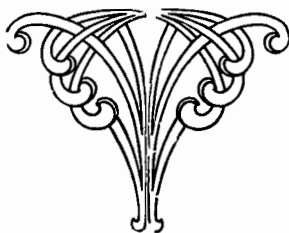


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New Zealand Bird Notes



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Published Quarterly.

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Bulletin of the Ornithological Society of New Zealand.

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NOTES.—Kiwi on Kapiti Island, 113; Bird Life on Halkett Pond, 115; Rotorua Gull Colony, 125; Blackbird's Nest in Washhouse, 136.

KIWI ON KAPITI ISLAND.—When we went to Kapiti at the end of November, 1924, it was only in the higher and damper parts of the Rangatira and Te Rere country, as well as the Kaiwharawhara Basin, that the kiwi could be heard. Kaiwharawhara is about three miles from where we lived and from where they were heard at Rangatira and Te Rere would be a mile or more from our cottage. When we left in 1942, kiwi could be heard calling at night all round the house. The extermination of the browsing animals has allowed the undergrowth—fern, mosses, etc., to re-grow and these keep the ground damp and thus provide suitable feeding places for the kiwi. The planting of many thousands of trees has turned into young forests certain areas which in 1924 were grass-clad and overrun with sheep and goats. Even in these new plantations feathers of the kiwi were picked up. On Kapiti there is a small sedge growing pretty well all over it. This plant (*Uncinia riparia*) Matau-a-maui (the fish-hook of Maui), which every visitor to Kapiti knows only too well, bears seeds which attach themselves to every passing animal, and thus the plant is spread. The hooks are strong enough to catch and hold birds. The following have been found caught up in its folds: Morepork, tui, fantail, tomtit, parrakeet, and the long-tailed cuckoo. We have found the feathers of both *Apteryx mantelli* and *A. oweni* caught in this grass-like sedge. There is no doubt about the success of the introduction of kiwi to the island. The seeds, which appear to be sought after by parrakeets, often prove to be death-traps when once a bird gets properly enmeshed. We have sometimes picked up parrakeets with most of the feathers pulled out.—A. S. Wilkinson, Levin.

LATE EDGAR F. STEAD.

AN APPRECIATION.—By Major R. A. Wilson, Bulls.

Edgar Stead is dead.* I have lost a great friend and will miss him profoundly. For forty years, whenever he had proposed a trip to study some special bird, I have recast my plans and accompanied him. It might be a motor trip up to a week or ten days to the Gouland Downs for kiwis, North Canterbury for sparrow hawks, Arthur's Pass for rock wrens, Westland for the black petrel, Lake Heron for black teal or the Hollyford Valley for kakas, for instance—or it might be a trip to an offshore island seeking some petrel, taking up to six weeks. Besides the pleasure and interest I got out of the trips I felt that if I helped to find a new species, or helped to record a new fact or habit of some possibly vanishing bird, I had accomplished something of more enduring value than if I had attended to my own more mundane matters.

His death is a great loss to ornithology. Had he lived it was his intention to carry on with his life histories of New Zealand birds until he had completed most of our indigenous species. This he estimated would take two more volumes of similar size to his published work. He had collected facts and taken many photographs for the purpose. When on our trips he always recorded every evening voluminous notes on birds we had observed during the day with particulars as to time and place. His diaries and notes and photographs are there but the collating and arranging of them is a task that only he, with his wonderful memory, could adequately fulfil. Though he has published a lot of articles in the Transactions and other publications, a great deal of his knowledge is lost for ever.

As a young man he was inclined to be positive and over-bearing but with age and marriage he mellowed, and on our trips he was a wonderful companion with great consideration for others. To the end, however, he remained outspoken and never learned to suffer fools gladly.

He had a wonderful brain and a marvellous photographic memory. Once we landed on one of the group of the Chickens Islands and he said as we landed: "I landed here seventeen years ago and there was a *carneipes* colony nesting on the bank by the landing place," and there was the colony of breeding birds just as he remembered it. We advanced into the bush and he said: "Up the stream about 200 yards was a tree with a morepork's nest in it." We went about that distance and there was the tree with a morepork sitting on her nest. As good nesting places are scarce on these islands no doubt it had been occupied each year since his visit.

He was trained as an electrical engineer and was finishing his course at Schenectady, in America, with the General Electric Company, when his father's death recalled him just before he obtained his degree, but he always retained a great grasp of engineering problems. As showing his mechanical skill, on one of our trips when the mainspring of our alarm clock broke, with only a knife as a screwdriver, he took the clock to pieces, took out the broken spring, softened the end by heating it over our benzine mantle lamp, cut another hole with his knife in the end of the spring, refitted it in the clock, put it all together again, and it ran perfectly for many years afterwards. Another time, visiting a house where the motor mower would not function, he took the motor to pieces and timed the magneto correctly and got it going again in an hour or so. He was a master of so many subjects that trips with him were never dull. One could always have interesting conversation on any subject that came up.

His patience in photographing birds was extraordinary. One day on an island off Stewart Island we found a wren's nest in a hollow log

* Mr. Stead's death occurred at his residence "Ilam," Christchurch, on February 7, 1949.—Ed.

in which the entrance was directly underneath, so that the birds could enter the nest without exposing themselves. Edgar took the whole day with his camera trained on a spot close to the entrance trying to photograph them as they fed the young, well hidden, of course, inside the log. He blocked in turn each entrance they were using but they obstinately refused to use the only one he could photograph but found some other route out of sight. I got tired of waiting, so after an hour or two I went exploring. On my return he was still patiently waiting for an exposure. I again waited for some time but finally returned to camp, but after my departure he eventually got a successful exposure.

He had an uncanny ability for finding nests. On Cundy Island, where the fern birds nested deep in ferns or tussock (owing to danger of damage from mutton birds descending at night), they were very difficult to find. He found 26 where I found one. With other birds whose nests were hard to find, like robin's, saddle-back's or tomtit's, he generally found three to my one. He seemed to be able to put himself into the mind of a bird choosing a nesting site. On our latest trip to the Snares there was a hole in an olearia tree a few yards from our tent that he considered could be made a suitable site for a nest of the black tomtit of that island. It was too open, so he improved it by tacking a piece of tin on one side. Within a few hours a pair of tomtits had inspected it and commenced to build and before we left ten days later the hen had laid the clutch of two eggs. On other islands he did the same. By improving a hole in a tree on Solomon Island a pair of saddlebacks immediately occupied it as a nest. By enlarging an entrance of a hole in a tree on Jacques Lees Island a pair of yellow-head parakeets nested in it. He had a deep knowledge of nests of all birds both indigenous and imported and knew at one glance what bird any nest belonged to. Any feather one picked up he could place with unerring accuracy.

His work in hybridising rhododendrons and growing seedling azaleas is well-known and his garden at "Ilam" is the mecca of rhododendron growers. He was proud of a fine yellow rhododendron he had produced after many years, and was feeling his way more surely in crossing species and hybrids. In hybridising, his long supple fingers were adept at the delicate operation of extracting the pollen from the male parent, cutting off all the anthers of the flower selected for pollination, placing the pollen on the stigma of the flower so selected, and attaching a label giving the parentage. When he was visiting rhododendron growers in England they greatly admired his skill and got him to make many crosses for them. I used to think when I saw him at work like this what a good surgeon he would have made.

I think he considered his rhododendron work as important as his bird histories. I conclude with a sentence of a letter from a friend: "He was a unique personality and we will all miss him."

BIRD LIFE ON HALKETT POND.—In the May holidays, 1948, a blue heron, or more correctly, a white-faced heron (*Notophox novae-hollandiae*) appeared on my uncle's pond at Halkett, 16 miles north-west of Christchurch. It stayed all winter. We can see its footmarks in the mud. It has four toes which are not webbed. The heron is a slatey grey colour with a white breast; its legs and beak are yellow. Its neck is as thick as my arm. If it is going a short distance, its neck is out. When I visit it it goes to a post and puts its neck, head, and bill up. It roosts in the top of Uncle Charlie's pine trees. Now there are four pied stilts and two wild ducks at the pond, too. In the second week of September the heron went away and has not been seen since.—Heather McKay, Std. 3, Halkett School Group.

BIRDS IN TAURANGA DISTRICT.

By M. Hodgkins, Tauranga.

A summary of the birds which have been noticed in Tauranga and its surroundings, within a radius of about ten miles, during a few years' residence, is given below. The area thus covered fronts the open sea of the Bay of Plenty as a long, gently curving stretch of sandhill-backed sea coast—bare of rock, cliffs or bluffs, save where Mt. Maunganui rises abruptly about 800 feet at the eastern outlet of Tauranga Harbour. The sandhills retain a loose, low covering of native growth, supplying little cover, and are seldom more than 50 feet in height, or further than 100 to 200 yards inland. They are one of the best places locally to run across the pipit and the banded dotterel.

Opening out behind this coastline, lies the great circle of Tauranga Harbour, roughly 100 miles in circumference, following its numerous narrow inlets. There is a vast extent of mudflat at low tide. The mudflats merge imperceptibly into small areas of freshwater swamp in many places, where shallow valleys break the generally somewhat raised and cliff-like shoreline. Draining has now changed much that was formerly swamp, to farmland, possibly reducing a former vast bird population of such species as the fern bird, banded rail, pukeko, ducks, bittern, etc., as well as others no longer present. Few species of waders have been so far noted, nor do their numbers appear large at any season.

Rolling country and low hills composed of volcanic pumice soil rise from the shores on all sides, excepting for the outermost portion of a long spit connecting Mt. Maunganui to the mainland and separating the north-eastern portion of the harbour from the sea; so that in many places there are stretches of steep cliffs, 50 feet or more in height, backing the tide flats, and flat ground is reduced to a minimum, except for small areas of rush and scrub swamp, or cleared swamp.

Low scrub and fern possibly covered this gradually rising country formerly; now it is almost wholly cleared and given over to farming, with shelter belts and plantations of exotics, as well as large areas of invading gorse. Native growth has retreated to stray patches on the steeper ground, the rugged peak of Mt. Maunganui, the sea cliffs and the swamps.

Five to six miles to the east of the harbour this type of country runs into a still heavily wooded range, rising about 1000 feet and forming a kind of out-thrust northward from the Oropi Plateau. To the south the lowlands rise more gradually through a long, slow ascent of ten miles or so, hills and dales slowly giving place to deep stream gorges filled with bush, intersected by areas of farmed tableland, till there is a final blending with the dense forests of the Oropi, reaching in the direction of Rotorua, or the high range of the Kaimais towards Matamata.

To the west the rolling country continues in a long sweep around the harbour shores to gradually mingle with the forested foothills of Te Aroha Mountain, and the distant Coromandel Ranges towards Waihi, which enclose the Bay of Plenty like a wall in this direction. There is, however, one marked break, where the rather barren and heath-covered spur of the Minden Hills runs down sharply from the direction of the Kaimais to within a bare mile of the sea at Te Puna. It is generally within the boundary of this latter spur, the fringing range to the east, and the verge of the Oropi-Kaimai forests, that most observations have been made.

There are no natural lagoons, ponds or lakes in this area; though there are a number of sluggish tidal streams, and one fair-sized tidal river (the Wairoa), which rise in the hills to the south and east. Round the outlet of the Wairoa River at Te Puna lie some of the most extensive swamp stretches remaining close to Tauranga, where the bittern still appears to be fairly common. Viewed from the hill tops, the district resembles a gently sloping bowl open to the north and the sea.

Despite this seeming shelter from the landward side, and especially from the colder quarters, prevailing winds are from the west to south-west, often very cold and of great strength.

Wind is almost continuous the year round; heavy gales and storms from the north and east are frequent. At the latter times certain species of petrel and other birds are not infrequently stranded in large numbers, partly upon the open coastline, but sometimes on the inner harbour shores as well. It is several years, however, since numbers of birds were noticed stranded inside the harbour. Locally at least these strandings of birds would seem to depend on some other factors besides storms. During 1948, for example, though there was much heavy wind and stormy weather from the north and east during May, only very few sea birds were noticed dead on the open coast around Mt. Maunganui; either in May or for some time previously. Two years ago at the same period, and with much the same weather conditions (though east winds were somewhat stronger and longer continued unbroken) strandings of dead petrels were very heavy.

The area traversed consists chiefly of country where one would expect to find introduced birds predominating, and save for water birds, whose territory has been scarcely invaded, this would appear to be generally so. Listing species which have been only found dead, with the living species, 43 native and 17 introduced species have so far been observed with more or less certainty. Only 12 of the natives are truly land birds. All observations have been made without the aid of a telescope or field-glass.

Song Thrush (*Turdus ericetorum*).—Very common. Once or twice has been heard fully an hour after dark pouring out its song. Caterpillars eaten include those of the white butterfly which may be readily picked off some low-hanging leaf from the ground. The thrush makes the major portion of the bird music in the winter season, and even in spring its notes at times dominate all others.

Blackbird (*Turdus merula*).—Common. Small numbers sometimes seen feeding on the mudflats and *Zostera* beds at low tide. When all other fruits fail in autumn, it clears hawthorn, barberry and karamu of nearly all their berries. Occasionally specimens with white markings are noticed.

Starling (*Sturnus vulgaris*).—Considerable periods may pass in any given locality without a starling being seen. It has a strong liking for nesting in the dry pumice soil banks on busy roads or railway lines. Parties feed frequently on the mudflats at low tide.

Indian Myna (*Acridotheres tristis*).—From 1937 till recently only one or two odd specimens had been seen at long intervals. But during the last year or more it is increasing greatly in numbers and spreading, and now pairs and parties up to six are met with frequently in the town and Otumoetai areas. It seems to fancy a eucalyptus plantation for nesting round Otumoetai. Though noticed in greatest numbers during the warmer season some are usually to be seen the whole year round.

Grey Warbler (*Pseudogerygone igata*).—Fairly common; but it appears to travel to some degree, as long periods will pass without one being seen or heard in the locality; then its soft note will suddenly be heard once more. It is frequent about settlements in winter and spring, but is seldom seen or heard in summer and autumn.

White-breasted Tit (*Petroica macrocephala toitoi*).—A pair recorded in the high bush around Oropi (1000ft.) about 10 miles from Tauranga. It has never been seen in the town or settled areas.

Hedge Sparrow (*Prunella modularis*).—Common in the settled parts; usually met with singly or in twos and threes. It is most common in spring when its song is continually heard in hedges and brush. During summer and autumn it is rarely met with and scarcely heard; but becomes more noticeable again in winter. At this time it tends to frequent gardens as though seeking tiny scraps of food.

Skylark (*Alauda arvensis*).—Very plentiful in the open grassland and paddocks, singing from late autumn till the next summer fairly commences, after which it is usually quiet for a few months. It commences its song well before there is a trace of light in the sky, during spring at least.

Pipit (*Anthus novaeseelandiae*).—Not very common, and seldom more than a pair seen at a time. It is fairly frequent in the low scrub and grassland away from the cultivated areas, also in the sandhills bordering the coast, where it is often the only small bird to be seen. A good place to see it at almost any time is along the shingle of the railways, or in their immediate surroundings. It seems to have a preference for dry, arid situations locally—some area of dry bank or shingle which it can probe for such chance insects or spiders as inhabit these situations.

Fern Bird (*Bowdleria punctata*).—In the large areas of shore and fresh water swamps, or partial swamp, remaining around Tauranga, this little bird is still plentiful and is thriving. Though scarcely showing a trace of itself beyond a moving twig or stalk, individuals will often come within a couple of feet if one is sitting quietly in the reeds. Even the close proximity of main roads to its haunts does not appear to disturb it in the least, as it may be seen slipping about like a mouse in the scrub quite unconcernedly while buses and lorries tear past a few yards away. Apparently it has a feeling of perfect safety as long as it is out of sight. It is heard most frequently in winter and spring, sometimes the "utick" call predominating, at others the softer one; but it appears to keep rather quiet in the warmer season, or perhaps moves to more remote parts of the swamp and rush beds. Unless swamps are completely cleared it seems in no present danger of extinction locally.

Tui (*Prothemadera novaeseelandiae*).—A few of these aggressive birds may be met with around the town and cultivated areas at any time of the year, provided there are some suitable nectar-bearing flowers. When the kowhai is fully out six to twelve birds may be seen often on a good-sized tree. Strong favourites are single camellias, albizzia, bluegum, redgum, puriri and kowhai. On the camellias a bird will often sit till it has exhausted every bloom of its nectar, and strews the ground with a carpet of its discards. Occasionally one has been seen running up the trunks of trees catching spiders or insects. It probably nests in or about the town area. Sometimes approaching starlings or blackbirds are quickly hunted away from a feeding tree. The species is one of the commonest heard and seen in the bush country nearest to Tauranga, but in such localities good nectar-bearing flowers are not abundant, and there is a total want of wild kowhai. It is not remarkable that it spends much of its time in the inhabited area.

Bellbird (*Anthornis melanura*).—Not quite so indifferent to man's presence as the tui, for although fairly common in the hill forests some ten miles from Tauranga, it seldom appears in town or settlement. Single birds, or small parties, have sometimes been met with on wattles (*Acacia*) a few miles from Tauranga; but only one or two have been seen closer.

Silvereye (*Zosterops lateralis*).—Common locally in bush and settled country but is seen most frequently and in largest numbers during winter and spring. During summer and autumn it is much less frequently seen and usually in smaller parties. In the winter season it is one of the most noticeable and persistent, seeking scraps around houses, and will take all it can get of bread, meat and fats. One among a big party met with in scrub about Christmas (1947) caught and beat soft for eating a fair sized cicada. It nests frequently even in busy parts of the town area. Privet berries are a great favourite with it in early winter.

Pied Fantail (*Rhipidura fuliginosa*).—The most persistent and common of the native birds in the settled areas; as well as in such portions of the native bush so far visited. Nearly all the year round one or two, at least, may be seen. During the heat of summer and in autumn it disappears mostly from the town and open country, presumably retreat-

ing to the bush and scrub regions where food is plentiful. But winter and spring finds it once more plentiful around settlement, fearlessly entering rooms to search every corner for possible food supplies. No black fantails have been seen locally.

Sparrow (*Passer domesticus*).—Abundant. Much of its food seems to be drawn from the large areas of *paspalum* in autumn; and the *Poa annua* of lawns, when all else fails in winter, though it is one of the most numerous and persistent seekers of scraps in the latter season, taking meat, fat, bread and fruit refuse, which hardly any of the other finches have been observed to do. During the pohutukawa season large parties busily explore the flowers (for thrips?) as long as any are available; though it does not appear to take much notice of the similar flowers of bluegum or redgum or other large, open, nectar-rich blooms. Sometimes parties may be seen feeding on the mudflats when the tide is out. Holes and crevices of any kind in houses seem just as favoured for nests as trees, and the fibrous trunks of palms are well liked.

Goldfinch (*Carduelis carduelis*).—After the sparrow this is the most abundant and generally met with bird of the finch family throughout the whole year. Very large flocks are commonly met with during winter and spring, and even during summer and autumn when other finches, save the sparrow, are seldom visible. Smaller bodies are frequent wherever there is a patch of thistle, or other favourite food plant. It has a great fondness for the ripe seeds of planes (*Platanus*) and once a good-sized party was observed feeding on the ripe spores of bracken. The gardener has hard work to preserve any marigold (*Tagetes*) seed from its ravages when the seeds are approaching ripeness. The goldfinch and to a lesser extent the sparrow, are almost the only finches which have been noticed eating these seeds.

Yellowhammer (*Emberiza citrinella*).—A very abundant local bird; equalling, or even exceeding the goldfinch, and all other finches save the sparrow, in numbers along roadsides and in paddocks during the winter season. It is much less constant in numbers than the goldfinch throughout the year. Large parties feed about the fields in winter and spring, but they are very quiet, and only an odd bird or a pair may be seen occasionally during summer and autumn.

Greenfinch (*Chloris chloris*).—Less common in the cultivated country than the former three. During winter and spring, however—and also much more occasionally in summer and autumn—little parties frequent the open country and paddocks, often in association with sparrows or other finches; and it cannot be called a rare bird. It has a strong fancy for the partially-ripened seeds of the smaller sporges or milkweeds (*Euphorbia* sp.) and a patch of these plants is always a likely place to find it. Pine seeds are an important food supply.

Chaffinch (*Fringilla coelebs*).—Rare and occasional during summer and autumn in the town and cultivated country, it becomes more plentiful in winter, and is quite commonly seen and heard during spring; but it is unusual to see it in parties of more than two or three. On a few occasions considerable bodies have been seen in the paddocks. It often appears with the sparrow, and like it, not uncommonly seeks scraps and crumbs in winter.

‡ **Redpoll (*Carduelis cabaret*).**—A small party of what appeared to be this species was seen some years ago moving across an area of open paddocks high up in the hills (about 900 feet) to the east and south of the harbour. The identification is a little doubtful, as the birds were seen to settle for a few moments only. The small size and red spot, however, seemed distinctive.

Shining Cuckoo (*Chalcites lucidus*).—Despite an abundance of several species of caterpillars and grubs during the summer season to tempt it, over a period of ten years not more than one or two have been met with annually, and only once were a pair seen, in a valley near Te Puke.

Pigeon (*Hemiphaga novaeseelandiae*).—Not uncommon in the hill bush and forest areas ten miles or more from Tauranga to the east and south. Once or twice during the last ten years single birds have come down into the lowlands—even once into Tauranga itself—seeking puriri berries, etc., and stayed periods of a few months or more. One was noted taking ripe guavas freely during such a visit, but as the visits are rare and the visitors few, the amount of damage done to orchards could only be small, unless the orchards were situated on the edge of the bush.

Kingfisher (*Halcyon sanctus*).—A common bird inland as well as round the shores of the harbour, and occasionally to be seen fishing from the rocks of Mt. Maunganui almost on the open coast. At nearly all seasons a string of solitary birds may be found sitting patiently on power lines crossing the mudflats; or by some tiny pool left by the retreating tide, waiting to pounce on any stray small fish or crabs. The latter seem especially favoured, as a nest a mile from the shore showed little save their remains below it. Another favourite appears to be the fresh-water crayfish, judging from the refuse of a nest passed high up in the hills, and it pays much attention to cicadas in summer. Nests are frequent wherever there is a dry bank a few feet high; the presence of incessant traffic—even trains—appears no deterrent. One day a loud crash drew attention to a dazed kingfisher clinging to a window sill, yet still pecking determinedly at a big spider crawling in safety on the inner side of the glass. Apparently it had seen the spider from above through the glass, attempted to pounce on it and ended up half-stunned. Single birds have been seen driving away blackbirds in headlong flight.

Morepork (*Ninox novaeseelandiae*).—Often heard, even where cover is sparse, though its numbers do not appear to be large. Long periods may elapse in any locality without one being seen or heard. It gives at least two other fairly marked calls besides the more familiar “morepork,” one a screech, the other resembling “keo.” All three may be heard the year round, though sometimes one call seems to predominate, sometimes another. It is as common and at home in the settled country as it is in the bush. Sometimes a damp rainy night draws it into unusual activity, but on many such nights it has been remarkably silent.

Harrier (*Circus approximans*).—Not uncommon in most of the open country, frequenting also large vacant stretches of ground in the town area. It is unusual, however, to see more than two at a time. A favourite haunt is the belt of swamp and rush covered meadows around the tidal shores.

Bush Hawk (*Falco novaeseelandiae*).—One or two, presumed to be this species from the size and swift flight, have been met with on the outskirts of bush near the summit of the hills east of the harbour. Another was picked up dead on the shore of the upper harbour near Tauranga some years ago.

Pheasant (*Phasianus colchicus*).—Generally distributed wherever there is good cover around the town and farming areas. Not very abundant at present; it is quite unusual to see more than two or three at a time. Single birds are more general, and after considerable periods pass without one being met with. It seems to retreat, or keep very close and quiet in winter; as in 1947 none was seen from May to September. It appears to do a good deal of harm to crops of seeds and potatoes in some places, so it must be holding its own in the more secluded parts despite the number of enemies destroying the chicks.

Australian Quail (*Synoicus ypsilophorus*).—Small parties are occasionally met with in low cover over the district, but it is much less common than it was some years ago, when parties were raised daily in rough ground in the town area. Much burning and clearing of late may have destroyed many. In 1947 it was only seen about half a dozen times. It has a fancy for the seeds of rushes and sedges, and a usual place to raise some is in the drier parts of the shore rush beds. Cover is kept more closely than by the Californian quail, and it is rare to meet any exposed to view in the open.

Californian Quail (*Lophortyx californicus*).—Much the commoner quail in numbers. Good-sized parties are frequent in plantations and lower cover. The whole party will often be found perching in the branches of a tree. It is more frequently seen in the open, and parties are sometimes met with feeding on quiet areas of the mudflats at low tide. Possibly it moves about freely, as often not one is to be seen in a given spot for long periods.

Reef Heron (*Demigretta sacra*).—One or two may be seen fishing around the harbour shores. It is unusual to see more than a pair together but sometimes parties up to six have been noticed—especially in the region of Mt. Maunganui, where there is a small nesting place on an off-shore rocky islet. No nests have been noticed elsewhere. Occasionally birds may be seen fishing from rocks at Mt. Maunganui almost among the open sea breakers.

Bittern (*Botaurus poiciloptilus*).—Not common, but single specimens have now and then been noticed in flight, or standing in rod-like silence in and around the areas of shore swamp. It has been seen most frequently around the marshy outlet of the Wairoa River at Te Puna. Possibly it is not uncommon actually as there are still large extents of swamp and marsh to hide it, and it is adept at hiding.

Pukeko (*Porphyrio porhocephalus*).—Very common in and around all areas of swamp or rush-covered low-lying paddocks, and parties of old birds and young have frequently been disturbed in ditches crossing the latter type of country very close to settlement. The young chicks plunge under water for a few feet when disturbed, till they feel they are out of view. The old birds, however, seem almost oblivious to disturbance; parties feeding unconcernedly in wet meadows, passed by the busiest traffic all day long and fully exposed to view.

Banded Rail (*Hypotaenidia philippensis*).—Possibly a common bird locally, appearing to favour the salt-marshes. It is so wary and keeps so well out of sight, however, that it is rarely seen, and even less often heard. Now and then stray birds, or even two or three together, may be caught feeding on the mudflats, but at the slightest warning they will be back like a flash into the reed-beds. One damp, showery day in late summer six were seen together feeding on the mudflats, the most ever seen at once. On such damp sunless days it appears to take more to disturb it when it is out in the open; though it does not seem to mind the close presence of noise and traffic provided there is cover. One of its principal haunts is a few feet from a main highway on the town outskirts. It seems to dislike taking to flight, as one, caught one day on a road bordered by dense grass hindering its passage, ran a hundred yards or more before it rose in slow flight back to the cover of the swamp.

Banded Dotterel (*Charadrius bicinctus*).—Not nearly as common or persistent a species about the harbour areas as the stilt the whole year round. Sometimes small parties are seen running about in the sandhills or on the mudflats, and then for long periods (in summer or winter) not a bird will be seen. Possibly it merely moves around the district and so escapes observation. Parties of more than ten or a dozen have not been seen; but sometimes there will be a large number in total scattered widely over an area of mudflat. Matapihi Arm, with its rich areas of weedbeds, seems one of the most frequented spots. It appears to nest in a number of places in the open coast sandhills, especially where a small stream runs out. It seems to have been rather scarce this season (spring, summer, autumn, 1947-48) and only one or two birds have been met with in the sandhills near Mt. Maunganui, while none has been seen on such areas of mudflat as have been visited.

‡ **Wrybill (*Anarhynchus frontalis*).**—One or two birds met with on the mudflats or on the open coast appeared to be this species, but as none could be seen close enough to be fully certain of the bill, or even of the general colouration, it is only suggested as a possibility. Those noted seemed a little tamer in general, and to allow a closer approach, than

the banded dotterel; and to be slightly smaller, with only one partial dark marking on the throat. Nothing further could be distinguished with the naked eye.

Godwit (*Limosa lapponica*).—This bird occurs on the harbour flats in some numbers during the summer and autumn months. None has been met with at other seasons beyond a single specimen which frequented a quiet area of mudflat, for several days at least, in early September, 1947. Usually it makes a first appearance in numbers about Christmas, and large parties are fairly frequently met thereafter in favoured spots for a month or six weeks. It is more sparse from then on till about April, a small party being seen on a sandspit late in the latter month, 1948. Generally it seems to disappear earlier. A particularly favoured locality is a long sandspit on the western side of Tauranga marking the entrance of the Waikareao Arm into the main harbour area; here it collects almost daily in the period when it is most common.

Pied Oystercatcher (*Haematopus* sp.)—Only one bird has been met with for certain locally. This was three or four years ago at the mouth of a small freshwater creek on the open coast near Mt. Maunganui.

Black Oystercatcher or Redbill (*Haematopus* sp.)—Occasional small parties of this bird, usually of about half a dozen, have been met with during the last few years at one or two spots on the harbour. A favoured locality is a sandspit at the entrance of the Waikareao Arm. Its stay appears to be brief, lasting only a few days as far as can be judged, and it does not seem to reside permanently on any portions of the harbour area. It has been seen most often in late autumn—about May—but never on the open sea coast.

Pied Stilt (*Himantopus himantopus*).—This is the commonest bird of its family more or less resident in the district. Large parties of fifty or more are sometimes seen—as under stress of weather conditions—but the usual party is generally small, numbering two to a dozen. It appears commonest and most numerous in summer and autumn, becoming much reduced or almost absent during some of the winter months and in the breeding season. No nesting sites have been found on the harbour shores, but a small colony exists at the mouth of a small creek running out on the open coast a few miles east of Mt. Maunganui. It is generally found in association with gull parties along the shoreline or in flooded paddocks after rains, but is always more wary and eager to keep a safe distance when there are any intruders. On the open coast it is unusual to see it save around the mouths of creeks and rivers, though sometimes a small party may be met with far from such situations on the edge of the ocean surf.

Black-backed Gull (*Larus dominicanus*).—Very plentiful, especially within the harbour. Parties frequently come inland to feed on farm paddocks or wherever there is offal and refuse. Young birds in various stages of development usually form a good proportion of the parties, but no nesting sites have been seen locally.

Red-billed Gull (*Larus novaehollandiae*).—It is almost as common as the black-backed gull on the open coast, as on the harbour. Large parties frequently visit the farming paddocks, and find their way to all freshly-ploughed land, or wherever there is a chance of scraps of any kind. There seems little it cannot eat; bread is relished and even fruit or fruit refuse if nothing else offers. It is often seen drinking freely at the outlets of fresh-water creeks and streams, and seems to have a fancy for bathing in such water. Several years ago a fair sized party nested for one season on the ledges of a steep-sided rock mass near the seaward base of Mt. Maunganui. No other nesting sites have been noticed locally on the mainland.

Caspian Tern (*Hydroprogne caspia*).—Occurs nearly all the year, singly, or in twos (which usually consist of an old bird and a young one) around the harbour shores, or on the lower courses of tidal streams. Sometimes one or two birds may be seen on the open sea coast, but it seems to keep mainly to the harbour and its streams. Now and then

groups of six or more have been seen, possibly drawn together by an especially good fishing locality. It is capable of showing itself as aggressive as any gull in attacking invaders of its preserves. Late in the autumn 1948 large parties of 6 to 12 were frequently noticed following shoals of fish on some of the harbour backwaters.

White-fronted Tern (*Sterna striata*).—Large parties are frequently seen skimming gracefully over the open sea coast, or resting in stormy weather on shores and rocks. It appears to nest on some steep, craggy islets offshore from Mt. Maunganui. Though always more wary and ready to take wing, it appears frequently to associate in friendly fashion with parties of the red-billed gull. Except for a single specimen seen resting on a beach in the upper reaches of the harbour, during a storm several years ago, none has been met with on the harbour area.

Buller's Shearwater (*Puffinus bulleri*).—As far as the evidence of dead birds stranded on the shores goes, this is a fairly common species locally along the coasts. During a very heavy deposit of dead birds in December and early January, 1947-48, it seemed to be the most common next to *P. griseus*. It was also fairly frequent during strong easterly weather in late April and May, 1946. Like most of the other species commonly stranded scarcely any have been found dead from January to April. Thereafter till the end of the year or the following January, seems to be the period, locally, that it is cast on the shores, more or less plentifully. In early January, 1948, a worn and battered live bird was found on the open coast near Mt. Maunganui, the only occasion upon which one has been seen alive in the district.

Fluttering Shearwater (*Puffinus gavia*).—A few are usually found dead, whenever some of the former species (*P. bulleri*) are stranded: but it seems much less common as a stranded bird on this coast. The stormy periods of early May, 1946, and early December, 1947, produced the most seen at any one time.

Sooty Shearwater (*P. griseus*).—One of the commonest of locally stranded species; though as far as noted to date this seems to occur principally in the summer season. It was easily the most abundant among the heavy deposits of dead birds during December, 1947, and early January, 1948, when the winds were predominantly east. Dark-coloured petrels coming in at other periods of the year appear to be mainly *P. carneipes*.

Flesh-footed Shearwater (*Puffinus carneipes*).—During the bulk of the season from April or May till the following January, this is the commonest dusky petrel stranded on the coastline. It made a good proportion of the deposits during stormy easterly weather in April-May, 1946, and was also of plentiful occurrence during the winter of 1947. It yields in predominance to *P. griseus* during the summer season. During exceptionally rough and stormy weather specimens of this, as of other species of petrels, may be found on beaches towards the head of the harbour, but generally the strandings do not extend beyond the open coast. It possibly makes a good proportion of the large flocks of dusky petrels often seen skimming low over the surface of the open sea from the slopes of Mt. Maunganui.

Grey-faced Petrel (*Pterodroma macroptera*).—An uncommon species locally, as, even during the best deposits noted, only two or three specimens have ever been found at one time over some miles of coastline. It has been picked up both in summer and winter.

Prions (*Pachyptila turtur* and *P. salvinii*).—A few specimens of these two species have often been picked up among the strandings during winter, spring and early summer. They do not seem more prominent at one time than another; and even the heaviest strandings noted (April-May, 1946 and early December, 1947) to date contained very few indeed. On the strength of present findings *P. turtur* would appear rather the commoner of the two.

Diving Petrel (*Pelecanoides urinatrix*).—Occasionally this little bird has been seen swimming in the harbour close to Mt. Maunganui, or in

the wash around its rocky west and northern shoreline; but it is as a stranded bird that it is most prominent, and all the heavy deposits in winter, spring and early summer have contained a large proportion of this species. This was especially so of the deposits in early December, 1947, when the numbers of its dead were second perhaps to *Puffinus griseus*. In early May, 1946, during very strong easterly weather, it dominated the complete stranding, enormous numbers of this species, almost without others, being cast on the shore for some miles east of Mt. Maunganui over several days. Exactly how far this large deposit extended is not known, as it was not able to be followed out in either direction to its end. But at no time has so large a deathroll of a single species been noted.

Gannet (*Moris serrator*).—A frequent visitor both to the open coast and the harbour, seldom in any numbers; up to about half a dozen have been seen together. The largest parties have been seen mostly on the open coast or near the heads. Long intervals often pass without one being noticed. It is not uncommon to find dead specimens stranded on the open coast.

Black Shag (*Phalacrocorax carbo*).—Not uncommon about the harbour area, but seldom is more than a single bird seen fishing the muddy estuaries of some of the tidal creeks. It is common in the evenings, however, to see large parties flying to some rocky islets close to the eastern heads of the harbour, where there is apparently a roosting or nesting place. These parties separate for feeding during the day.

Pied Shag (*Phalacrocorax varius*).—A much less common bird locally than the last species, but a small group of about half a dozen birds has for years kept closely about the neighbourhood of a rocky reef just inside the Mt. Maunganui heads. Single birds occasionally appear some distance up the harbour or may be seen fishing round the rocky base of Mt. Maunganui. Stray birds seen in passing flights of black shags suggest that some at least roost with the latter species on coast rocks.

White-throated Shag (*Phalacrocorax melanoleucos*).—The common little shag of the harbour area and though often met with on the rocks of Mt. Maunganui close to the heads, it has not been seen on the open sea. It would seem either to have decreased in numbers or moved to other areas lately, as a few years ago moderate-sized parties could be seen daily on shoals and sandbanks in many parts of the harbour. Though single birds are often met with around the harbour or up the tidal streams, parties are not often seen on such parts of the harbour area as have been visited (1948). Blacks, or black with only a trace of white under the chin, seem to predominate in the parties usually. Birds with a fully white underside appear rather uncommon, as are all with more than just the underside of throat and neck white. There was a roost for some years in various large trees near the mouth of the Wairoa River. First it was in a giant pohutukawa, and later several tall eucalypts on a bluff were found to receive a nightly assemblage of some hundreds. The latter situation, at least, seems deserted now due to disturbance.

Black Swan (*Cygnus atratus*).—Small parties are frequently seen, or heard, flying across the harbour area after dark, and occasionally by day as well. It is rare, however, to come across any feeding or resting on the harbour or in its surroundings, and only single birds have been so met with. It appears to be as much at home on the salt water as the ducks, and most of those seen have been swimming about in the shallows near low tide mark.

Grey Duck (*Anas poicilorhyncha*).—Much the commonest duck, if not the only species living in the swamps and marshes around Tauranga Harbour. Generally in late summer, autumn and winter, large parties come down on to the mudflats and shallow tidal arms to feed; at almost any time of the year a few may be with resting or feeding in such situations. Small parties may be raised the year round from secluded backwaters and quiet stretches of all the marshy creeks and

streams, often very close to busy highways, or on the town outskirts, provided there is heavy cover. It seems to be thriving and to be numerous locally. In spring and early summer it is not at all uncommon to meet old birds and parties of ducklings on the streams, and even in mere ditches crossing rushy paddocks. It is the principal, if not the only, species of duck shot in the lowlands around Tauranga.

Black Teal (*Aythya novaeseelandiae*).—A pair was seen several years ago swimming in a pool on the course of a rocky hill stream about ten miles to the south-east of Tauranga. This is the only record.

Blue Penguin (*Eudyptula minor*).—Common locally, though it has only been rarely met with swimming in the sea close around the base of Mt. Maunganui. Very large numbers are stranded on the beaches in certain seasons, either dead, or in a dazed and helpless condition. The period of stranding is usually December and January, and every year sees a moderate number washed ashore during these months. Now and again the deposit becomes greatly increased, as in December, 1943, when for an unknown distance east of Mt. Maunganui, the open coast was found to bear dead penguins at almost every three to six feet. This deposit was at least seven to nine miles long, and no heavier has been seen. The weather at the time was hot with little wind and practically no rough sea. At other times of the year it is rather rare to find any stranded, though some occasionally appear. Those alive when found are weak and inert, and hardly able or inclined to do anything or to escape. If actually put in the surf they sometimes seem able to swim away. In December-January, 1947-48 the number stranded was rather small; species of petrels greatly predominating in the strandings. The weather was in general considerably more windy than on the occasion of the very heavy deposit mentioned above.

In conclusion, my sincere thanks are due to Messrs. E. G. Turbott, of the War Memorial Museum, Auckland and R. B. Sibson, of King's College, Otahuhu, for advice and help, especially in relation to the identification of stranded specimens.

ROTORUA GULL COLONY.—A number of observations was made during the 1947-48 nesting season by several members whose reports are collated by J. M. Cunningham as follows:—The colony was on the rocky shore and islets opposite the Ward Baths, and on November 18 there were over 400 black-billed gulls (*Larus bulleri*) present. They had about 99 nests, 15% of them being two-egg clutches, the remainder one. Three days later the number had swelled to over 600 birds, and of the nests examined, 28% had two-egg clutches. Although the total nests was not counted, this increase in percentage is consistent with the assumption that the earlier-arrived birds were still laying, completing two-egg clutches, the new arrivals not having commenced to lay of course. Red-billed gulls (*L. novaehollandiae*) were also nesting, the nests being placed indiscriminately amongst those of the black-billed, but there were fewer birds. On November 18 there were 35, with 17 nests, and on November 21 there were 44 birds with 21 nests. There appeared to be no animosity between the two species, and although there were about a dozen immature (yearling) red-billed gulls near the colony, no immature black-billed were seen. (J.M.C., F. Murray and H. R. McKenzie). Mr. M. J. S. Black reported later that this whole colony was robbed, the eggs being taken away in tins by Maoris. The birds then moved east a little way and nested again. These eggs hatched but the chicks were slaughtered by vandals with sticks. Only one juvenile of this colony was seen later. A third attempt was made by a few birds at the original site, and on February 2, 1948, on the mainland there were 13 eggs and 9 chicks, mixed birds of both species. There were others on the islets. On February 20, on the mainland was one chick only, and on islet No. 1, 10 eggs and 26 chicks, nearly all red-billed. On islet No. 2, were two eggs and 17 chicks, nearly all black-billed (so apparently the birds had eventually separated mainly into two specific groups). (H.R.McK.) On this date, the evening tally at the roost was about 250 red-billed and about 750 black-billed. (R. A. Falla, M.J.S.B., H.R.McK.).

MIGRATORY WADERS IN WELLINGTON PROVINCE.

By R. H. D. Stidolph, Masterton.

Increasing attention has been paid in recent years by field-workers to the occurrence of migratory waders in New Zealand and the fruits of this work have been seen in the rich finds of Auckland district members of the society. Little has been recorded in past years of the presence of birds of this group in the Wellington district.

In the first place it is necessary to state that the areas attractive to waders in the Wellington province are extremely limited in size and confined to three or four river-mouths on the west coast of the province. There are no extensive tidal harbours such as the Auckland district possesses. Moreover, the east coast, insofar as it relates to the Wellington province is a most unattractive length of coast-line for waders, the rivers of small volume usually flowing into the sea between hills and with no estuary worthy of the name on the whole coast.

It is apparent, however, that the west coast of the Wellington district lies on at least a subsidiary southward migration route, as I have seen waders in small parties travelling southward in the late spring but my limited visits to this coast have not provided any evidence of big scale migratory movements, though these would possibly be forthcoming if a more intense watch were kept.

I have no records at all of migratory Northern Hemisphere waders on the east coast of the Wellington province, after having paid visits to all the river-mouths of this length of coast-line. Even in the Palliser Bay area, at the southern extremity of the district, records are extremely meagre, due, I take it, to the non-existence of tidal mudflats in Lake Onoke. The only migratory wader recorded here is the godwit (*Limosa lapponica*). On December 2, 1937, when Onoke Lake was at an exceptionally low level, a party of ten godwits was seen, while on April 6, 1941, two were recorded. Incidentally, a solitary wrybill (*Anarhynchus frontalis*) was seen on Onoke Spit on November 1, 1942, my only record for this particular area.

The north-eastern side of Wairarapa Lake, at a point about 20 miles inland from Palliser Bay, has a considerable area of shallow water and sand flats, especially in the early part of the year, when the lake is usually at a low level. Here I have seen a knot (*Calidris canutus*) on February 4, 1945, and one or two wrybill (one on February 4, 1945, and two on February 1 and 8, 1948). These are of interest in providing rare inland records of these birds in the North Island. Another inland record much nearer to Masterton and over 30 miles from the east coast is that of an American pectoral sandpiper (*Calidris melanotos*) and a Siberian pectoral sandpiper (*C. acuminata*) on the sewage farm associated with the Waingawa Freezing Works, on December 14, 1946. The birds were keeping company under conditions that gave an admirable opportunity to write down on the spot the differences in plumage between the two birds, which were under close observation by J. M. Cunningham and myself for half-an-hour. They were still there the next day when they were watched by my wife and myself for some time.

These birds were found close to a party of stilts (*Himantopus himantopus*). One was feeding in the sludge. Later the second bird started to feed, both probing into it with quick movements, sometimes plunging the bill right home and even the head sometimes to just beyond the eye. They waded in the sludge up to their breasts. On the second day, my wife saw one lie on its side in the sludge.

The sharp-tailed sandpiper (*acuminata*) I have seen also in the Manawatu. The first record is of a party of ten feeding on the side of a road at Foxton Beach on a wet day, November 10, 1943. These birds were comparatively tame and were approached closely as they fed.

eagerly. They eventually took flight, circled as they gained height and swung away to the south-west, evidently in continuation of their migratory flight. Again, three birds of this species were seen at the Ohau River mouth on January 5, 1947. They were reposing among driftwood near the river.

At the Ohau I have seen golden plover (*Pluvialis dominica*), turnstone (*Arenaria interpres*), knot, whimbrel (*Numenius phaeopus*) and wrybill. Four golden plover were seen there on November 17 and 21, 1943. These birds may have summered there, as K. A. Wodzicki saw three there on March 12, 1944. This plover I have seen more recently at the Waitotara River mouth—two on November 10, 1948 and three flying the following morning.

The turnstone has been seen on three occasions at the Ohau, two on November 17, 1943 and three on November 21. These birds were feeding diligently, turning over small stones on the beach. On November 18, 1945, three turnstones were seen flying south. They alighted and fed for about 15 minutes in an area of wet sand frequented by banded dotterel (*Charadrius bicinctus*). They then flew off in continuation of their southward movement.

The occurrence of the whimbrel on November 17, 1945, has been recorded already. (See N.Z. Bird Notes Vol. 2, p. 35.) Most visits to the Ohau have revealed the presence of an odd wrybill in the last three months of the year, as the following records show: November 11 and 17, 1945, one; November 18, 1945, three; December 25, 1946, one; October 22, 1947, four; November 4 and 16, 1948, one.

The knot I have seen not only at the Ohau (November 11, 1945, two; October 22 and 26, 1947, one) but also at the Manawatu River mouth (November 20, 1943, one; November 14, 1945, four; October 25, 1947, eight) and the Rangitikei River mouth (November 12, 1948, ten) usually in company with godwits, which occur at several of the west coast river estuaries from Waitotara southwards, including the Waitotara, Rangitikei, Manawatu, Ohau and Waikanae. Many spend the summer at the Rangitikei and Manawatu estuaries. The godwit has been recorded also in past years on odd occasions at the mouth of the Hutt River, in Wellington Harbour. The largest counts I have are 103 at the Manawatu on November 20, 1943, 107 at the Rangitikei on November 12, 1948, and 21 at the Ohau on November 4, 1948.

The Waikanae Estuary was the subject of a paper by Wodzicki in the Emu, Vol. 46, pp. 3-43, July, 1946, in which there are records of the occurrence there of the turnstone, knot, red-necked stint (*Pisobia ruficollis*), sanderling (*Crocethia alba*) and godwit.

Buller records that several specimens of the golden plover had been taken on the Wellington coast and also that it had been seen at the Rangitikei beach. As far as I am aware, there are no previous records of the occurrence of either the pectoral or short-tailed sandpiper in the Wellington province.

Several species of migratory waders have been recorded in recent years at the Waitotara Estuary by W. P. Mead in the classified notes section of this publication. These include the golden plover, turnstone and knot, besides the wrybill. An odd knot and wrybill have been recorded also in recent years at the Wanganui river-mouth.

As this article is concerned principally with the occurrence of the Northern Hemisphere waders, the references to the wrybill are more or less incidental. It should be added that the oyster-catcher (*Haematopus spp.*), banded dotterel and stilt occur on both the east and west coasts in suitable localities, all three breeding in the district.

BREEDING HABITS OF DOTTERELS.

By S. D. Potter, Auckland.

BANDED DOTTEREL (*Charadrius bicinctus*).

One pair and one youngster were recorded on McFarlane's Beach, Manakau Harbour, 28/12/35. Their habit of running several yards, then stopping dead and perhaps bobbing their heads, makes their movements appear to be jerky.

A nest—merely a slight depression in the shingle—was found on Muriwai Beach, 25/10/36. It appeared that some attempt had been made to arrange bits of shell around it. There were two newly-hatched chicks and one egg on the point of hatching. The chicks were a pale yellow speckled with dark brown and they remained absolutely motionless, stretched out on the ground at their parents' command.

When the nest was approached the parents became most demonstrative and gave up circling round on the wing or running about merely uttering a plaintive whistle (with a jerk of the head) to come within a yard or two of my feet, most painfully trailing a wing and calling as if in dire distress, in a frantic endeavour to lure me away and which I finally allowed them to do.

Six nests were found at Motaha, 6/10/37; each nest was merely a depression but several had pieces of shell or tiny pebbles arranged in it. Each nest was close to a "landmark"—a piece of drift wood or a clump of half-buried seaweed. Four nests contained three eggs and the others only two. As is usual all were deposited in the depressions with the narrow ends innermost. The many eggs I have examined has shown only three distinct variations in markings, and curiously enough all three appeared in these six nests, so it would seem that locality has little, if anything, to do with it. The variations referred to are: Stone in ground colour, buff in ground colour and the third bluish, all being well spotted with dark-brown and blackish-brown.

Although, of course, it is usual for these birds to herald one's approach, they are not very demonstrative until the eggs have hatched. As six pairs seemed a numerous quota for this short and very narrow strip of coastline I checked the distance between the nests and found that the nearest of any two to each other was 320 yards.

On 29/9/40 at Muriwai I watched a pair for a whole day and noted that the female only sat on the three eggs. The male, very handsome in his breeding plumage, was never very far away and immediately gabbled a lot of dire threats should another dotterel trespass on his domain and before giving chase fluffed out the feathers along his sides until he looked almost half as large again.

NEW ZEALAND DOTTEREL (*Pluviorhynchus obscurus*).

In the small bays in and near the Hokianga Harbour on 27/12/37, New Zealand dotterels were quite numerous and many had young birds on the wing. One nest with three eggs was found actually on the fringe of a large colony of white-fronted terns (*Sterna striata*). The nearest tern's nest was only four yards away.

At Mangawai Heads on 24/12/39, one nest containing two eggs was found. It was in open sand away from all vegetation and had a lining of fragments of shell neatly arranged at the bottom of the depression. The "hollow" which serves this dotterel as a nest is much deeper and more cup-shaped than that of the banded dotterel or any other bird nesting in similar surroundings. The female of this particular nest gave the best exhibitions of the broken wing trick I have seen.

The usual call of this dotterel is "twit" delivered with a "hiccup." Sometimes it is enlarged to "twit tu-u-u," the latter part being tremolo. When annoyed it utters a toy-spring-like noise of "whirp! whirp!"

Six pairs were seen at Pakiri on 28/10/40, but although in breeding plumage, only two were actually nesting, though a discarded egg was found.

Eight pairs were present at Mangawai Heads, 24/11/40. One pair had two youngsters on the wing. Of the others, only one pair had a nest and that contained one egg. The others had probably lost their nests as three washed-out eggs were found in different places.

CASPIAN TERN COLONY.

By Crawford S. Pennycook, Timaru.

Notes on the breeding of the Caspian tern (*Hydroprogna caspia*) at Washdyke Lagoon, Canterbury, are:—

Sept. 9, 1947.—About 20 Caspian terns were noticed standing on the western or lagoon slope of the shingle bank between the sea and the lagoon. On investigation I found many hollows in the sand, lined with small stones or small sticks, and a few feathers. Only one egg was found, about the size of a large hen egg, and fawn coloured, with brown spots and grey splotches.

Sept. 13.—Counted 25 birds and 9 eggs. Each nest containing eggs, had either three or two eggs.

Sept. 21.—Many more birds in the colony; 45 eggs, most nests now containing three eggs (a few with two).

Sept. 27.—40 Caspian terns and 64 eggs counted.

Oct. 4.—Found first chick in a nest with 1 egg. Counted 55 birds, 34 nests and 80 eggs. Bad weather prevented further observations till mid-November.

Nov. 15.—Noticed several eggs and one newly-hatched chick, while 20 to 30 half-grown chicks ran into the sea at my approach.

A new colony of Caspian terns was found on the shingle bank in August, 1948.

Aug. 31, 1948.—Counted 20 birds, but no eggs as yet, although there were several nests under construction.

Sept. 6.—Signs of high seas having swept over nests mentioned in August. Only two nests remain, both with three eggs. Also found two loose eggs, supposed to be washed out of nests by high seas. Other birds have gone further down the spit and started another colony. (Colony 2.) Counted 20 birds in this colony and six nests containing one and two eggs. Also about seven nests under construction.

Sept. 8.—Colony 1: No sign of colony or nests. Indications of high seas having covered nesting site. Colony not being resumed. Colony No. 2: No sign of original nests, these having been washed away in high seas, but new colony started on same site, four nests with one egg. Also several nests with no eggs; 20 birds counted and 50 white-fronted terns (*Sterna striata*) besides Caspian terns.

Sept. 10.—The site of the original colony still deserted but the second sitting at the second colony more successful, there being about 45 Caspian terns and 16 nests, eight with eggs and eight without. Only 10 white-fronted terns seen.

Sept. 11.—The number of Caspian terns reduced to 35 but 50 odd white-fronted terns were at rest on the shingle in the immediate neighbourhood.

Sept. 13.—Now only 25 Caspian terns and seven nests with eggs.

Sept. 15.—Fifteen Caspian terns and 7 nests, but several eggs found with the shell broken, a hole about one inch across having been made in one side of each egg.

Sept. 17.—Still 15 Caspian terns and seven nests.

Sept. 19.—Only four nests left, with two eggs in each. No sign of any broken shell about the nests.

Sept. 21.—All nests and eggs washed away by high seas. Saw one Caspian tern hovering over the site of the colony.

Sept. 23.—No sign of Caspian terns anywhere on beach or lagoon. Colony not resumed during the following fortnight's observations.

CROMWELL BIRD DIARY.

By John Middleditch, Dunedin.

April 2, 1948.—Saw a black-billed gull (*Larus bulleri*) chasing a blackbird (*Turdus merula*) for the worms it was carrying. The blackbird dropped the worms and the gull immediately devoured them. (I have seen this happen several times lately.)

Wax-eyes (*Zosterops lateralis*) appeared suddenly in my garden and had a busy time cleaning up insect life on the red hot pokers. The weather has suddenly become cold and it is snowing in the high country. I think these birds come from the slopes of Mt. Pisa, because they always appear when that mountain is experiencing a snowstorm.

May 1.—A harrier (*Circus approximans*) was seen today flying close to the ground and scratching its head with its foot as it floated along, its wings quite motionless. Harriers on the Pisa swamps watch closely the process of duck shooting and on one occasion a hawk followed a wounded duck in a long dive and caught it almost as soon as it reached the ground.

May 7.—Walking through Peniam's Swamp at Lowburn at daylight I encountered a great number of harriers. They seem to have spent the night in the tussocks. When I disturbed them they flew up one by one, uttering a little cry, and hovered overhead quite close to the ground. I counted 45 birds in an area of approximately one acre. The tussock was deep and full of criss-crossing runways made by the pukeko (*Porphyrio poliocephalus*) that are very plentiful there. It was possible to get quite close to the birds before being noticed.

May 14.—A bird was brought to me today which was found in the backyard of a local hotel. When liberated in the Clutha River the bird swam away and dived under the water and was not seen again. I think it was a sooty shearwater (*Puffinus griseus*).

August 7.—A pair of pied oystercatchers (*Haematopus finschi*) appeared on the Lowburn Flats.

August 17.—Found a dead kingfisher (*Halcyon sanctus*) at Morven Hills. I have not seen a live one about these parts.

August 26.—Saw a banded dotterel (*Charadrius bicinctus*) on the flats at Cromwell early this morning. It seemed restless and excited and appeared to have just arrived.

August 27.—There are eight black-billed gulls settling down on a patch of shingle in front of the Lowburn dredge. They seem to be likely to nest there, as they employ their familiar "dive-bombing" tactics when anyone approaches them. These birds do not seem afraid of the large dredge that is moving backwards and forwards about three chains away from them, and of the heavy steel cable that is swinging about almost over their heads for 24 hours of every day.

September 9.—There are now 28 black-billed gulls on the gravel bank.

September 17.—There are now 64 gulls on the gravel bank. I have not previously seen so many in this area.

September 27.—Saw a grey duck (*Anas poicilorhyncha*) with nine ducklings in a water-race, well up the side of Mt. Pisa, at least four miles from the river and at this particular time not far from the snow line.

October 1.—I have not seen the banded dotterel since August 26. The gulls reported on September 17 stayed until the north-west winds started a week ago. They had then increased to 150 birds and showed signs of nesting but have now moved to some other place, leaving what seemed to be the original birds.

NOTES OF THE FERN BIRD.

The call of the fern bird (*Bowdleria punctata*) in all the records available to the writer is described as a double note generally vocalised as "u-tick." Some writers give "u-tick" as one of the names by which the bird is sometimes known. A good many years ago it was suggested to me by a surveyor acquaintance that the double call is actually two calls made by two separate birds—one answering the other with great rapidity. The surveyor happened during the course of his work in the field, to occupy a position between two fern birds while they were calling and was surprised to learn the double call was being made by two birds. Under similar conditions I have on several occasions since had the same experience. On one occasion I could actually see both birds and watched them as they drew together, calling as they came. I would be interested to hear the views of other observers.—A. H. Watt, Paua.

One of the notes of the fern-bird, a short double whistle, is made by two birds. Near Rotorua, 20/11/47, I watched two birds making this call, one answering the other from a distance of about twelve feet. I was standing between the birds, but from a few yards further away the call sounded as if from one bird. Each half of the call was heard by itself, though rarely. At this time all birds heard near Rotorua and the Waikato were giving this call, the first of the two notes being accented, but in November, 1946, all birds heard in at least one of the same swamps accented the second note of the call. The difference was particularly marked.—J. M. Cunningham, Masterton.

On 18/11/47 I discovered a pair of fern-birds in a swamp near Te Kuiti. From them I heard four distinct notes: (a) "Kip" from both birds; (b) "piup" from first bird; (c) what sounded to me like "tropip" but could very likely be the "utick" of the literature on the subject; (d) a very gentle "tititititi," which may possibly have been young. The swamp was very deep at that particular point and as I advanced the bird nearest to me started to "piup," which I think might possibly be an alarm note, as on several other occasions I heard it when I disturbed them. I have since discovered that there are at least three pairs of fern-birds in this swamp.—W. F. I. Hunt, Te Kuiti.

Recent observations of the fern-bird in the Wellington province enabled me to personally record some of its notes. At Waimarino, 9/10/47, where the bird occurs at an altitude of over 2,600 feet, the following notes were recorded: (a) "tick," not preceded by the "u", uttered when the bird was well hidden in low manuka; (b) a loud penetrating double note like "sto-pit," the latter portion having a remarkable ventriloquial effect, so much so that although the bird was seen uttering this note, in full view, perched on top of a flax stalk, I instinctively looked in the opposite direction to locate what sounded like a second bird giving the latter portion of this double note; (c) a very feeble note, like the whisk of a comb or winding of a watch spring, of two or three seconds duration and only discernible at a distance of a few feet. At Wairarapa Lake, where, on 1/2/48 I saw two in the same area where I had recorded it 25 years previously, though I had not seen or heard it in the interim, the following notes were apparent: the b note above, "sto-pit," first heard at least six chains away; and the following additional ones: (d) "u-tick," a much quieter note of no great carrying power; this was uttered by a bird in full view while it was perched in a willow; (e) an ear-splitting "tak," uttered while my wife and I tried to dislodge it from a clump of cutty grass into which it had flown and evidently a note of anger; (f) a loud note of almost bell-like quality uttered by a bird perched in a willow. The sequence of these notes was: In distance, b; bird then seen in willow, where it gave f; second bird located in another willow calling d; this bird in cutty grass uttered when disturbed e. One bird flew from willow to willow, the longest distance being about 100ft.; the other also flew distances of 50 feet or more; their flight gave no suggestion of weakness.—R. H. D. Stidolph, Masterton.

Last week (February, 1949) while blackberrying at Otatara, in the vicinity of Invercargill (4 to 5 miles distant) I followed a grass track into a swampy place near the estuary, when the twang of what I thought to be a fern bird made me twice-alive. I have seen and heard the fern bird on several occasions while at Stewart Island, on tracks near the Freshwater River, so when I saw the bird sliding through manuka scrub and rush in a mouse-like manner and uttering its constant cry, I was delighted. So near to the town! Before I left the swamp I had seen three of these birds and found a disused nest. The nest was not a recent one. Two of the birds appeared to be a pair, as it was clear that one uttered a single note which the other caught up and answered. The feeling of this double note was as if it came from one bird. Very curious it was; and as the one bird was within a yard of me some of the time and many times slid very much closer, I had an unimpeded view. The other bird was over the other side of a ditch, seeking food low down among rush, under scrubby manuka. About 100 yards along the track and nearer the estuary, I heard again the metallic twang and saw another bird, the third. In January a friend of mine saw one at her camp at Golden Bay, Stewart Island.—(Mrs.) Olga Sansom, Invercargill.

SUB-FOSSIL BIRD REMAINS FROM LAKE GRASSMERE.

By Elliot Dawson, Christchurch.

Although the society is concerned mainly with living birds, a few notes regarding bones of birds, some of which are now extinct, found in sand dunes near Lake Grassmere, may be of interest to members.

In certain parts of the sand dunes near the south end of Grassmere Spit, Marlborough, are found deposits of bird bones and Maori middens. The middens are scattered over a wide area of loose wind-blown sand. The wind has blown away large hollows, leaving miniature plateaux and valleys in the midden areas, in which are found moa bones, egg shell and other bird remains. Thus we can see that the bird bones from this area may be refuse from the midden, or, as in the case of several other sites, merely natural accumulations of bones. If the latter case is correct, how are we to explain this large conglomeration of material? Judging by various geological evidence, there is every likelihood that this site was once a swamp area, like Pyramid Valley, which in time dried out and became covered by sand dunes.

Some of the bones have definitely been blown out from the midden layer but there are only two species from there about which I have any definite proof: Spotted shag (*Stictocarbo punctatus punctatus*) and blue penguin (*Eudyptula minor*). Many of the others, such as *Gallirallus*, *Megadyptes*, *Anas*, *Hemiphaga*, several petrels, etc., probably are also midden debris but I lack sufficient proof.

We can therefore see that this site presents a most interesting problem in many ways. A list of species I have collected and identified from there appears below. I have to thank Mr. R. S. Duff, Director of the Canterbury Museum, for information and assistance, and also Drs. R. A. Falla and W. R. B. Oliver.

Kiwi (*Apteryx australis* and *A. oweni*); yellow-eyed penguin (*Megadyptes antipodes*); blue penguin (*Eudyptula minor*); mutton bird (*Puffinus griseus*); about four other species of petrels (*Procellariiformes*); Marlborough shag (*Leucocarbo carunculatus carunculatus*); spotted shag (*stictocarbo punctatus punctatus*); grey duck (*Anas poicilorhyncha*); paradise duck (*Tadorna variegata*); brown duck (*Anas aucklandica chlorotis*); two or three other species of ducks (*Anas*); extinct swan (*Chenopsis sumnerensis*); harrier (*Circus approximans*); extinct eagle (*Harpagornis moorei*); extinct crow (*Corvus moriorum*); wekas (*Gallirallus* sp. and *G. australis*); rail (*Rallus* sp.); extinct coot (*Fulica prisca*); black-backed gull (*Larus dominicanus*); red-billed gull (*Larus novaehollandiae*); pigeon (*Hemiphaga novaeseelandia*); kaka (*Nestor meridionalis*); kakapo (*Strigops habroptilus*); at least three Passeri-

formes and at least two waders (*Charadriiformes*) yet to be identified; and various other odd species also.

We see that perhaps the most interesting inclusions in the above list are the extinct eagle, crow, coot and swan and also the kakapo and yellow-eyed penguin.

BIRD LIFE ON AN ESTUARY.

By (Mrs.) N. F. Stidolph, Masterton.

To the bird lover living inland the shore—and particularly the river-mouth—abounds with interest. An Easter visit to the Ohau River mouth was none the less exciting for its lack of migrants. Numbers of dotterels (*Charadrius bicinctus*) were feeding on the mudflats in more or less nondescript plumage, several stilts (*Himantopus himantopus*) paddled up and down in the shallow water and many more slept on the sunny strip of sand on the edge of the spit. There also five oyster-catchers (*Haematopus reischeki*) careered up and down the spit making absurd noises and showing off. Two of them bathed near to where I was sitting but a piping call from the rest of the party was too exciting for them and they left the water in a hurry.

Across the spit, near the ocean, black-backed gulls (*Larus dominicanus*) in plenty soared high in the air and dived with harsh cries after their falling shells. Gannets (*Moris serrator*) skimmed the water in a graceful line and odd shags (*Phalacrocorax carbo*), black and grotesque, flew between the shore and the hills. In the water close by three small gulls (*Larus novaehollandiae*) floated with the current and fed continuously on the surface.

Every few minutes dotterels arrived to join those already sprinting about on the mudflat. They were very aggressive. Two, which were feeding round the edge of the water nearest me were particularly so. They fed with their eyes on each other and kept away from the rest of the flock and never more than a few feet from where they were when I arrived and I was there nearly two hours. These two, intent on each other and their food, had some difficulty in pulling out of the mud what appeared to be a worm. It was long and pink and very tempting to a kingfisher (*Halcyon sanctus*) which suddenly flashed into their midst—so blue against the brown mud—snatched the worm and swallowed it. He hopped about on the mud with his funny short legs but the dotterels joined forces and attacked him. The whole flock joined in and he had some difficulty in beating his way through them. They drove him quite a distance upstream and finally left him on a log very agitated, flicking his tail. They all returned to the mudflat and went about their feeding as usual but with a peculiar little peeping such as a number of chickens make when disturbed.

The kingfisher hopped about the bank catching what appeared to be small crabs, but it was rather far away for me to be sure. My attention was drawn from him by the two dotterels he had robbed. They flew back to their little bit of mud and water, but in doing so I think they collided, for they attacked each other viciously and fell into the water—out of which one managed to fly while the other appeared to be unable to take off and had to swim. When I looked back the kingfisher had gone.

My attention was now drawn to the calling of silver-eyes (*Zosterops lateralis*) in the lupins on the sandhills and I decided to leave the mud for a few minutes to investigate. Before I could get there, however, I saw what to me was a novel sight—silver-eyes rising from the scrub, circling round in the air with more and more joining in, rising higher and higher still in circles until I could hear them but no longer see them. They didn't come down again at that place. When I had to leave the beach the dotterels were still running ceaselessly on the ever widening stretch of mud.

(The date of these observations was April 5, 1947.)

BIRDS IN NELSON PROVINCE.

By (Mrs.) E. M. Moore, Dunedin.

Last summer (1947-48) with my husband and two other members of the Dunedin Naturalists' Field Club I had a tramping holiday in the Nelson province, in the Whangapeka, Karamea and Taipo valleys.

The following observations were made during an eight-day return trip from Tadmor to the foot of the Little Wanganui Saddle, in the vicinity of Mt. Zetland, from December 29, 1947, to January 6, 1948. The rough nature of the country made it rather difficult to study the bird life thoroughly, and it was mostly when spells were called for and at camp in the evening and early morning that any records could be taken.

Black Shag (*Phalacrocorax carbo*).—Four were seen flying above the Whangapeka River about ten miles from Tadmor.

The riflemen (*Acanthisitta chloris*), tomtit (*Petroica macrocephala macrocephala*) and the bellbird (*Anthornis melanura*) were plentiful throughout the trip.

Pigeon (*Hemiphaga novaeseelandiae*).—Three were seen on the way up to the Whangapeka Saddle, and two near the head of the Taipo.

Yellowhead (*Mohoua o. ochrocephala*).—Six on Wangapeka Track, and songs were heard throughout the Karamea and Taipo valleys.

Tui (*Prosthemadera novaeseelandiae*).—Three in Whangapeka Valley and three in Karamea Valley.

Robin (*Miro australis*).—Five on Whangapeka Track and numerous in the Karamea and Taipo valleys. They would hop all over our packs whenever we stopped for a spell.

Weka (*Gallirallus* sp. ?).—Two at the foot of Whangapeka Saddle; three on the Saddle; 12 in Karamea Valley and five in the Taipo Valley.

Blue Duck (*Hymenolaimus malacorhynchus*).—Male, female and three young at the head of the Karamea, and one heard in the Taipo Valley.

Paradise Duck (*Tadorna variegata*).—One pair in the Karamea Valley.

Kea (*Nestor notabilis*).—Five in the Taipo Valley.

Kaka (*N. meridionalis*).—Two in the Karamea Valley and two in the Taipo Valley.

Morepork (*Ninox novaeseelandiae*).—Heard at night in the Taipo Valley.

Five strange birds were seen which were similar in every detail to the native thrush (*Turnagra capensis*) which later I saw in the Otago Museum, and the call was also similar to that described in books. As this district is rarely frequented I think it is possible that these birds were the native thrush.

The Heaphy Track between Collingwood and Karamea, was traversed from January 9th to 13th, 1948. It is approximately 60 miles in length and is mostly through bush with patches of open tussock country, and along the sea coast. The following birds were noted:—

Kiwi (*Apteryx* ? sp.).—One was heard on the banks of the Aorere River between Seventeen Mile Creek and Brown's River, and one at the Goulard Downs Hut.

Tomtit and Fantail (*Rhipidura fuliginosa*), both pied and black, were plentiful.

Pigeon.—Nine counted between Brown's River and the Goulard Downs Hut, and three from Goulards Downs to Lewis Hut.

Bellbird.—Seen and heard most of the way through the bush.

Tui.—Seven counted on the way to Perry's Pass.

Blue Duck.—Male and female and three young on Blue Duck Creek near the Goulard Downs Hut.

Morepork.—Heard at night.

Black Oystercatcher (*Haematopus unicolor*).—Counted 21 along the coast between the Heaphy Hut and Kohaihai Bluff.

Black Shag (*Phalacrocorax carbo*).—Five along the coast between the Gunner and Kohaihai rivers.

Spotted Shag (*Stictocarbo punctatus punctatus*).—Eleven between the Heaphy Hut and Kohaihai Bluff.

Sea birds were very plentiful along the coast, especially towards the mouth of the Heaphy River, but we were unable to identify many of them.

BIRDS IN TEMUKA DISTRICT.

By Crawford Pennycook, Timaru.

Observations on the breeding habits of the grey warbler (*Pseudogerygone igata*) and references to other species occurring in a small area between the Waihi and Te Moana rivers, in the Temuka district, are:—

GREY WARBLER.

Aug. 24, 1947.—Nest found about 7ft. above ground in broom, entrance facing N.W. Thinking at first it was an old nest, the observers cut down the branch of broom; but when fresh moss was seen, as well as feathers in the doorway, they tied the branch on the bush again, this time with the opening facing east. Soon after, the pair of birds came fussing round with feathers, trying to find the opening on N.W. side. The nest was then turned round to face the original direction, and the birds almost immediately went in with feathers.

Aug. 30.—Nest seemed to be deserted. Found two other completed nests in gorse and a half-finished one, also in gorse; all about 7ft. from ground and facing N. to N.-W.

Sept. 14.—The nest which had been cut down now has four eggs, so disturbance had not frightened birds away after all. The other two nests contained sitting birds which we did not disturb, while the one we thought to have been incomplete was still the same. (From observations made later in the season we concluded that this was an old one, not a half-built one.)

December.—No nests to be found, but several groups of warblers (up to 10 in number) observed daily in the willows. All old nests appeared to be torn down so that they hung by one small piece, the "bag" being torn wide open.

January, 1948.—Though camped in this area for six weeks, we did not this year see or hear the shining cuckoo (*Chalcites lucidus*) as we did in the same area during January, 1946, and January, 1947. The families of grey warblers seemed to be very numerous.

Other birds noticed in this riverside spot, which is fairly thick with broom and gorse, were:—

Fantails (*Rhipidura fuliginosa*).—Several pairs. In August, 1947, we saw a pair (one pied and one black), nest building, both gathering punky rotten wood from fallen willows. On Aug. 30 we found the nest in a gorse bush about 4½ft. above ground level. While standing right by the nest, we observed the black fantail leave and the pied one sit on the nest, the change-over being made so quickly that we did not even get a glimpse of the eggs. Saw another two pairs, all pied, but did not find the nests.

Blackbird (*Turdus merula*) and Thrush (*T. ericetorum*).—Very numerous; many nests found in broom.

Redpoll (*Carduelis cabaret*).—In January, 1948, the place seemed alive with redpolls, and every other little broom bush in the open

contained a nest, often at very low level. Incubation time, 11 days; the young birds left the nest in a further 12 days.

Yellowhammer (*Emberiza citrinella*)—Found three nests on ground in long grass and grass-lined. We noticed particularly one nest with four eggs; when two hatched the other two were kicked out of the nest. When blown they were found to be infertile.

Chaffinch (*Fringilla coelebs*).—Seemed to favour willow and elderberry trees for nests at about 8 to 10ft. from ground.

Goldfinch (*Carduelis carduelis*).—Observations of the goldfinch were not wholly successful as repeatedly nests were found torn up and eggs broken.

Wild Duck (*Anas sp.?*)—Frequented a flaxy swamp in the next paddock. Family of five half-grown ducks was seen on the river near the camp at dawn. Another family of seven ducklings was seen on a nearby stream.

Bittern (*Botaurus poiciloptilus*)—A solitary bittern flew up the river almost every day.

Skylark (*Alauda arvensis*) and Ground Lark or Pipit (*Anthus novae-seelandiae*)—Not numerous; ground larks seen on stony beaches by riverside.

Harrier (*Circus approximans*).—Always two or three overhead most of the day.

Gulls (*Larus sp.*) and Caspian Terns (*Hydroprogne caspia*).—In late afternoon numbers of both flew over on several occasions; flying from inland towards the coast; very noisy.

BLACKBIRD'S NEST IN WASHHOUSE.—On August 8, 1947, a blackbird (*Turdus merula*) flew into the washhouse on a tour of inspection for a nesting place. A blackbird had built in the washhouse the previous year. On Sept. 22 the first egg was laid in the nest which was built behind a ladder against the wall of the washhouse. The male bird was very excited and made a great fuss and outcry. On Sept. 28 the blackbird was sitting on four eggs, and on October 10 two vigorous young birds were out of the nest and two much more feeble ones still in it. A second family was hatched in this nest. The male bird met an untimely death by dashing into the closed window (his usual exit), and falling stunned into a tub of water in which he was drowned. To prevent a repetition of this tragedy the birds were shut out of the washhouse. The female found a new mate, not so confiding as the former one, and a third nest was built on the ledge of a fence among the branches of an American pillar rose. Four young were hatched but were devoured by a wandering cat, which possibly accounted for the disappearance of most of the other young birds, only two (one a female) being known to have reached maturity. When feeding worms to the young, the parents were noted to break them into pieces before carrying them to the nest.—Mrs. J. A. Moore, Dunedin Naturalists' Field Club.

REVIEW.

Bird Recognition. Vol. 1; Sea-Birds and Waders, by James Fisher. Pelican Books. 190 pages, 86 illus., 77 maps and 72 charts.

A pocket book for field use, this publication is one of the best of its kind ever seen. It is a model of conciseness and its pages contain a wealth of information. There is an excellent illustration of every species dealt with in this volume. Distribution maps and "clock" charts provide a ready means of bringing out salient points regarding seasonal movements and breeding habits that would require many more pages of text to cover in the more orthodox manner. Habitat and field character keys add to the value of the volume, which is useful to New Zealanders as it provides aids in the identification of several waders and other migratory birds that occur in this country.—R.H.D.S.

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