta. See M'mawk, White-capped.
 " chrysostoma. See M'mawk, Grey-hd.
 " melanophrys. See M'mawk, Black-
 browed.
 Three Kings 11, 129*
 Thrush, Song 54, 96, 106, 120, 126,
 144, 145, 154, 174, 180, 182.
 Tily, Mrs. I. 37, 72, 75, 79, 155
 Tit, Pied 51, 96, 104, 140, 172
 Snares, Black 183*
 Yellow-breasted, 51, 146, 171, 179
 Tui, 53, 69, 96, 104, 120, 141, 147, 173
 180; Nesting at Ardmore, 131.
 Turbott, E. G., 34, 37, 155; Petrels
 Cast Ashore in Gale, 19; Birds
 of Little Barrier Island, 93.
 Turdus ericetorum. See Thrush, Song.
 " merula. See Blackbird.
 Turnstone 4, 44, 116, 163
 Tyto alba. See Owl, Aust. Barn.
 Urquhart, D. A. 37, 155
 Waders, Migrant, near Auckland . . . 4
 Warbler, Grey—36*, 51, 96, 104, 120,
 132, 140, 146, 154, 171, 179,
 192, 196.
 Washdyke Lagoon 82
 Watt, A. H. 115, 155
 Watters, W. A. 37
 Weka—North Island 97, 116, 161
 South Island 43, 120, 161
 Welch, E. O. 37, 155
 Whareama 82
 Whimbrel 165
 In North Island 34
 White, Mrs. G. B. 37
 White, P. E. 155
 White-eye—16, 52, 96, 104, 120, 126,
 132, 141, 146, 154, 172, 180,
 183, 192.
 Whitehead—52, 77, 78*, 80, 96, 104,
 141, 172, 196.
 Wilkinson, A. S. 37, 155
 Mrs. A. S., Cuckoo in Nest, 77.
 Wodzicki, K. A.—37, 155, 176; Census
 of Gannets, 17; Destruction of
 Prions in Storm, Aug., 1948, 64;
 Paradise Duck Density, 177.
 Wren, Bush 146, 179
 Rock 146
 Wrybill 4, 45, 117, 164
 Yellowhammer—54, 96, 106, 120, 134,
 145, 154, 174.
 Yellowhead 52, 146, 172
 Yerex, G. F. 37
 Xenicus gilviventris. See Wren, Rock.
 " longipes. See Wren, Bush.
 Zosterops lateralis. See White-eye.

Date of Publication—April 1, 1948.

The Masterton Printing Co., Ltd., Lincoln Road, Masterton.