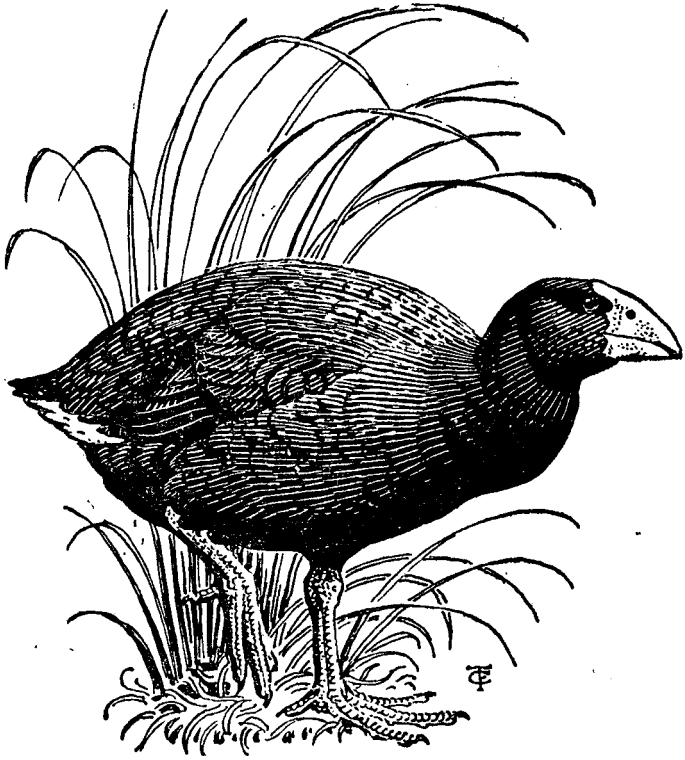
NOTORNIS



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Contents of Vol. 10, No. 5: June, 1963

THE BLACK-FRONTED DOTTEREL IN HAWKE'S BAY

By NORMAN MACKENZIE

In an earlier paper (*Notornis IX,* 269) on the Black-fronted Dotterel *(Charadrius melanops)* I have given an outline of the previous history of this species in Hawkes Bay. Since then it has been possible to follow their colonisation of the district and give a substantially accurate report of their present status.

The species has been closely studied since breeding was noted in 1961. As it was not possible to cover their entire available range, attention was concentrated on the area described previously, that is the Tutaekuri river between the Redclyffe and Brookfield bridges.

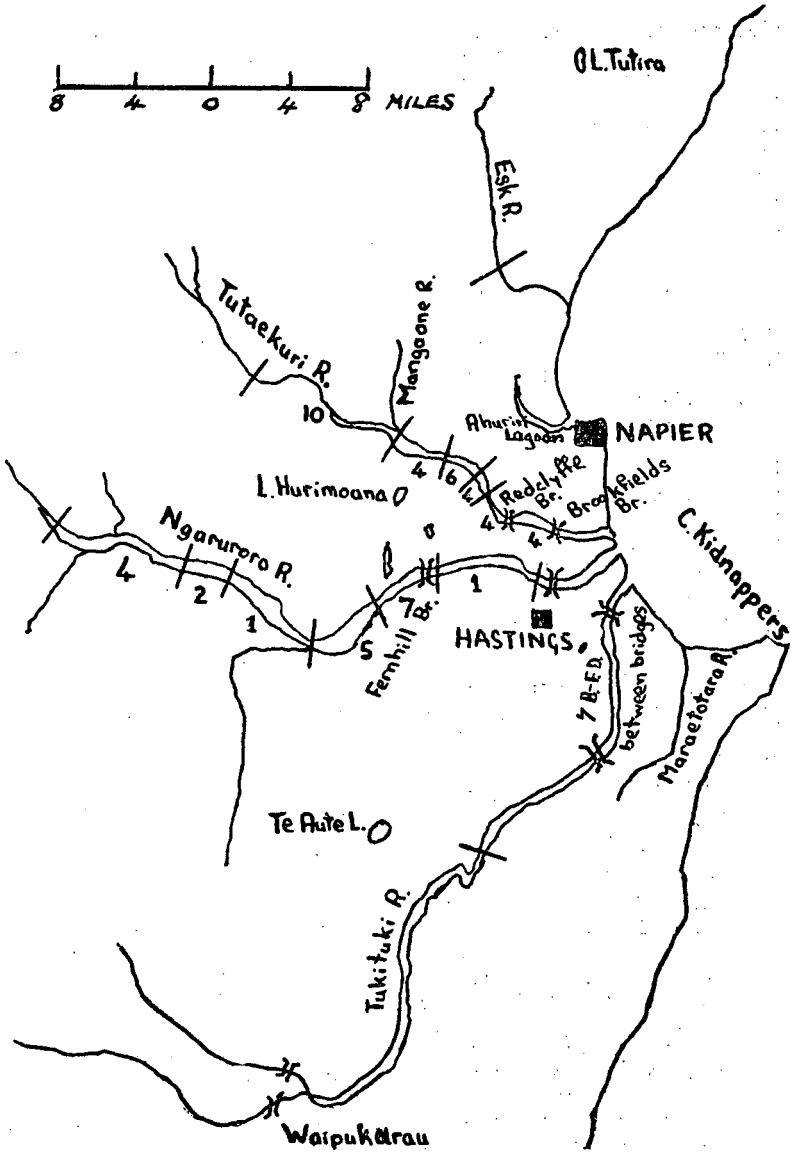
However, perhaps the most satisfying event was the decision to hold a Field Study Course in Hawkes Bay and to devote the major part of the time to a census of this "new" dotterel. In all, 31 observers took part in this study and completed a thorough traverse of the lower reaches of both the Tutaekuri and Ngaruroro rivers. There was no time to spare for a search of the Tukituki river but this was later covered by Mr. and Mrs. E. J. Trollope and myself. The traverse of the latter river completed a survey of all the rivers, streams and lakes in this part of the district from and including the Maraetotara in the east, the Tukituki and Ngaruroro rivers to the hills in the west, the Esk river to the North and Lake Tutira.

The counts for these areas are as follows: Tutaekuri 63; Ngaruroro 39; Tukituki 7; Total 109.

A noticeable feature of this colonisation by Black-fronted Dotterels has been their restriction to riverbeds and the larger rivers at that. There are numbers of small stony bottomed tributary streams, lakes and marshes in the district but apart from Lake Hurimoana they seem at the moment to show no interest in such places. This is a feature which seems rather surprising when one reads of their wide range of habitat in Australia but is perhaps an indication of the early stage of their colonisation here and a lack of population pressure.

The riverbeds so far occupied are characterised by their moderate to swiftly flowing waters with gravelly bottoms, flowing between wide beds of dry shingle which is sparsely covered with vegetation. They are subject to periodic flooding and seldom retain their courses for more than a season. The three main rivers of this part of Hawkes Bay, while serving a large catchment, all enter the sea within a short distance of each other. This, plus the fact that the Ngaruroro and Tukituki in their lower reaches are near Pakowhai little more than 1½ miles apart, offers an easy means of interchange and spread for local water-birds.

The 1961/62 season was apparently very favourable to the breeding of this species. The climatic conditions were equable with no floods and with a steadily dropping water level, which resulted in many land-locked pools along the river margins and much shallow water; perfect conditions for a large increase in the insect population. During this period the 2½ miles of the Tutaekuri river between the Redclyffe and Brookfield bridges were closely studied. This stretch held four pairs of birds which reared fifteen young, so it is evident that in a good year the natural increase can be significant.



Distribution of Black-fronted Dotterels in Hawke's Bay, 1962
(Figures indicate breeding pairs)

Adult birds, once mated, appear to be rather sendentary. The original four pairs remained in their breeding territory throughout the following winter and have again reared their young within a few yards of last year's nests. There is, however, a certain amount of flocking

after the season, when flocks of ten to twelve birds are not uncommon. Also noticeable at this time has been a gradual extension of range upstream, probably a normal dispersal of young birds as no more pairs have become established in the study area. Breeding evidently follows the Australian pattern (Hindwood and Hoskin, *Emu* 54, 232) in occurring over a long season. We have not been able to pinpoint the date of earliest and latest laying, but have found nests with full clutches in mid-September while a chick less than a week old was seen by Mrs. Trollope on the Ngarurоro on 26/3/63. Also B. D. Hankins and myself, while watching a family group on 9/2/62 noticed the adults copulating, the breeding season evidently being a long one. Eggs are laid on shingle beds generally ten to thirty yards from the water, the nest itself being a mere depression lined with tiny stones and a few pieces of dried vegetation. The cryptically coloured eggs lie loosely in the nest and we have seen several that have been cracked presumably through rolling against stones projecting into the nests. The incubation period is at present unknown. There is some evidence that three clutches are sometimes laid, three eggs being normal early in the season and two eggs in the third clutch. On one occasion four young were seen in a family group, see (*Notornis IX*, 269). The family pattern seems to be strongly developed. In the first couple of weeks after hatching both parents are in constant attendance on the chicks and even after the young become fledged at least one adult accompanies them at all times. The other adult forages further away, returning at intervals and at the latest just after dusk, when a series of churring calls is exchanged, while the returning bird is in the air.

When predators such as Harrier and Black-backed Gulls are overhead, the chicks freeze and are apparently invisible but the adults pay little attention. When forced to fly the whole family group merely moves a little distance upstream or down, and resumes feeding or resting.

Nests are not difficult to locate, once the mating territory is known. The incubating bird, it may be either male or female (pers. comm. G. J. H. Moon), leaves the nest when the observer is anywhere from 30 to 100 yards away and quietly walks away among the shingle. On its return it follows a devious path through the shingle and, if suspicious, will move away again and sit down elsewhere. Once convinced the situation is normal it will return more or less circuitously, look around and sit down on its nest. When incubation becomes well advanced the bird will often attempt to decoy the observer by deliberately showing itself while slowly leaving the nesting area, fluttering a wing and spreading its tail feigning injury. When the young are hatched this performance becomes even more impressive, the chicks will freeze, while nearby the parent flutters an apparently broken wing so energetically that the white underside of the body is often completely exposed; at the same time the tail feathers are widely spread to show the white outer margins and the bird commences a feeble cheeping. The adult seems to be quite willing to keep this up as long as the observer can endure it. It has not been possible to identify the food taken but it seems to be small aquatic insects at or near the water's edge.

There is a substantial difference both in appearance and habitat between this Australian dotterel and the Banded Dotterel (*C. bicinctus*). Smaller in size, Black-fronted Dotterels are generally found close to the

water's edge. They appear to be rather indifferent to the presence of humans and it is sometimes possible to walk well within a chain of them. They have a rather frustrating habit of turning their stern towards one when they realise they are being watched. The characteristic bobbing of the dotterel is well developed. If disturbed when feeding they run very swiftly away along the water's edge and at these times the body is held very nearly horizontal, not at all like the upright stance of the Banded Dotterel. The overhead circling flight of the latter when disturbed is also completely absent, while the call is much lighter in tone. The black primaries are very noticeable in flight and offer immediate and positive identification while the flight is more irregular and undulating.

Reference to the map will show that this species has not attempted to occupy the lower areas near the rivermouths. This may be on account of the brackish waters there, but is most likely attributable to the relatively unsuitable river margins, grassy banks on the Tutaekuri and high willow trees along the banks of the Ngaruroro. The highest populations at the moment are on the wide shingle banks of both rivers upstream from Fernhill and Brookfields bridges respectively with a steadily increasing distance between pairs as they move upstream, the last birds being found at Ngaroto on the Tutaekuri and Whanawhana on the Ngaruroro.

It is not clear why the Tutaekuri population should be so much larger than that of the Ngaruroro. The former is a smaller riverbed carrying less water with a much more evenly distributed population of Black-fronted Dotterel. The Ngaruroro is larger and much more turbulent, as two of the senior observers found out, and has a much more concentrated breeding area for a smaller number of Black-fronted Dotterel. It also has a much larger number of Black-backed Gulls *(L. dominicanus)*. 2125 as against 34 were counted and it was noticeable that as the number of Black-backed Gulls increased the number of Black-fronted Dotterel and Banded Dotterel decreased sharply. This may, of course, be coincidence and it is hoped that when a further census is taken in a few years' time, the position will be clarified.

The Tukituki river is evidently in the very early stages of colonisation with only seven known birds occupying a very large stretch of riverbed. This appears to be a very suitable area as it carries a large number of Banded Dotterel, a factor which generally seems to indicate that an area will be suitable for Black-fronted Dotterel. Both species seem to live amicably in the same areas with no evidence so far of any inter-specific rivalry. Nests of the two species have been found only ten feet apart. On this occasion it was noted by Mrs. Trollope that the Banded Dotterel appeared to be more aggressive and occasionally flushed the other species from the nest. However, the eggs were successfully incubated.

It would not have been possible to obtain such an overall knowledge of the *melanops* population without the co-operation of the members of the Society during the Labour Week-end Course in October, 1962. The rivers searched were traversed from the sea upstream to such a point where it became obvious that it would be most unlikely that any more *melanops* would be found. The actual searching was carried out by parties of two or more people, each party being led by an experienced member.

The opportunity was taken of making a complete count of other river inhabiting birds seen during the entire traverse. This census has been recorded in full detail by species for each section of the rivers and will form a most valuable basis for future studies.

I would like to offer my sincere thanks to the members of the Society who helped take the census and also to Mr. B. D. Hankins for much patient observation during the breeding season. Thanks are also due to the many landowners who gave permission to cross their properties during the census.

A CONDENSED CENSUS OF RIVER INHABITING BIRDS ON THE TUTAEKURI AND NGARURORO RIVERS

From the rivermouths to Ngaroto and to Whanawhana respectively, 20th and 21st October, 1962

Species	*Tutaekuri*	*Ngaruroro*
Black-fronted Dotterel	63	39
Banded Dotterel	372	514
Pied Stilt	274	323
Bar-tailed Godwit	–	3
White-faced Heron	8	7
Black Shag	21	18
Little Shag (a) Little Pied	6	–
(b) White-throated	16	9
Canada Goose	–	3
Grey Duck/Mallard	24	56
Paradise Duck	71	111
Shoveller	2	7
Black-backed Gull	34	2125
Black-billed Gull	4	–
Red-billed Gull	–	–
White-fronted Tern	–	–
Caspian Tern	1	–
Pukeko	–	3
Pipit	20+	12

★

INDIVIDUAL AND SOCIAL BEHAVIOUR OF THE SOUTHERN BLACK-BACKED GULL

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Zoology Department, Victoria University of Wellington

INTRODUCTION

This paper presents some of the results arising from a two-year study of the general biology of the Southern Black-backed Gull *(Larus dominicanus)* in the Wellington area, in particular the roosting and breeding colony on Somes Island in Wellington Harbour. Aspects discussed include the principal calls and postures, hostile behaviour, roosting and general flock activities and some inter-specific relationships. An attempt has also been made to throw further light on the relationship of *L. dominicanus* to its northern hemisphere relatives. Though purely a southern hemisphere species, the closest relatives of the Southern Black-back lives in the northern hemisphere, forming the complex inter-breeding assemblage of subspecies of the Herring Gull

(L. argentatus) and the Lesser Black-backed Gull *(L. fuscus)* Of the two northern species *L. fuscus* is most closely similar to *L. dominicanus* in plumage, but comparison of the literature on *L. argentatus* and *L. fuscus* with the observed behaviour of *L. dominicanus* described below shows that as far as breeding behaviour is concerned no significant differences can be detected between the two northern species and the southern species. Although the relative degrees of relationship of the three species have been in dispute, results of this study indicate that in the use of the two alarm calls, *L. dominicanus* resembles *L. fuscus.* This is in agreement with the findings of White (1925) who studied all three species (plus the Great Black-backed Gull *L. marinus*) in the field and decided the similarities between *L. dominicanus* and *L. fuscus* are closer than those between *L. dominicanus* and *L. argentatus.*

Generally speaking, young gulls join roosting and feeding flocks as soon as they leave the breeding areas, but most of the principal calls and postures are not performed until the age of about six months (or in the case of some calls, two years) has been reached. Calls and postures associated only with breeding are of course given by breeding birds alone, i.e. birds four years or older (or possibly some birds at the end of their third year). Numerous immature birds, i.e. usually those at the end of their second or third year, display some of the calls and postures concerned with pair formation, but these performances are brief and incomplete.

Within the southern hemisphere the Southern Black-back has representation on all major land masses including Antarctica. In New Zealand the gull may be recorded virtually anywhere (except perhaps some of the highest parts of the Southern Alps) and it is one of the most obvious birds along the coast. It is the largest of the three gulls in New Zealand (the other two being the Red-billed Gull *L. scopulinus* and Black-billed Gull *L. bulleri*) and as well, is numerically strong and commanding of attention by virtue of its contrasting plumage, strident call and noisy scavenging behaviour. No coastal town in New Zealand is without its population of gulls, which line the wharves and flock around rubbish dumps, but which are equally at home when resting on beaches, searching for grubs in a ploughed field, or paddling many miles inland in the upper reaches of a river. We are confronted then with a bird which is well known to many people by sight and reputation, but about which only a few brief works have been published.

In 1938 Steinbacher observed the breeding behaviour of the following six species in a Berlin aviary: Herring Gull, Lesser Black-backed Gull, Great Black-backed Gull, Glaucous Gull *(L. hyperboreus),* Laughing Gull *(L. atricilla),* and *L. dominicanus.* Although non-breeding, *L. hyperboreus* and *L. dominicanus* exhibited the same pair forming behaviour as the first three mentioned species, and Steinbacher concluded that there were no behavioural differences between any of the species. In the course of a short discussion of the relationships of some Ethiopian and Palaearctic birds, White (1952) was unable to detect any "obvious differences" in behaviour between *L. fuscus* and *L. dominicanus.* Harris (1954) recorded that in *L. dominicanus* the male usually calls "Kaloo Kaloo," while the female call "Kla Kla Kla Kla," much the same as a hen. This information is not in agreement with the findings of all other observers and is inexplicable in view of the fact that both sexes have the same calls save only for

the male copulation call. Darling (1938), Paludan (1951), Tinbergen (1935 and later works) and others have, after intensive study, found that the behaviour patterns of *L. argentatus* and *L. fuscus* are practically identical, and the results of this study have shown that the behaviour of *L. dominicanus* is so close to that described for these two species that any differences are of degree rather than kind. Following recent comparative studies on the behaviour of South American and Pacific Laridae, Moynihan (1962), in a brief statement, agreed with Steinbacher (1938) that the behaviour of *L. dominicanus* is very similar to that of *L. argentatus* and *L. fuscus*, and considers the same range of hostile and sexual behaviour patterns occur in *L. dominicanus* and *L. argentatus* "in almost exactly the same social situations, with approximately similar (but probably not always identical) frequencies."

Study of the behaviour of the colonial nesting Southern Black-back is made complex by differences between individual voices and the circumstances of the moment which often cause variations in the intensity of the principal calls and postures. Because of interference from neighbouring birds, those pairs nesting in the middle of a group of breeding gulls suffer more interruptions than those on the edge, and thus observations of behaviour were made as far as possible on those pairs nesting near the edge of a group.

The nomenclature used is that of Tinbergen (1953, 1960 a) and Moynihan (1956) except in the case of calls of alarm and attack. In order to help interpret the changes of pitch involved in some of the major calls, use has been made of the musical stave (see Fig. 1) and in this respect the author is grateful for the advice of Prof. D. G. Lilburn, Music Dept., Victoria University of Wellington. Since individual voices vary in pitch no purpose is served by indicating the clef (i.e. treble or bass, etc.) for each call but this has been described in general terms in the accompanying text. The advantage of this system of illustration over the use of phonetic symbols alone is that the "form" of the call is immediately discernible. Moynihan (1956 and 1958 a & b) used diagrams of a similar type in describing the calls of several North American gulls.

On the first occasion in which an animal or plant is introduced into the text, the accepted common name (if in existence) as well as the scientific name is given, but on subsequent occasions (excepting cases where ambiguity may arise) only the common name is used. In addition, the use of the word "gull" refers to the Southern Black-back unless otherwise stated.

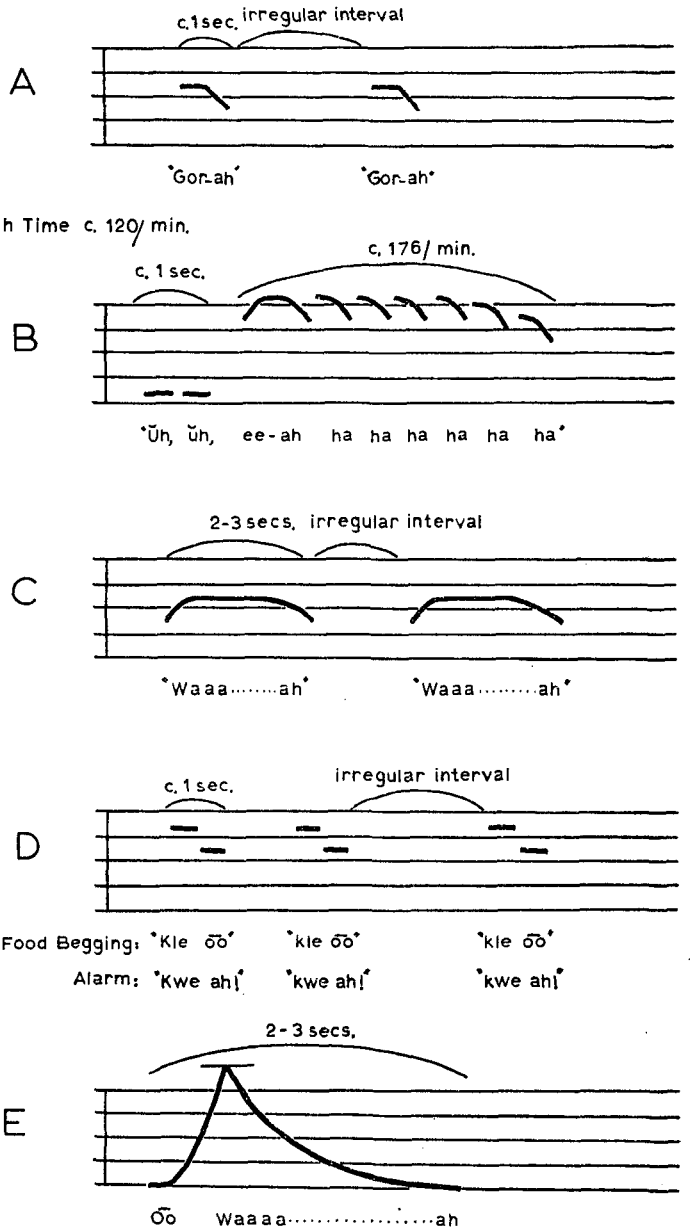
CALLS AND POSTURES

A — *GENERAL AND PAIRFORMING*

1. *The Call Note* (Fig. 1a)

This call is a single, sometimes repeated, hoarse sounding "gor-ah ! gor-ah !" heard occasionally throughout the year, from birds two years of age and older but mainly from breeding adults. It is a non-contagious cry given by a breeding bird sitting or standing in a "relaxed" posture (Plate 1A), alone or with its mate, in or near the nest, and if answered, the mew or long call (described below) may be used. When giving the call, the head is thrust forwards with the neck straight, and then bent slightly down just as the call is emitted, but the manner of delivery varies slightly. A male was observed to

Change in Pitch of Some Calls



A — Call note; B — Long call; C — Mew call; D — Food-begging and alarm call; E — Charge call

give 10 call notes, then break into a long call. In view of the sound emitted, and the attitude adopted, it is considered that this call may represent a low intensity form of the long call. Paludan (1951) has interpreted this call in the Lesser Black-back as "an expression of loneliness for an absent partner," and Tinbergen (1953) records that the cry is contagious in the Herring Gull but does not consider it to be a method by which individual gulls keep in touch with each other. Evidences either for or against these assumptions are scanty in the Southern Black-back, but lone flying birds occasionally give a call sounding rather like the call note.

2. *Oblique-cum-Long-Call* (Fig. 1b)

This very contagious cry is heard throughout the year, but especially in the breeding colony which is continually swept by it. Fledglings one to two months old defend food with a tremulous scream which is a juvenile form of the long call, but most do not develop the call until late in the first year, up to which time their efforts are squeaky and incomplete. An almost complete long call was heard from a gull some five months old. In most instances the gulls give the call as a challenge, e.g. in the course of defending food, themselves, or chicks from others, but it is also one of the initial displays of pair formation. The first soft notes of the call are given with the beak partly opened and tilted slightly downwards. The head is then bent down under the chest so that the beak almost touches the ground. A high pitched note is sounded, then the head is snapped up and a series of loud cries are given with the wings drooped slightly and the whole body shaking at every fresh cry. The complete call (Plate 2A) sounds like "uh, uh, ee-ah-ha-ha-ha-ha-ha-ha," and is the most commonly used call in gull flocks. Stead (1932) describes it as a musical "kaloo-kaloo-kloo-kloo . . ," the last syllable being repeated several times.

3. *Facing-Away*

This is a form of recognition which often occurs when one member of a breeding pair lands beside its mate. One or both birds will, with the body slightly tensed, turn the head away from the other so that the two birds look in opposite directions (Plate 1C). While this happens their bodies may be side by side or facing one another. After this they may commence preening, mewing or head-tossing. It is not known at what age facing-away is first exhibited but it probably occurs only in birds of breeding age. This posture has no associated call, and is similar to the "erect posture" of *L. atricilla* (Noble and Wurm, 1943) but it is not mentioned by Paludan (1951) for the Lesser Black-back, and only indirectly in the Herring Gull by Tinbergen (1953) as when the female of a forming pair approaches a male in the food-begging attitude, the male "may stretch himself . . . looking around he seems to be in search of potential opponents." However, Tinbergen (1960 a & b) has described the posture in both the Lesser Black-back and Herring Gull as one of appeasement during pair forming ceremonies.

4. *The Mew Call* (Fig. 1c)

This is a non-contagious, wailing, drawn out "waaaaah," given with the neck extended and the head pointed slightly downwards (Plate 2C). It is usually given by a bird walking slowly towards the nest or its mate, and never on water (c.f. choking and long call).

It is used in courtship, nest-relief, and calling the chicks to food or shelter, and is given by birds two years of age and older. Tinbergen (1960 a) states that mewing is a threat posture in the pair forming ceremonies of Herring Gulls.

5. *Choking*

Choking is an action concerned mainly with nest building (and nest relief), but also with aggression, and sounds like "wo-wo-wo-wo-wo- -." It is observed in birds two years of age and older. It may occur on land or sea, when a bird is sitting, standing or walking by itself or with its mate, and is contagious to a certain extent. As a bird begins to "choke" it leans forward and the chest and floor of the mouth are lowered so that the throat seems swollen, and the head and chest move rapidly and rhythmically up and down for several seconds accompanied by the above call, which rises and falls in pitch (Plate 2B). Choking is a threat posture of low to medium intensity (as will be discussed in the section on hostile behaviour) and when used in aggressive circumstances is no different in appearance to non-aggressive choking. An observation of choking used in aggressive circumstances by both male and female is as follows. The male of a pair was incubating with the female sitting nearby, when a strange male approached the female, mewing as he did so, and causing the female to choke. Suddenly she stood up and walked over to the nest, whereupon the resident male sprang from the nest, choked vigorously, then drove the strange gull away.

6. *Food-Begging (Head-Tossing)* (Fig. 1 d)

This is a non-contagious soft fluty cry sounding like "kle-oo, kle-oo," heard when females are begging food from their mates, and also prior to copulation (Plates 3A & B). Head-tossing (but not feeding) is seen occasionally throughout the year, and occurs from nearly two years of age onwards. When begging food, the female moves to the male, tossing her head upwards, at the same time emitting the food-begging call. The male responds with similar head-tossing and calls. The female's solicitations show great variation of intensity — she may, between flicks of the head, peck frantically at the male's beak, chest, feet and the ground, while head-tossing can vary from actually hitting the male under the chin with the head, or throwing the head up so that the beak is vertical, to small upward movements of the beak from the horizontal. Generally head-tossing in the male is of the last mentioned type. The male responds to these insistent advances by walking to and fro as if to avoid the female, and by sinuous sideways movements of the head. His neck swells, and suddenly a lump of food is regurgitated which the female greedily consumes, often reaching into his beak, the sooner to grasp it. Occasionally the pair may share the food, and sometimes the male may regurgitate food with no prompting from the female, in which case she walks slowly to the food and eats it in a leisurely manner. Once a female was seen to regurgitate food, which the male consumed, however her action was not prompted by head-tossing, but was probably a disgorging of indigestible food fragments. By the time small chicks are present in a nest all copulatory activity has been abandoned (some four weeks previously), but females with small chicks have occasionally been seen begging food from the male.

7. *Male Copulation Call.*

This non-contagious call is given by the male only during copulation, and is a rapidly repeated "cor-cor-cor," which as copulation progresses, becomes a louder, harsh sounding "car-car-car." Gulls two years of age have not been seen to copulate, though they exhibit other breeding behaviour, albeit briefly and incompletely, and it is considered that complete copulation would not occur before the end of the third year, which in some cases may be the first breeding year. Copulation is usually preceded by head-tossing, following which the male mounts the female, beginning to call as he does so. The male's wings begin to flap slowly and he moves backwards from the shoulders of the female. Immediately before copulation his tail begins to wag from side to side, and is thrust to the right or to the left under the female's tail, fanning out as it does so, (Plates 3C & D). The male remains mounted for about one and a half minutes, during which time copulation occurs an average of five times. Ten to 50 seconds may elapse after mounting before the first copulation. While copulating, the female may flick her head upwards, or peck gently at the male's chest and beak. It was found difficult to recognise a constant post-copulation display except that, as Tinbergen (1953) mentions for the Herring Gull, the birds usually preen after a while. However the birds have been seen to adopt the face-away attitude, commence food-begging, or look at their feet. A curious post-copulation display (which was probably displacement in nature) occurred as follows: After a successful copulation, the male dismounted, adopted a crouch position and began to choke vigorously, at the same time wagging his tail from side to side. He then stood, gazed at his feet, and wagged his tail a second time. Armstrong (1947) states that "among gulls of various species" the sight of a pair copulating, the utterance of sex calls, and food-begging arouses aggression in neighbouring gulls. As yet there is no evidence to support this view in the Southern Black-back, and Tinbergen (1952) when referring to the Herring Gull states that "coition is done not only on the territory, but also in the flock and is very rarely interfered with."

B — *ALARM AND ATTACK*

Before describing these calls, it is necessary to mention certain differences in the alarm calls of gulls closely related to the Southern Black-back. Darling (1938) stated that the patterns of display in the Lesser Black-back and Herring Gull are very similar, and Paludan (1951), who found the "display and notes" identical in the two species, gives as the notes of alarm and anxiety for both species:

(a) Hee-ow, or Kee-ow. (b) Gah-gah-gah.

He considers that (b) "is fully developed in both species, although it may be heard most often from the Herring Gull," but does not describe the conditions under which each call is used. Tinbergen (1953) states that although both species have the same calls, their thresholds are different, and he describes the charge call of the Herring Gull as a modification of the "keew - -," and the alarm call as a "hoarse, rhythmic 'hahaha - hahahaha!'" These are the same two calls mentioned by Paludan, but Tinbergen goes further to say that Herring Gulls react to intruders with the "hahaha" call, mingled with occasional "keews," whereas the Lesser Black-backs usually give the "keew" call, and utter the "hahaha" call only rarely.

The alarm calls of the Southern Black-back are in themselves identical to those described for the two above species, but comparison with the literature indicates that in frequency of occurrence they are closer to those of the Lesser Black-back than to those of the Herring Gull.

1. *Alarm Calls*

The posture of an alarmed bird is one associated with preparation for flight. Plate 1B shows a slightly alarmed bird, which even at that stage shows a strikingly different posture to that of a resting bird (Plate 1A). There are in effect two alarm calls used, and separation of the two by degree of intensity of alarm is difficult at present, but further work will probably throw light on the matter.

The first alarm call (the anxiety call) is mostly given by breeding birds which are usually in flight, and is a chattering, slightly contagious "ha ha haha." Stead (1932) and Oliver (1955) describe the call as "kok-kok-kok," and "ha-ha-haro," respectively. The second call (the alarm call Fig. 1d) is given mainly on the ground, but also in flight, and is very contagious. It is a loud, repeated staccato "kwe-ah, kwe-ah . ." which causes all the birds to stretch their necks, look about, and take to the air uttering the same cry. The call does not develop until the second year, but chicks of two to three months in the company of adults, give a hoarse squeaky cry while circling above an intruder in the colony. Chicks only give the cry if the adults start first, i.e. chicks never initiate an alarm, and under normal circumstances away from the breeding colony and night roost, they do not sound an alarm. The alarm call is common throughout the year and is thus not restricted to the breeding season to the same degree as the anxiety call. Sheep that moved close to nesting birds were met with this cry, which at such times was not contagious, even in those birds which could not see the sheep, yet if a human appeared, all birds eventually left the ground, including those that could not actually see the danger. This was probably due to the fact that in the case of the sheep, no other birds took up the cry thus keeping general alarm at a minimum.

It was found repeatedly that a nesting pair would utter the alarm call when the nest was approached, but often break into the anxiety call for the length of time that was spent very close to the nest. On leaving the proximity of the nest the alarm call would be taken up again. The use of the anxiety call in this manner was more noticeable towards the end of incubation and when brooding small chicks, and although sometimes given on the first awareness of danger, it is more common for it to be used when a pair becomes deeply distressed about the safety of their eggs or chicks. It seems logical to conclude that the "kwe-ah . ." alarm call expresses greater alarm than the anxiety call does, since it occurs far more frequently, is much more contagious, and is thus more efficient in a colonial species. But since a modified version is used when attacking a predator, it must express an aggressive tendency that is not associated with the anxiety call. For this quite valid reason Tinbergen (1953) used for the alarm calls of the Herring Gull, different names to those chosen here, and the relationships of these names are as follows:

Anxiety call ("ha-ha-haha") = alarm call (Tinbergen).

Alarm call ("kwe-ah . .") plus charge call (described below) = charge call (Tinbergen).

The names of course relate to different species in which, as stated above, the various calls of alarm are developed to different extents, and it therefore appears likely that the expression of general alarm in the Southern Black-back, both at breeding and non-breeding times has been largely taken over by the "kwe-ah" alarm call.

Apart from the two alarm calls just described, there is one further sound, the status of which however is not fully understood. This sound is a muffled moan which is often given by a few birds at the instant a roosting flock is disturbed. The moan passes rapidly through the flock, being emitted by some, but not all birds, and is accompanied by rustling sounds as the heads of sleeping birds are withdrawn from beneath scapular feathers, and wings are shaken slightly. Moaning and rustling sounds are followed almost immediately by the ("kwe-ah -") alarm call, and the birds begin to fly off. Perhaps the moaning sound has no signalling importance and does not serve to warn other members of the flock, but on the other hand any cry emitted in essentially the same manner by numbers of birds must be given considerations as possibly having some releaser value.

2. *Charge Call* (Fig. 1e)

The charge itself takes place only during flight, being directed at a predator which is close by the nest, and the associated call is the alarm call modified towards aggression. It is not heard outside the breeding season. The charge call is a non-contagious sudden piercing scream sounding rather like "oo-waaaaah!", and is emitted directly above the predator as the gull dives down upon it. At the climax of the call the gull may strike the predator with its beak, feet, or a wing, and may draw blood.

C — *HOSTILE BEHAVIOUR*

The term "hostile behaviour" follows Moynihan (1956), and is used to include all intra-specific behaviour produced by attack and/or escape motivation. Fighting in defence of territory or brood occurs constantly amongst the gulls, and may result in the death of one of the participants. In addition, the adoption of some threat postures can be seen in flocks throughout the year. The use of choking as a threat posture of low to medium intensity has already been mentioned, but there are several other postures used in aggressive circumstances which are now described in approximate order of increasing intensity.

1. *Hunched (Submissive Posture)*

This is an appeasement posture seen very often in immature birds, and sometimes when females approach their mates, but it is also a threat posture of low intensity with no associated call, and is usually witnessed in a bird guarding food. The neck is withdrawn, the shoulders are hunched with the feathers slightly ruffled, and the bird walks "stiffly" round the food it is guarding. If other gulls approach, the upright posture (described below) is assumed, and they are driven away.

2. *Forward*

This posture is not well known, but when adopted the head is lowered and thrust forwards. It has been noted only a few times, in defensive circumstances, without a call, e.g. if a gull adopts the upright threat posture, the bird for whom this action is intended may assume the forward position, after which it will move away. Tinbergen

(1960 b) however, describes the posture in the Herring Gull as one of aggression often associated with a call which is a "muffled version of the long call."

3. *Upright Posture*

This is usually a posture of greater intensity than choking. It has no associated call, and unless a gull commences to choke, is the first attitude assumed when a neighbouring gull trespasses on the territory of another, or approaches too close in a general flock. The bird about to attack draws itself into a tense pose, with the wings held high against the body, the neck extended, and head bent slightly downwards so that it appears to be looking at the ground. The upright posture is sometimes directed against intruders such as small birds and sheep, as well as other gulls. In the case of other gulls, it may be preceded by choking, and usually in all cases it leads to a charge, which may eventuate in grass pulling, or actual combat. Adoption of this posture is sufficient to cause a trespassing bird to become alarmed, and if pressed, take to flight.

4. *Grass-Pulling (Pecking-into-the-Ground)*

This threat posture which has no associated call, is commonly resorted to when a strange gull, or the owner of a neighbouring territory, does not flee at the sight of the upright posture, or choking. The attacking bird eventually charges the other with wings slightly raised, and either closes with it, succeeds in driving it away, or begins grass-pulling. Grass-pulling is a threat posture of high intensity, and consists of pecking and tugging strenuously at grass plants, shrubs, rocks or handy objects, (Plate 4A).

5. *Fighting*

Between periods of pulling at grass, the gulls may strike at each other with their beaks, attempting to grasp whatever part of their opponent is handy. Usually the beak or a wing is caught, and then each bird settles back to tug with wings flailing the air. Heavy blows (Plate 4B) are delivered with the wings whenever opportune, until one bird manages to break away. During a fight the females stand nearby, occasionally choking or mewing, and sometimes chasing other birds. A "dog-fight" may develop amongst the onlookers because several territories are violated at once. Birds have also been seen grass-pulling as a threat posture directed at sheep which have approached too close to the nest or chicks. Feathers plucked out or broken off during a fight are not eaten, but are shaken off the beak. Tinbergen (1952 & 1956) considers territorial fighting in the Herring Gull is a means of spacing out nests, and ultimately the cryptically coloured offspring, consequently mass slaughter by a predator is made more difficult. When a gull is being beaten, it often gives broken "distressed" cries, but on one accasion an adult that was being badly beaten was heard to give the long call, and Tinbergen (1953) mentions having heard what he names the alarm call used in similar circumstances in the Herring Gull. While a fight to the death amongst adults was not seen, several battles were observed where participants emerged with smears of blood around the beak, and numerous corpses were found, as well as dying birds (Plate 4C), suffering from severe and bleeding wounds to the scalp and neck. Scores of chicks are killed by adults in exactly the same way, i.e. by pecks to the back of the head. It is

considered that the killing of adults is the result of mob attacks on a strange bird, and it is significant that several of the injured and dead adults found had broken wings, so that presumably, escape was hindered. Vigorous fighting in the Ring-billed Gull *(L. delawarensis)* has been described by Moynihan (1958 a), in which sometimes serious physical injuries are inflicted; feathers torn out, blood drawn, and eyes gouged.

During pair forming ceremonies the male may attack the female, following her food-begging or mewing advances. Such attacks are infrequent and usually consist of pecking at the female's head, neck, or wing and tail tips. However a most vigorous and prolonged fight between a male and female was seen in September, about one month before laying commenced. The fight lasted about five minutes and left both birds exhausted. Noble and Wurm (1943) mention several cases of sexual fighting in the Laughing Gull and the Herring Gull, where minor clashes have occurred between the members of a forming pair.

Fighting, or at least sparring, develops at an early age, i.e. as soon as chicks of one brood come into contact with chicks of another brood. Only one case of aggression within a brood was recorded as follows: Mr. R. Mander reported (pers. comm.) that he discovered a nest with two small chicks in which the third egg, though about to hatch, was covered at its big end by the shell of one of the other eggs. On removal of the third chick from its shell, the first two chicks attacked it. Very small chicks can be induced to aim pecks at an extended finger as if it were the beak of a parent, and on occasions they make half-hearted pecks at food fallen from their parent's beak. Since very small chicks are not readily frightened, the action observed by Mr. Mander was probably not one of displacement, but merely the misidentification of food.

FLOCK BEHAVIOUR

A — *ROOSTING AND AWAKENING*

On Somes Island the gulls roost over almost exactly the same area as is used for nesting during the breeding season, except that they tend to concentrate in relatively dense flocks comprising several hundred individuals in a few open and fairly level places, including the lighthouse vicinity, and the east, west, and south-west beaches. Over the rest of the area in which roosting occurs (i.e. predominantly steep slope areas) the birds are scattered in gullies and on slopes, amongst scrub and under trees, so that strictly speaking they are not in compact flocks. The limited banding results so far available show that at least some birds consistently return to the same spot to roost (and nest).

From late afternoon onwards, i.e. from about two and a half hours before sunset, gulls begin to arrive at the island to roost for the night, the first birds usually wheeling slowly about before settling on the water 100 - 200 yards off-shore. Nearly all the birds that arrive join the group sitting on the water, and eventually fly to the land any time after dusk. Sometimes they remain out on the water until the early hours of the morning before flying, practically in mass, to an adjacent roosting site on the island. At other times, especially in stormy weather, they may remain sitting on the water all night, apparently unaffected by waves and spray. The reason for a reluctance to land on the island at such times is not known, but may be correlated

with phases of the moon. Disturbances have a varying affect on the roosting flock — sometimes after the appearance of a predator the gulls may fly out on the water and not return for several hours (if at all), while at other times they may return within a few minutes.

In general the birds usually arrive separately about dusk at a roosting site, either landing directly on a particular spot (especially those birds that appear to be established pairs) or subsequently walking about before settling in a nearby place. Varying lengths of time are then spent preening and looking around so that at least 10 minutes, and usually much longer may elapse before a bird actually sits down. A further period of varying length then passes before the eyes are shut for the last time. Long calling is common when the birds first land, and even occasional alarm calls may be given. Some sparring and general restless behaviour invariably occurs as the flock settles down, but eventually there is general silence broken only by intermittent long calls. The gulls sleep either standing or sitting, with their beaks tucked inside the scapular feathers of one wing, or with the head pointing forwards. Places chosen on first arrival at the roosting site are usually adhered to during the night unless the positioning is upset by one gull chasing another. This is very common during the breeding season, when in fact the roosting flock of as yet non-breeding adults and immature birds is virtually never silent or completely still, there always being some choking, long calling, head-tossing, sparring, etc. The overall effect is that with the continual sparring, the flock is repeatedly drifting, spreading out, and later reconcentrating, so that individual birds are often on the move and thus obtain little sleep. There is also more unsettled behaviour on moonlight nights than an completely dark nights. The distance between individuals in a roosting flock varies according to the terrain, but on flat ground is about three to five feet.

Soon after the first light appears in the eastern sky, some birds take off on brief flights of a few hundred yards, but return again. Members of the flock commence long calling, and the volume of noise rises at a gradually increasing rate so that after about one half to three-quarters of an hour, all birds are active. (In the breeding season this activity includes long calling, choking, head-tossing, etc., and chicks also begin calling soon after first light.) Coupled with the steady increase of noise is an increase of movement such as preening, stretching, sparring, and walking about. Also the birds begin gradually to space themselves out so that they are further away from their neighbours than they were during the night. About one hour after first light birds begin leaving their roosting areas singly, in pairs, and in small groups, to wheel about the island, and there is a continuous noise of general calling. Between one and a half to two hours after first light most birds leave the island in the morning flight. This consists of many individual gulls wheeling over parts of the colony, and gradually drifting in a general direction (mainly northwards along either side of the island towards the harbour shore about two miles distant) so that there is an almost continuous thin stream of birds which lasts about half an hour, leaving the colony in several main directions. Many of the birds land at the Hutt River mouth (where at low tide there are mud-flats, and nearby a large rubbish tip) or close to the outfalls of the two meat-works on the edge of the harbour.

B — *GENERAL ACTIVITIES*

The Southern Black-back is not a completely gregarious species, but does roost, breed, and to a large extent feed in flocks. Colonial existence however is of great importance to the birds, and much of their behaviour, such as that related to defence and courtship, is directed towards, or modified by existence in a flock. Many activities are contagious to a greater or lesser degree; e.g. bathing, feeding, perhaps also paddling (described below), preening and drinking, as well as alarm and other calls, while other activities such as stretching and yawning appear not to be contagious. Many flight movements are made in loose groups, and generally the gulls in a particular area will stand together. However, birds are repeatedly seen singly, or in very small groups scattered along the coastline, and pairs may breed in solitude, so that as stated above the species is not a completely gregarious one.

Soon after sunrise most birds arrive at a feeding site such as a tip, meat works' outfall, wharf, beach, or playing area, where some time is spent in individual activities. These activities include a lot of preening as well as sleeping, inspecting feet, occasional sparring, bathing and simply standing about. At least two kinds of stretching can be seen, both of which are developed in quite small chicks. The first kind is one in which the leg and wing on one side are straightened backwards and slightly downwards as the bird leans forward on the other foot. The other kind is more elaborate but less common than the first: the bird leans right forward on tip-toes, tail and wing tips in the air, wings slightly flexed or flapping slightly, and the head and throat parallel to, and almost touching the ground.

Sparring between members of a flock usually involves only assumption of threat postures such as the upright posture, and chasing; fighting rarely if ever occurs in a resting flock. On the whole, adults are superior to young birds in the flock hierarchy and usually experience no difficulty in obtaining desired food or space, but the position of superiority of second year birds over first year birds is less clearly defined; often a first year bird will successfully challenge a second year bird over some material object. The question of whether an individual hierarchical system exists, superimposed on the general hierarchical system based on age groups remains unanswered at present, but it is possible that such a system does exist.

Bathing ranges from vigorous splashing of the wings and ducking of the head under water, to lifting off the water and plunging in from a distance of one or two feet, to grasp a stick or some object of no apparent value to the bird. This last behaviour is quite apart from diving into water for food such as starfishes or molluscs, for the stick or object retrieved may be turned around in the beak, dropped, dived for, and dropped again, so that the whole performance is repeated several times and seems to be best interpreted as some sort of play. Another activity associated with feeding but not often seen is "paddling," which usually occurs when the birds are standing in very shallow water, or on mud-flats or exposed beds of seaweed, but sometimes on land. When paddling a gull appears to be "marking time," i.e. lifting its feet alternately, pausing every now and then to peer down between its feet, and occasionally peck at something. The action was thought by Tinbergen (1953) to expose small marine creatures so that they might be more easily picked up.

The early morning activities gradually pass into activity mainly associated with feeding which lasts intermittently for several hours. Feeding involves active scavenging in or near rubbish tips, sewer outlets, or places where offal is discharged, as well as rivers, ploughed fields, beaches and shallow water, etc. Usually well before midday the flock gathers at some customary resting place which is often in, or adjacent to, the feeding site, and remains there for a large part of the afternoon. The birds (which may come from several different night roosts) mostly stand about, sleep, preen, or bathe, but no opportunity is overlooked to obtain food, and individuals often leave the flock to resume feeding for a period.

Adverse weather, such as strong winds or heavy rain, modifies all activities, which are either carried on in a subdued manner or otherwise decreased in duration. In a storm the birds are forced to stand head on to the wind so that normal individual and contagious flock behaviour as well as sparring is prevented, but no matter how driving or cold the rain or wind may be, the birds rarely seek shelter Different feeding-sites may be frequented however, and during wet weather gulls commonly visit pasture or grassy areas where they dig for worms. Also roosting may be affected by very bad weather so that many birds spend most, if not all the night, out at sea instead of on land. In the late afternoon before dusk gulls fly away from the flock singly or in small groups, and begin to drift slowly in the general direction of their respective night roosts, which the majority reach about sunset.

General flock behaviour is affected to a large extent by the time of the year, for the reason that the age structure of the flock changes before and after breeding. Since nearly all the adults leave in spring and summer to breed, and return in autumn accompanied by the chicks of the season, conditions are gradually changing much of the time, and are thus relatively constant only during winter. The variable nature of the structure of the flock means that different degrees of intra-specific competition obtain at different times of the year.

SOME INTER-SPECIFIC RELATIONSHIPS

A — *FEEDING AND GENERAL*

Relationships between the Southern Black-back and other species vary to some extent with the individual as well as the age of the birds concerned, but in general all smaller birds yield food or space to the gull. In Wellington Harbour, the only birds to which the gull will regularly concede food or space are the Arctic Skua *(Stercorarius parasiticus)* and the Giant Petrel *(Macronectes giganteus)*, the former being a little smaller than the Southern Black-back, but the latter much larger. (Wandering Albatrosses *(Diomedia exulans)* also frequent the harbour, especially the waterfront, where Secker (1956) mentions that in general they are not disturbed by the presence of gulls). Arctic Skuas may sometimes be seen in the harbour relentlessly pursuing gulls in flight and eventually forcing them to drop the food they are carrying, while at the places where meat works' outfalls reach the surface of the sea, Giant Petrels occupy the central position, lunging about and siezing large pieces of offal. The Southern Black-backs

scavenge in a wide circle surrounding the Giant Petrels, and on the fringe of the whole flock are Red-billed Gulls, so that sheer size determines which species occupies the most favoured place. In the absence of Giant Petrels, Southern Black-backs occupy the central position with Red-billed Gulls still on the fringe of the flock. Species towards which the gulls have on occasions shown markedly aggressive behaviour include:

Black Shag *(Phalacrocorax carbo)* — Mr. L. J. Paul reported (pers. comm.) seeing an immature gull attacking a shag for no apparent reason; the shag did not retaliate. (Mr. Paul also witnessed a display of aggressive behaviour by a group of gulls directed against an Australian Magpie *(Gymnorhina hypoleuca).* Caspian Tern *(Hydroprogne caspia)* — usually the terns yield their position to gulls and sometimes the gulls may deliberately drive them away, but an adult Caspian was once seen to attack a first year Southern Black-back that approached too close. Red-billed Gull: Southern Black-backs are invariably successful in competition with Red-bills for food or space, and the smaller species moves quickly aside for the larger on every occasion. Sometimes there is actual persecution, and Southern Black-backs have been seen deliberately chasing Red-bills when no food was at stake. Young Southern Black-backs are not so intolerant as adults, and first year birds join and apparently accompany flocks of Red-billed Gulls. In comparison with mixed flocks of Southern Black-backs, Caspian Terns and Red-billed Gulls which may not be without minor conflicts, flocks of Red-billed Gulls, Caspian and White-fronted Terns *(Sterna striata)* have been observed where all species are mixed together quite amicably.

Rock Pigeon *(Columba livia)*: In city areas these common birds are often forced to yield food to Southern Black-backs, and like the Red-billed Gulls, may be harassed for no apparent reason. The mixed flocks of sea birds that are often seen following schools of fish may comprise species such as Cape Pigeon *(Daption capensis),* Red-billed and Southern Black-backed Gulls, White-fronted Terns, Subantarctic Diving Petrel *(Pelecanoides urinatrix),* etc., all of which fish independently so that conflict over food it not pronounced. Also small birds including the House Sparrow *(Passer domesticus),* Chaffinch *(Fringilla coelebs),* Goldfinch *(Carduelis carduelis),* Starling *(Sturnus vulgaris),* Rock Pigeon, etc., have been seen fossicking quietly amongst tidal debris in the vicinity of gulls, which have displayed no interest in their presence.

Species which appear to be almost completely ignored by the gulls include the North Island (Variable) Oystercatcher *(Haematopus unicolor),* one pair of which even nested unsuccessfully in the 1961-62 season near gulls on Leper Island in Wellington Harbour; Mallard Duck *(Anas platyrhynchos);* Paradise Duck *(Tadorna variegata)* (a female was seen to walk through the middle of a flock of gulls unmolested, and a first year bird stepped out of its way); Blue Reef Heron *(Egretta sacra)* (a small group of gulls plus two herons were seen fossicking at the water's edge within inches of each other — neither species paying any attention to the other.) Although gulls may tolerate the presence of the Blue Reef Heron, they are apparently intolerant of egrets, and Jenkins (1962) briefly describes a Little Egret *(Egretta garzetta)* being closely pursued by an adult gull.

B — *ROOSTING*

Apart from the Southern Black-backs, Somes Island forms an important night roost for thousands of Red-billed Gulls and Starlings, as well as Northern Blue Penguins *(Eudyptula minor)* and a few Black Shags. (The penguins and some Starlings also breed on the island.) Starlings roost in the shelter belts of *Cupressus macrocarpa,* Taupata *(Coprosma repens),* etc., as well as the tall *Olearia* scrub near the top of the island, and the penguins occupy burrows and caves mainly near the shore, so that in effect neither species comes in contact with the Southern Black-backs. Large flocks of Red-billed Gulls roost during autumn and winter on rocky headlands and stacks, and on some of the lower slopes of the island. Most of the places occupied by the Red-bills hold at least some pairs of Southern Black-backs during the breeding season (except some of the rocky stacks) so that it might be assumed in the absence of Red-bills that the other species would roost in those places. However, the two species keep largely to themselves, and although on some slopes the edges of the two flocks may be in close proximity, there is virtually no dispute over roosting areas. A small number of Black Shags often roost during autumn and winter on Shag Rock (off the south end of the island), but appear not to associate with the gulls in any way.

C — *BREEDING*

During the breeding season intolerance towards all other animals increases markedly so that sheep and even small birds such as House Sparrows, finches and Starlings are driven away from the vicinity of the nest, and Harriers *(Circus approximans)* are chased by numbers of birds. On the other hand, two pairs of North Island (Variable) Oystercatchers were seen once to fly quite low over parts of the colony without evoking any discernible response from the gulls. Small birds (i.e. small passerines) form an important part of the diet of some chicks, as do tadpoles of *Hyla aurea* (which are common during summer) and skinks *(Leiolopisma zelandica),* geckos *(Hoplodactylus pacificus),* and perhaps Field Mice *(Mus musculus)* are possibly caught and killed by the gulls. Occasional visits ashore by an Elephant Seal *(Mirounga leonina)* during the 1961-62 season roused no antagonism in the gulls, but human activity readily caused disturbances.

SUMMARY

The closest relatives of the Southern Black-back are to be found in the northern hemisphere, amongst the interbreeding assemblage of subspecies of the Herring and Lesser Black-backed Gulls. The limited available literature taken together with the results of this study shows that as far as gneeral behaviour is concerned, no significant differences can be detected between the three species, but features of the alarm calls indicate that the Southern Black-back is related rather more closely to the Lesser Black-back than to the Herring Gull. General, pair-forming and hostile calls and postures have been outlined, and roosting and some aspects of general flock behaviour described. Most birds with which the gulls are in contact will concede food or space, notable exceptions being the Arctic Skua and Giant Petrel.

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(To be continued)

FAREWELL SPIT IN SEPTEMBER

By B. D. BELL and D. V. ZUMBACH

The opportunity of a day's visit to Farewell Spit on 19th September, 1962, gave us the chance to compare the wader populations at that time with those described during the more extensive censuses in January, 1961, and May, 1962 (*Notornis,* Vol. 9, No. 5, and Vol. 10, No. 2). It was most fortunate that the visit co-incided with the arrival of birds from the northern hemisphere and we saw some species still in breeding plumage.

The observations were made while we walked from the base of the spit out to the lighthouse over the peak of the rising tide. This must have reached maximum about 12.30 p.m., while we were about the Six Mile. By the time we had reached the Eleven Mile the tide had fallen sufficiently to enable the birds to return to the inner flats for feeding. Beyond this signs of big flocks having roosted were seen, but they are not included in the numbers given. The figures given in the classified list can be taken as considerably below the actual number present.

LITTLE BLUE PENGUIN — Fresh tracks were seen but no effort was made to estimate numbers.

SHAGS — A few Black Shags were seen and White-fronted Shags were very numerous. No attempt was made to count these.

WHITE-FACED HERON — Very common. No count made.

ROYAL SPOONBILL — Four seen in the exact spot where they were recorded in May, that is Seven Mile.

BLACK SWAN — These were found breeding in small numbers from the Three Mile pond to about the Five Mile. The breeding season appears to be rather drawn out as some swans already had cygnets in their second week, while freshly laid eggs were found in nests. Cygnets 2/6, 1/4, 1/3, 1/2. Nests with eggs, 1/4, 1/2, 1/1. Four empty nests were seen. There were obviously more nests than this about, but time did not permit an extensive search. However, it was considered that the number of nests was low in proportion to the resident population.

GREY DUCK — About 20 seen.

MALLARD — 18.

SHOVELER — 11 feeding on inner saltings.

HARRIER — Not as numerous as might be expected and only about four were seen throughout.

WESTERN WEKA — Numerous, the whole length of the spit.

SOUTH ISLAND PIED OYSTERCATCHER — 750+. This probably represents a high proportion of the population present at this time, These would be immature birds which had not returned to the South Island river-beds for breeding.

BLACK OYSTERCATCHER — About 16. These were scattered among the previous species.

GREY PLOVER — Two single birds were seen at the Seven Mile and Nine Mile respectively. Both were in breeding plumage although one was beginning to fade. Grey Plovers in breeding dress have not been seen before in New Zealand. The birds were extremely

quiet and may have been recovering from their long migratory flight. One called strongly when put to flight; the call is well described in the "Field Guide to Waders," by Condon and McGill.

BANDED DOTTEREL — Only about 50 seen and none appeared to hold territories.

NEW ZEALAND DOTTEREL — One at Six Mile.

WRYBILL — Two amongst small waders at Six Mile.

LONG-BILLED CURLEW — 37. This appears to be the biggest concentration seen in one area in New Zealand. They were seen in three flocks, 15, 21, 1, in the Eight-Ten Mile zone.

BAR-TAILED GODWIT — About 8,000, with the main concentrations in the Eight-Ten Mile zone. Evidence of more birds having roosted further up seems to suggest the main body had already arrived.

GREY-TAILED TATTLER — One seen at Six Mile. It called when flushed and so confirmed identity. It is very likely the bird present during the winter count.

TURNSTONE — Only about 50 seen, many in breeding plumage. It was fairly evident that the full influx of this species had not occurred.

KNOT — 10,000+. As with the Godwit, it appeared as though most of the population of this species had arrived.

CURLEW SANDPIPER — One at Six Mile in full eclipse plumage.

RED-NECKED STINT — Four at Nine Mile associated with Godwit and Knot, all in extremely pale plumage.

PIED STILT — 10, all near the base of the spit and not extending beyond the Six Mile.

GULLS and TERNS — Little effort was made to check populations of these species and the following estimates are given: Black-backed Gull 200+; Red-billed Gull 100+; Caspian Tern 30+.

KINGFISHER — Three near base of spit.

PASSERINES — No record was kept of these.

CONCLUSION

We were most fortunate in striking a favourable tide, both in time and height and this no doubt gave us the successes we achieved. We were also favoured with an exceptionally fine and windless day, a rare phenomenon at the Spit. To visit the Spit at a time when migrants were returning from the north was also very opportune, the most significant observation being the relative absence of Golden Plover and Turnstone, which had apparently not reached the area in any numbers. This would seem to indicate that their migration was a little later than that of the other species and it would be interesting to know if this was general throughout the country.

With present knowledge of Farewell Spit, visitors, by studying data published to date and the tides, can expect to find many interesting waders, even on a short visit. However, to do a comprehensive count or study it will always be necessary to use a large team of workers.

[By courtesy of N.Z. Herald

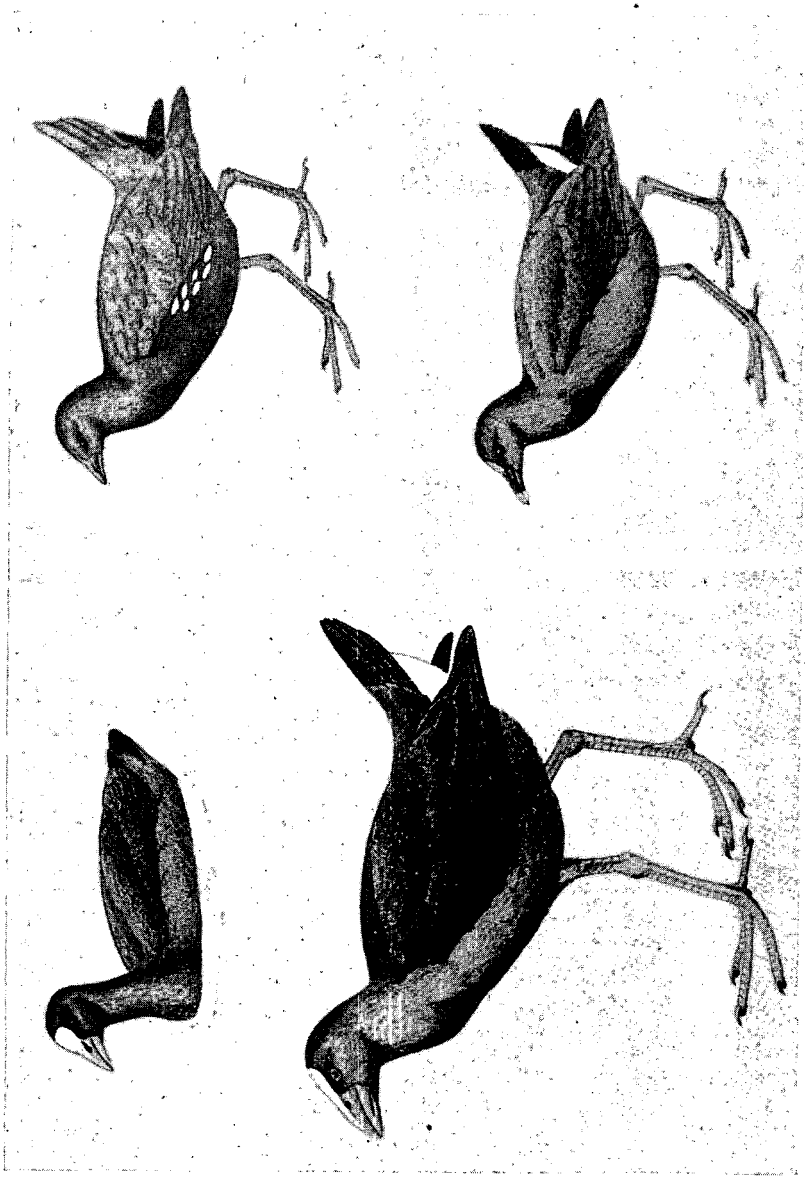
XVII — Manukau Harbour now seems to be a regular wintering ground for a few Royal Spoonbills **(P. regia).** Three of six which appeared in early May, 1963, near Puketutu.

[M. F. Soper

XVIII — South Island Fernbird **(Bowdleria punctatas)** at nest in rushes near Takaka.

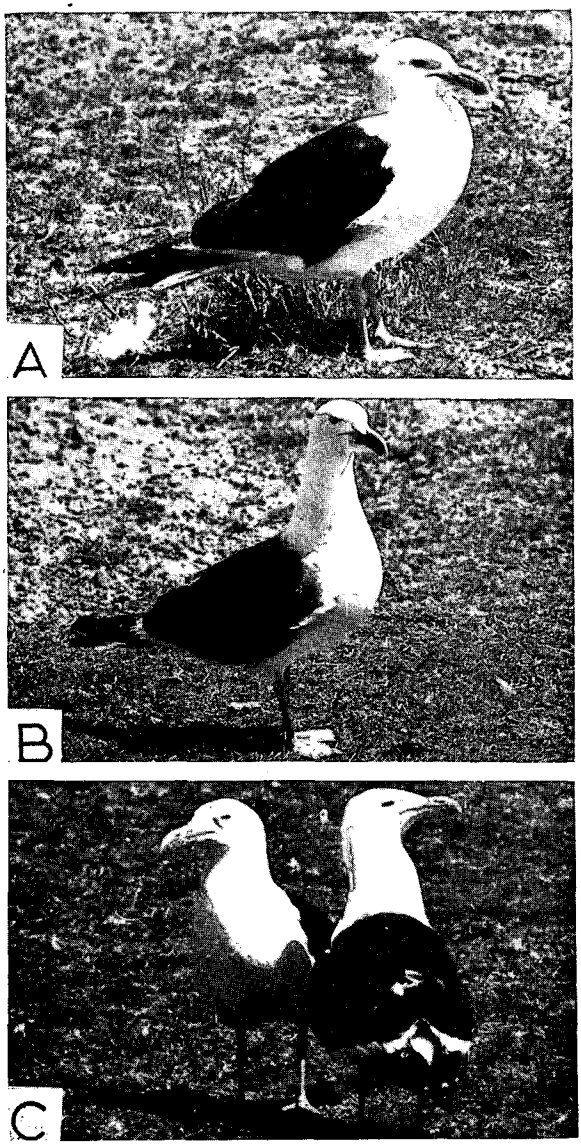
[M. F. Soper

XIX — A pair of Fernbirds at another nest under umbrella fern near Takaka.



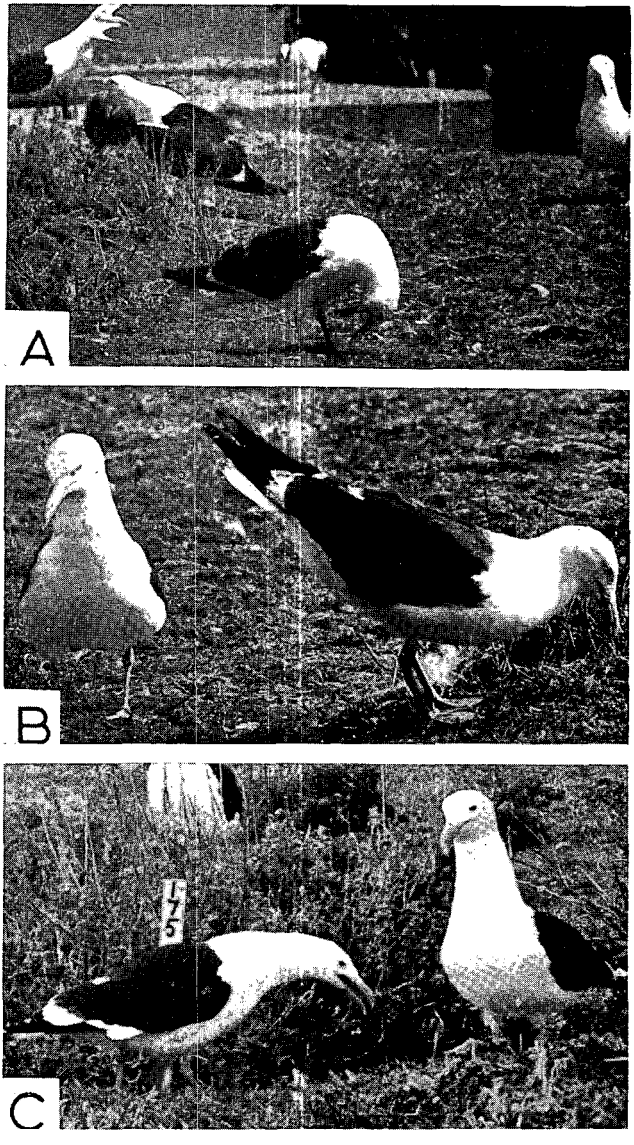
[Drawn to scale by D. H. Brathwaite

XX — Top Left: Coot
Bottom Left: Pukeko
Top Right: Black-tailed Waterhen
Bottom Right: Australian Dusky Moorhen



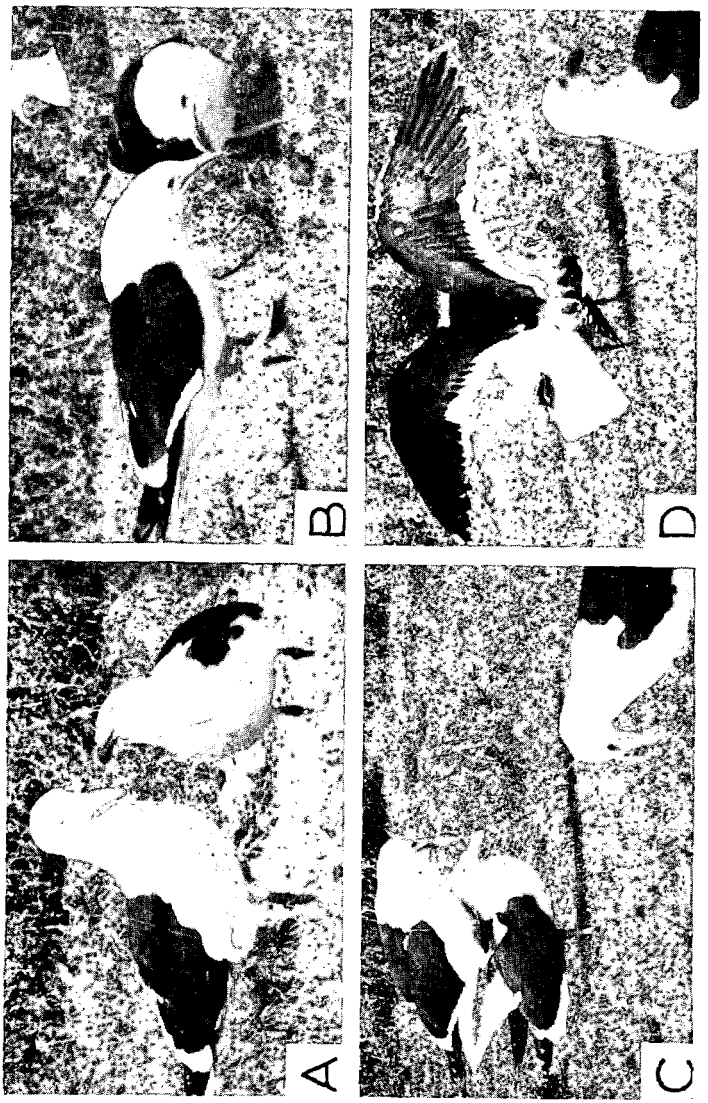
[R. A. Fordham

XXI — 1 (a) "Relaxed" posture; note withdrawn neck. (b) Slightly alarmed bird; note upthrust neck and alert expression. (c) The face-away attitude.



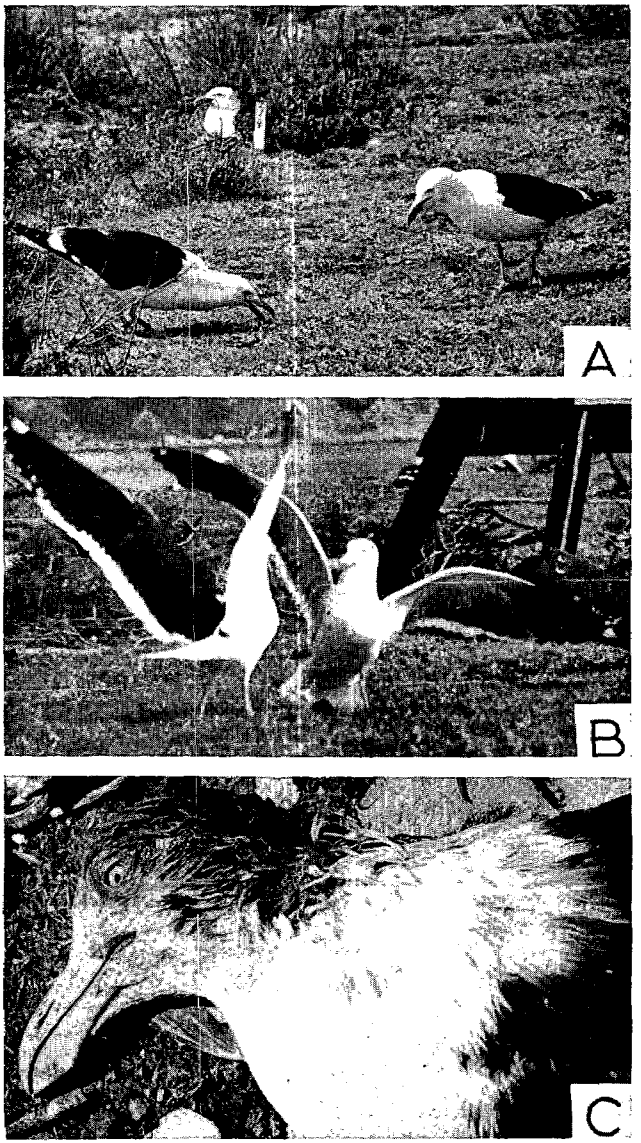
[R. A. Fordham

XXII — 2 (a) Long call. The bird on the right is about to start; the one in the foreground has commenced and will adopt the final position shown by those on the left. (b) Choking; note lowering of the floor of the mouth. (c) The mew call.



[R. A. Fordham

XXIII — 3 (a) Food-begging or head-tossing; the female is on the right. (b) Male feeding female; note swollen neck and foot raised with the effort of regurgitation. (c) Male mounting female for copulation. (d) Copulation: note the lack of interest of the nearest bird.



[R. A. Fordham

XXIV — 4 (a) Grass pulling. The bird on the right is about to lunge forward and commence grass pulling. (b) Wing blows being delivered during fighting. (c) Adult male severely injured but still alive, after attacks by other adults.

ANOTHER RECORD OF THE BLACK-TAILED WATERHEN IN NEW ZEALAND

By D. H. BRATHWAITE

Among those Australian bird species which have occurred, or are alleged to have occurred in New Zealand, the records of the Black-tailed Waterhen *(Tribonyx ventralis)* are among the less well documented. Thus, though the following record dates back some six years, details seem worth publishing. The long delay was occasioned, in the first place, by the hope of discovering how long the bird remained in the locality, in the second by the desire to prepare an illustration, and in the third by the mislaying of the relevant field-notes, the most vital of which I have only recently found.

The bird was first seen on the Tukituki riverbed, about 1 mile below Patangata, by Mr. I. Joll, of Havelock North, when he was pheasant-shooting during the first week-end of May, 1957. On Sunday, May 12, with Mr. Joll and Mr. and Mrs. P. M. Roberts, of Hastings, I visited the locality and it was not long before we found the bird. Mr. Joll had thought it to be related to the Pukeko *(Porphyrio porphyrio)*. Apart from the Takahe *(Notornis mantelli)* and the Pukeko, the only gallinules likely to occur in New Zealand are the Coot *(Fulica atra)*, Dusky Moorhen *(Gallinula tenebrosa)* and the Black-tailed Waterhen *(Tribonyx ventralis,)* of which I had seen the latter only once in Australia in 1951, but the first two on several occasions.

The somewhat nervous behaviour and quick movements of this bird prevented me from determining the exact colour of the bill, beyond being satisfied that it was too small and not pale enough to belong to a Coot (apart from the fact that that species seems rarely to be seen on land). Mr. Joll noted the legs as orange-red, and the bill as greenish; according to Mathews & Iredale (*Manual of the Birds of Australia,* 1921, p. 206), the legs of the Black-tailed Waterhen are coral pink and the bill apple-green, the base of the lower mandible orange. The *wholly black under tail coverts,* and the white spots on the flanks also agreed with the descriptions of the Black-tailed Waterhen. The under-tail coverts in the Moorhen are *black in the centre and white at the sides; the colour of legs and bill vary according to age and* sex. I was thus left in no doubt as to the identification. On subsequent visits during 1957, I could not find the bird, though tracks in the mud suggested that it was still present. In October, 1958, Mr. Joll informed me that he had seen the bird again in the same place during the preceding winter.

Although the nomadic habits of the Black-tailed Waterhen would perhaps make it a more likely visitor to New Zealand than the apparently more sedentary Moorhen, the latter appeared to me to be sufficiently common in southeastern Australia for a straggler to turn up in New Zealand, and it is with this possibility in mind that I have prepared the accompanying drawings (Plate XX), to uniform scale, of Pukeko, Coot, Black-tailed Waterhen and Dusky Moorhen.

SHORT NOTES

WELCOME SWALLOWS NESTING IN HAWKES BAY

I wish to record the first known nesting of the Welcome Swallow *(Hirundo neoxena)* in Hawkes Bay. Having been informed that Mr. Roy Baker, of Taihape, had sighted what he believed were two swallows near Waipukurau, Mr. N. B. Mackenzie, his son, Roderick, and I went to look for them on 25/11/62.

At Arlington Station we met a Mr. Chapman, who directed us to a small wooden bridge on the farm. After we had flushed a pair of Welcome Swallows from under the bridge, we found a nest attached to one of the stringers. It contained four eggs, which we checked for size, colour and markings.

As soon as we withdrew, the Swallows returned and spent some time flying above the bridge. Then after passing under the bridge a number of times, they settled back at the nest.

On 10/12/62 we checked the nest, which now held two chicks, just hatched, and two eggs still unhatched. Unfortunately this brood must have come to grief when later the stream came down in flood. After the flood abated, we inspected the nest and found debris inside.

B. D. HANKINS

★

ADELIE PENGUIN FROM MARLBOROUGH COAST

While walking along the coast to Long Point, which is three miles north of the Flaxbourne Rivermouth, to band Black-backed Gull chicks on 22/12/62, Mr. J. Cowie and I found the dried corpse of a strange penguin. The corpse was taken home and after consulting Oliver's "New Zealand Birds" (1955) we decided it was an Adelie Penguin *(Pygoscelis adeliae)*. Dr. R. A. Falla confirmed this identification when the remains were forwarded to him, and pointed out that it was an adult.

Owing to the activities of the Americans and others in Antarctica there is the possibility that the bird had been tossed overboard from a ship. This was not overlooked and the bird was examined closely to see any possible marks that would indicate that it had been held in captivity. Nothing could be found and it was especially noted that the tail was in perfect order. This would indicate that it had not been held in captivity as the tail feathers would probably be the first to be affected by wear or other damage.

Although there must always remain a margin of doubt it appears that this could well be the first New Zealand mainland record of this species and in fact possibly the most northerly record in the world.

S. R. KENNINGTON

[According to Serventy and Whittell, Birds of Western Australia, 1962, p. 72, 'the two supposed Australian occurrences should be held on the "suspense" list.' — Ed.]

★

MONGOLIAN DOTTEREL AT KARAKA

At 9.30 a.m. on 8/1/63, when there was a small high tide, I was doing a routine patrol of Kidd's Beach and the Karaka shellbanks which are situated near the south-eastern corner of the Manukau

Harbour, when I noted a small wader which was new to me. It was running about the beach at the edge of a flock of 113 Wrybills *(A. frontalis)*.

I classified the bird as a dotterel owing to its behaviour and general appearance; but it was too small to be either the New Zealand Dotterel *(C. obscurus)* or the Large Sand Dotterel *(C. leschenaulti)* both of which had been present and frequently observed from earlier in the season. It was more the size of a Banded Dotterel, but its prominent black eye and chubby black bill singled it out as another species. I also noted its white throat, chest and underparts, a light brown-grey back, and in flight a white line across the tail and faint white bars across the wings. At home I identified it as a Mongolian Dotterel *(C. mongolus)* from Condon and McGill's "Field Guide to Waders," 2nd ed. It agreed well with M. J. Hogg's description of the one at Farewell Spit *(Notornis,* IX, 154) and with D. H. Brathwaite's drawing therein, except that there was not such a narrow strip of grey extending partially across the upper breast, but a broader band ending abruptly. It was seen on further occasions as follows:

Jan. 25: In similar circumstances as above.

Feb.: Seen on two dates by D. A. Urquhart and others and identity practically confirmed. Size, colour of back and other features were particularly noted in comparison with Wrybills, New Zealand Dotterel and Banded Dotterel, which were all in close proximity.

March 13th: Seen by Mr. and Mrs. L. C. Shailer and H. R. McKenzie, when it was in loose association with Wrybills, New Zealand Dotterels and Banded Dotterels on Kidd's flat, a close-cropped semi-maritime field. *C. mongolus* and *C. leschenaulti* were a few yards apart and less than twenty yards from the car. H.R.McK., having studied the Farewell Spit bird, had no hesitation in confirming the identification.

March 26th: Seen closely in the field again by Mrs. Bridges, H.R.McK. and myself. *C. mongolus* and *C. leschenaulti* were again only a few feet apart, the latter finally chasing the smaller bird away.

March 30th: Sighted again for the last time, in the field. *C. leschenaulti* was not present.

It was very fortunate to have these two rare dotterels so close together as they are very similar and not easily identified on their own. During the period of observation neither bird showed any extension of the grey on the side of the upper breast, or increase in colour elsewhere.

JULIETTE URQUHART

★

MARSH SANDPIPER IN THE FIRTH OF THAMES

The second Marsh Sandpiper *(Tringa stagnatilis)* to be recorded in New Zealand was found on 28/4/63 near the mouth of the Waitakaruru Creek in the Firth of Thames. The weather was calm, mild and cloudy but visibility was good. An 11ft. tide had been predicted for 11 a.m. As Warwick Douglas and I set out to walk along the saltings which extend between the Kairito and Waitakaruru Creeks, the water was already lapping the salicornia and most of the waders had been driven off the tidal flats, so that parties of Godwits, Knots and Pied Stilts could be seen on the wing inland over the Hauraki Plains. A large freshly ploughed paddock, handily placed near the sea-wall, and

such as often attracts waders during the big tides, was being patrolled by Harriers *(C. approximans)*. A restless flock of Wrybills *(A. frontalis)* estimated to contain 2000 birds, flew this way and that seeking a suitable place to settle. When we reached the Waitakaruru rivermouth, we found that the only waders to survive the big tide in a secluded bay were six Long-billed Curlews *(N. madagascariensis)*.

After the ebb set in as soon as the first wet mud was exposed parties of waders, which had been ranging or resting inland, began to appear and start feeding. As one loose flock of Pied Stilts dropped over the sea-wall, I heard a single call, reminiscent of a Greenshank's 'chew' but much softer, and a smallish brown-gray and white wader, with long legs trailing far beyond the tail, swept past quite low and settled just beyond the salicornia about 100 yards away where some Pied Stilts were already feeding. As it swerved I had noted the white on its back and so confirmed my first impression, based on size and long trailing legs, that it was a Marsh Sandpiper. It was in no desperate hurry to feed, for on alighting among the busily feeding Stilts it tucked its bill under its wing and appeared to doze. There was no difficulty in approaching within about two chains. When it was alerted its bill was seen to be long, fine and straight; and its general slightness beside the Stilts was very evident. Its breast was flecked with spots which appeared as a brown smudge on its otherwise white underparts. Finally, in order to see its diagnostic flight-silhouette, we walked it up again. It flew with the Stilts and quickly settled further out on the mud, for the tide was now dropping fast.

It is almost four years since the first Marsh Sandpiper to be recorded in New Zealand was found in Manukau Harbour (*Notornis* VIII, 125-126). The ecological preferences of the Marsh Sandpiper in New Zealand seem to be very much those of the Pied Stilt.

R. B. SIBSON

★

THREE REPORTS OF TATTLERS

(A) *PORT JACKSON*

During a camping holiday at Port Jackson, on the tip of Coromandel Peninsula, my son, Christopher, and I became familiar with a solitary snipe-like wader which we saw almost daily along the beach between 21/12/62 and 1/1/63. The following description is from notes made while actually watching the bird: Upperparts uniformly dark grey; underparts light-grey; white stripe above eye; legs yellow, beak black, long and slender, about equal in length to tarsus. It would fly gracefully low over the water and we could not help noticing its call, a pleasant two-note bubbling flute-like whistling (a minor third, I think) reminiscent of the sound made by a childhood toy known as a Swanee whistle — one filled with water. The call was repeated in quick succession five or six times at a stretch during the low flight. On my return home after consulting friends and books, I realised that the wader which my son and I had had the opportunity of observing so often was a Tattler.

SYLVIA REED

[To distinguish between the two forms of Tattler in winter plumage is very difficult. On the evidence of Mrs. Reed's detailed description of the call, this tattler was of the Alaskan form *(incanus)* rather than of the Siberian *(brevipes)*. — Ed.]

(B) — *NAPIER*

During a visit to the Ahuriri Lagoon on the morning of 13/1/63 I was observing a flock of Bar-tailed Godwits *(L. lapponica)* feeding on the tidal mudflats to the seaward side of the railway embankment. My attention was attracted to a bird which appeared noticeably smaller. The light was poor with a glare coming over the water as the sun rose. In the few moments available before the flock flew I could only see that this bird had yellow legs, grey breast and a white under-belly.

On 15th January I returned, this time with a key to the other characters of birds with yellow legs. The bird was seen again briefly and indistinctly, but it was not until 20th January that I succeeded in getting a really good look and description as follows:

Size, 2/3 of Godwit. Bill, straight black with horn colour at base. Breast, grey, changing abruptly to white on the belly. Legs yellow. Throat, white, extending to side of head. Back, mantle and crown, ashy grey. Eye-stripe and eye, black. Primaries appeared slightly darker on edges.

This description tended to convince me that it was a tattler and this was confirmed by watching its feeding habits.

In company with Godwits it was searching in shallow water for small crabs. These it held by the leg and shook until the body dropped into the water. The leg was then swallowed and the body retrieved, the process being repeated until the body was finally swallowed. When feeding it would sometimes run rapidly along the water's edge and, when searching, it moved its head continually.

The tattler was shown to R. B. Sibson on 23rd January. It was not possible on any occasion to determine the length of the nasal groove. It was rather a silent bird. But once or twice when it rose it uttered a single call, like that of a Pacific Golden Plover, but much softer; on the strength of which it was judged to belong to the Asiatic form *brevipes*.

This tattler has not been seen at Ahuriri since early February. Although its general characteristics and feeding habits agree so well with the bird seen at Waikanae by I. G. Andrew (*Notornis* X, 67-72) it showed no sign of wanting to perch on any of the logs or sticks that were available. During the three weeks it stayed here it could nearly always be found within 300 yards of the first sighting. When not resting it moved actively near the water's edge and remained in a rather loose association with small flocks of Bar-tailed Godwits. If these were not in the area it appeared to be quite content to feed and rest in solitude.

It should perhaps be mentioned that on 10/11/62 as reported in *Notornis* X, 188, a Wandering Tattler *(H. i. incanus)* was identified at Cape Kidnappers, only some 15 miles away, by the R.A.O.U. members on their New Zealand tour.

NORMAN MACKENZIE

(C) — *LAKE TUAKITOTO, NEAR KAITANGATA*

On 2/2/63 H.R.McK. was studying what appeared to be a Red-capped Dotterel *(C. ruficapillus)* when a tattler *(Heteroscelus* sp.) flew in and stood in the shallow water of the muddy lake-shore. Before it flew away across the lake there was time to note its general colour

and the shape and length of its bill. The groove on the upper mandible was not seen, the light being the wrong way. It did not call when it flew.

D.V.M., on 10/2/63, saw and heard at the same place what was most likely the same bird. The call was a short burst of even whistled notes; but not enough to indicate whether it was *incanus* or *brevipes*, though the choice of habitat seems to favour *brevipes*. This is the fifth locality in the South Island to produce a tattler in recent years and the most southerly. It is also the only record of a tattler inland and away from tideline or saltmarsh.

H. R. McKENZIE
D. V. MERTON

★

ANOTHER KAIPARA RECORD OF THE LESSER FRIGATE-BIRD

While fishing on 23/3/63, three miles below Moturemo Island on the edge of the Tauhoa Channel, I saw two birds in combat, coming from a southerly direction. As they passed about a chain away at a height of only fifty feet, I saw that one was a Caspian Tern and the attacker a male Lesser Frigate-Bird *(Fregata ariel)*. The tern appeared exhausted and screamed every few seconds. The slightly larger frigate-bird showed flashing white patches under each wing-root and the long forked tail was clearly visible.

The flight continued north with slight zig-zags and undulations for the next half-minute, during which both birds gained considerable height. While still in view they suddenly disengaged, the black frigate-bird making no attempt to gather any disgorged fish, but continuing on course. The Caspian Tern immediately turned west, spread its wings and glided for the South Head. Not once did the frigate-bird miss a wing beat in its heavy labouring flight. It is, indeed, a puzzle to me how a Lesser Frigate-bird can stay air-borne for long on its long thin wings, which resemble razor-straps. It is now just over three years since I saw a Lesser Frigate-Bird's attack on a Gannet *(S. serrator)* in much the same area (*Notornis* IX, 109).

F. P. HUDSON

★

BROWN BOOBY AND GREY NODDY IN NORTHLAND WATERS

On the northern coast of the Takatu Peninsula and seaward of Maungatawhiri Beach, Pied and Little Shags roost in a group of pohutukawas which fringe the top of a cliff. Below the roost on a shelf twenty feet above the high-tide mark, a juvenile Brown Booby *(Sula leucogaster)* may have roosted for some time with the shags. The first notice I had of the bird was on 27/12/62 when there was a sudden, heavy flapping directly above my head. The Booby lost height until it caught the wind. It flew out to sea, but soon returned. When it saw me, it veered away once more. From such close range, with 12 x 50 binoculars, such salient features as the chocolate-brown coloration, the lighter underparts, the long V-shaped white on the underwing and the pale face could not be missed. As it took off, the splayed orange feet and the white on the underwing were particularly striking. A Gannet *(S. serrator)* flying past enabled comparisons to be made. The Booby was slightly smaller and lighter in build. Whereas the Gannet soared

up and down, high then low over the water, the Booby flew straight and low. The shelf on which the Booby was roosting was well manured. A brown feather and fish-bones were present. This Booby was very similar to one seen off Waiheke on 7/9/62 (*Notornis* X, 167), but as far as I can remember, the Waiheke Booby was paler on the abdomen.

While staying at the Bay of Islands, I took a trip to Cape Brett on 11/1/63 and the launch put in at the lighthouse bay to drop supplies. Opposite the light was a flourishing colony of Red-billed Gulls *(L. scopulinus)* and on the outskirts of the colony some White-fronted Terns *(S. striata)* were nesting. A strange bird, the size of a tern, flying over the gulls which were sitting on the rocks just above high-water mark, attracted my attention. It was fairly uniformly blue grey; the tail was forked and the bill was dark. Clearly it was a Blue-grey Noddy or Ternlet *(Procelsterna cerulea)*. I had ample time to watch it, as it flew past the launch about sixty yards away following the shoreline. From time to time it dipped as if to fish, all the while keeping close inshore. Finally as the launch moved out of the bay, the Ternlet passed round the point.

Records of these small tropical noddies in northern New Zealand waters are slowly accumulating. In January, 1954, Major Magnus Johnson sighted one, nine miles north of Cape Brett (*Notornis* VI, 84). The species may indeed be a regular summer visitor to the Northland coast.

M. J. HOGG

★

PREDATORY HABITS OF THE BLACK-BACKED GULL

An interesting feature of the 1962-63 breeding season on Motuotamatea (Schnapper Rock), at New Plymouth, has been the observed predation by Black-backed Gulls *(L. dominicanus)* on White-fronted Terns *(S. striata)*. Schnapper Rock is one of two small islets near Port Taranaki readily accessible at low water, and is a popular breeding ground for a small number of Red-billed Gulls *(L. scopulinus)* and White-fronted Terns. Although in past years, only an odd pair of Black-backed Gulls has been known to nest there, this season saw five pairs nest and breed successfully — one pair on the northwest face and four pairs on the southeast face. Three pairs of these gulls nested together at one end of a small mixed Red-billed Gull and tern colony and it is in this group that the predatory habits were observed.

From 13/12/62 when the first of the Black-backed Gull chicks hatched out, to 27/1/63, a total of 24 terns had been killed. Of these 24, 16 were young birds reared this season (8 had been banded earlier in the season), the remainder being adult birds. In addition to the terns, the mutilated remains of a young Starling *(S. vulgaris)* and an adult Blackbird *(T. merula)* were also found.

Aspects of this predation which arouse interest are, firstly, the fact that in all cases, the young birds killed had all attained the powers of flight. Although there was a significant number of non-flying chicks within the near vicinity of the gull nests, no mutilated carcases indicating a Black-backed Gull attack were found. On 8/1/63, an act of predation was witnessed. The gull swooped on the young flying tern, hitting it in the centre of the back with its extended feet. Before the tern could recover, the gull pecked it viciously in the region of the back of the

skull. The tern then fell dazed onto the rocks below, with the gull following it and there it continually pecked the tern in the head region, eventually drawing blood. Picking up the almost dead bird by the neck, the gull flew back to its nesting area and here further pecking at the head region occurred. When the tern showed no further life, the gull ripped the breast wide open, extracting large portions of the flesh which were fed to the chick. After consuming all the offered food, the chick was then allowed to pick at the remains. Whether or not this method of attack was the same for the more agile adult terns, it is difficult to say, as no such attack was witnessed.

The second point of interest is the comparative indifference shown by the other terns in the whole affair. Only a single pair of adult terns expressed their annoyance by repeatedly swooping low over the gull during the attack.

Thirdly, the 8 young birds killed, which had been previously banded, were all reared in the midst of the small gull and tern colony next to which the Black-backed Gulls nested. Whether or not the other young terns were also from this particular colony, it is hard to tell, but from the evidence of the 8 banded birds, it is highly probable that this is so.

Another characteristic of this predation was the fact that all the dead terns were brought back to the flat rock-shelf in front of the nesting area. Here the remains of all the terns were found and in no other area were other remains found.

Finally it appears relevant to mention that no cases of Black-backed Gulls robbing tern nests of eggs were found or reported seen. All broken shells of tern eggs examined indicated the hatching of a chick, while the odd infertile egg found, usually some distance away from a nest, showed no sign of having been probed by some other bird.

M. J. WILLIAMS

★

RED-BILLED GULLS NESTING IN CLEFTS AND CAVES

Soon after my arrival at Campbell Island in October, 1962, I began banding Red-billed Gulls *(L. scopulinus)* at the jetty and around the hostel, using traps and mist-nets. At the beginning of December their numbers began to decrease till only a few juveniles remained.

On 30/12/62 a trip was made to Middle and Northwest Bays, one of the areas where these gulls are known to nest. About thirty gulls were counted between the two bays. As we traversed the area the gulls uttering their usual cries attacked us in the manner to which I was accustomed on The Brothers' Islands, but nowhere in the open could I see any nests. Walking a little further I noticed a Red-billed Gull emerge from a cleft in the rocks. Here I found a nest containing two chicks about a week old.

On the return trip from Complex Point and Northwest Bay, I inspected all clefts and small caves along the route and so found seven more nests; two with two chicks each, three with two eggs each, and two partly built.

ALAN WRIGHT

SULPHUR-CRESTED COCKATOOS NEAR HUNTERVILLE

In 1907 four Sulphur-crested Cockatoos were brought from Australia to Turakina (near Wanganui) in a wire cage. Apparently overnight the birds clipped through the wire with their strong broad beaks, and flew to fredom, making thir way up the Turakina Valley, inland towards Mangahoe, near Hunterville. The district they chose apparently suited them, because in 1911 there were eleven.

The Turakina river runs approximately south-west through the area. It runs in a fairly wide and deep valley, from which numerous gulleys branch out. The countryside is predominantly hilly, with the only flat-lands near the rivers. Native bush borders the Turakina river and its tributaries and is found on the sheltered sides and floors of many gulleys. Near the farm homesteads are patches of pine, macrocarpa and willows. The dominant trees of the native bush canopy, which the cockatoos frequent are rimu, kahikatea, totara, rewa-rewa, hinau and matai.

Since 1911 they have settled in well, and there are now reputed to be about 400 birds scattered up the Turakina Valley and around Mangahoe.

Farmers in the district have seen flocks of eighty birds strip green trees within a few hours, and small flocks from 6 - 12 birds have been seen inland from Hunterville, near the Rangitikei River.

On 22/8/61 at Mangahoe, we noticed several birds in pairs, suggesting the beginning of the nesting season.

We spent from 14 - 24th January, 1962, trying to trace and understand their nesting and feeding habits. First we attempted to stalk the birds to study their feeding, but for every flock there was a sentry bird whose screeching warning defeated us continually. We found that the only way was to arrive at the macrocarpa trees before them, conceal ourselves and wait. First a bird reconnoitred the trees and settled; later the flock followed. With the aid of a telescope and fieldglasses we noticed the smooth, even majestic method in which the birds fed. By using their strong beaks they plucked the macrocarpa nuts; noisily broke them open and ate the black shiny seeds inside, discarding the shells, so that the ground underneath the trees was littered with them.

According to local inhabitants, the birds choose tall dead kahikatea trees in which to make their nests. We found three such trees containing nests, but could not at any time explore them because of their height and sheer sides. We decided to chop one down to find what the nest was made of and its measurements, etc., but were disappointed in that the tree when cut through stood on the stump leaning against other smaller trees beside it. We did notice that the parent birds made a change-over about every 1¼ hours. A flock of birds would circle around nearby trees screaming and suddenly three or four would leave the main flock and alight on the nesting tree, making no noise at all. After a few minutes one of the birds would begin moving slowly towards the nest hole, sometimes taking three or four minutes to complete the manoeuvre. Suddenly it would duck inside and a few seconds later a bird (whether the same one or not could not be confirmed) would emerge, fly to a dead branch and after preening for several seconds would fly with the other three or four to the main flock, which would wheel several times around the vicinity and flap off to some macrocarpa trees in another valley.

J. S. MARTIN and J. BARTLETT

FLIGHT OF A BUSH HAWK

On 9/10/60 I watched a Bush Hawk *(Falco novaeseelandiae)* flying high over the Mamaku forest near Rotorua in an area which had been worked over and was therefore fairly open. It first went into a long glide with angled wings and then carried out an exercise flight, high in the air; a fairly slow flight alternating with sharp side-slips, shallow swoops and quick lifts. During this flight the Bush Hawk uttered a series of 'hek' notes, not in rapid succession, but singly with pauses between. The same type of flight, with the same call, was repeated about an hour later.

A. T. EDGAR

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UNUSUAL NESTING OF FANTAILS

In September, 1962, a pair of Fantails *(Rhipidura fuliginosa placabilis)* built their nest on a strand of No. 8 fencing wire hanging from a rafter in a woolshed some miles out of Gisborne. The nest was situated about twelve feet above floor level, and about twenty feet from the shed door, which a sympathetic owner carefully kept open for a period of some months. Early in October, the eggs were found broken beneath the nest. The pair then built on top of the old nest and hatched successfully, but it is not known whether the clutch survived after fledging. Re-nesting took place almost immediately, the new nest again being built on top of the old one, and a clutch of five left the nest in mid-December. Shearing had taken place in the meantime, but the parent birds were apparently indifferent to the noise and bustle beneath them. I visited the place on 27/1/63, and found three young birds about seven days old, in a further addition to the nest, which at this stage measured about 6½ inches from the rim to the base, excluding the tail. Insect life was extremely abundant inside the shed, and although the open door was a wise precaution, it appeared that its only function was to provide a final exit for the fledged young.

A. BLACKBURN

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LETTER

On the 8th of April Mr. W. R. Gibson, honorary ranger of the Otago Acclimatisation Society, forwarded to me an immature Spotted Shag *(Stictocarbo punctatus)* which had been shot by an unknown person on the Leith Stream, Dunedin, at a distance of about a mile upstream from the harbour. This bird had been noticed by the local inhabitants to have been in the area for some four days previous to its death. It had been shot with a 0.22 gauge rifle in the wing and leg; neither of these wounds would be fatal, so that death was probably due to shock owing to its inability to move.

Having previously noted a few immature birds of this species at distances inland from the sea, I was curious to know what they had been eating. So I opened the stomach of the bird and carried out an analysis on the contents.

I found no flesh at all in the stomach, which suggested that the bird had remained alive for some time after being shot. There were a number of bones which I identified as coming from a small (5″)

brown trout *(Salmo trutta)*. Also present were 28 fresh water snails *(Potamapyrgus)* and 7 cases of the small caddis *Oxythira albiceps*. These could well have come from the stomach of the trout, since it seems unlikely that a shag would utilise such small food. A notable feature was the presence of three proboscis worms (probably *Corynosoma*). These probably originated from a zone of heavy infestation at the beginning of the intestine, by anti-peristaltic movements of the gut. There were also 58 nematodes living free, parasitically, in the lumen of the stomach.

I would be grateful if any of your readers who have noted the Spotted Shag inland, would inform me. I wish to find out whether the habit of feeding inland is peculiar to the young (all the cases I have seen so far have been immature birds) or whether it is merely aberrant behaviour concerning all ages.

— K. W. DUNCAN

Dept. of Zoology,
University of Otago.
10/4/63

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REVIEW

The Mallee-Fowl (the Bird that Builds an Incubator), by H. J. Frith. Published June, 1962, by Angus & Robertson Ltd., Sydney. Price 35s. Australian.

This is a simply-written, absorbing and authoritative life-history of a bird that is "unique to Australia, and is one of the continent's wonders." The book will have a wide appeal to all naturalists in Australia, New Zealand and overseas. Mr. Frith, who is Chief of the Division of Wildlife Research, C.S.I.R.O., extended his studies of the *Mallee-Fowl over eight years, first as a private week-end activity, and* later as a Departmental project, and has traced in complete detail, with excellent photographs, the bird's amazing nesting habits, up to the stage when the newly-hatched chick fights its way through several feet of sand to the surface of the nesting mound. It is sincerely to be hoped that the book will go a long way towards achieving the main object of its publication, viz. the provision of adequate refuges to forestall ultimate extinction, which is surely otherwise this remarkable bird's fate, at least in N.S.W. and Victoria.

— A.B.

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ANNUAL GENERAL MEETING
Auckland, 24th May, 1963

64 members and friends attended, many having travelled long distances. No less than 12 Regions were represented.

In order to shorten the time spent on formal business, copies of the Society's and Card Committee's accounts were provided for the information of members and Annual Reports were not read in full, but briefly summarised in the President's Address. Full reports will appear in *Notornis* as they are ready for publication.

The President announced that membership had passed the 800 mark for the first time in the history of the Society. Mr. Blackburn outlined the satisfactory financial position and paid a tribute to the work of the Hon. Treasurer and the Card Committee, whose efforts have made a considerable contribution to the Society's assets. He announced that the Library Committee had been strengthened, and on behalf of the Society thanked the Librarian, Miss Evans, and also Misses McIntyre and Bernrieder for their work on behalf of the Society. Miss McIntyre not only worked in the Library but packed thousands of Christmas cards.

Turning to the Nest Record Scheme, Mr. Blackburn commented on the slight improvement in number of contributions and cards received in 1962 but urged members to read carefully the Organiser's report and to support the scheme to the fullest extent in 1963, when colonial nesting cards will for the first time be available.

An interim report of the Beach Patrol Scheme showed that in 1962 weather was favourable to the birds. 39 members patrolled 738 miles of beach and recorded 1425 specimens (1961 figures: 40, 770, 3229). It was stated that under new arrangements Specimen Record cards need only be filled in for specimens which have been measured or retained, but all specimens will appear on Beach Patrol cards: Cards and instructions are available from Mr. B. W. Boeson, P.O. Box 30, Carterton.

Mr. Blackburn announced that Dominion Museum is carrying on the Banding Scheme; a new Advisory Council is being constituted and will include two O.S.N.Z. representatives. Later in the meeting Mr. F. C. Kinsky summarised important results during 1962.

The president briefly discussed progress of the Recording Scheme and preparation of Ornithological Abstracts, and explained that the Checklist Committee had agreed on format, etc., had arranged a plan to collect information on sea birds and rare waders from individuals with specialist knowledge, and had prepared a list of species on which distributional data are required; this list will be widely circulated and information received will be channelled through the Recording Scheme for use by the Checklist Committee. He also announced that preparation of the Field Guide had reached an advanced stage and that it is hoped to publish the book by the end of 1963.

Mr. Blackburn referred to Study Courses held in Hawke's Bay and Southland and mentioned that a number of O.S.N.Z. members had assisted Wildlife Branch in carrying out a recent Brown Duck census at Waipu. He thanked those R.Os. whose work during past year has resulted in a general increase in ornithological activity and the flow of information.

Turning to the future, the President mentioned plans for Labour Day Week-ends at Rotorua and Canterbury and announced Council's decisions to call for applications to join the Society's 25th Anniversary expedition to the Kermadec Group; to create a fund to assist approved minor ornithological expeditions; to take steps to amend the Constitution so that Council may be increased in size and made more representative, and to arrange for a meeting of R.Os. so that their views and ideas can be put forward to Council for consideration. He also announced as a long-term project the preparation of a book on petrels, this to be so planned that it will be useful both to the field observer and the beach patroller.

No other nominations having been received, Messrs. A. Blackburn, H. R. McKenzie and A. T. Edgar were re-elected President, Treasurer and Secretary respectively. Messrs. Chambers, Worth and Chambers were re-elected Hon. Auditors and thanked on behalf of the Society for their continued and valuable assistance. Dr. H. G. Deignan was elected Honorary Life Member in recognition of his donation to the Society of a magnificent collection of separates. The meeting unanimously approved a resolution to send to Dr. C. A. Fleming the congratulations of the Society on his award of the Hector Medal.

After the meeting Mr. G. J. H. Moon showed a series of bird films. In thanking Mr. Moon, Dr. R. A. Falla spoke of the skill and patience which had produced these unique and fascinating studies.

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TREASURER'S REPORT, 1962 - 63

The membership of the Society has reached a figure of 800. Endowment members have increased from 3 to 12 and Juniors from 43 to 64.

With the approval of Council, some changes in accounting have been made, so that we now follow more closely the methods of kindred societies.

Back Numbers of "Notornis," etc.

The different sizes, numbers and production costs have made detailed accounting practically impossible, so a nominal figure of £300 has been fixed for stocks of all such publications and adjustments have been made accordingly. Sales will in future be treated as profits. The offer of £200 made by Mrs. M. McGrath to underwrite a large part of the cost of reproduction of out-of-print and rare numbers and Mr. D. McGrath's offer to see the matter through were gratefully accepted. Sales of Back Numbers had fallen to about £50 per annum, but this year they were £157, thanks to our now being in the satisfactory position of having all back numbers available.

Banding Scheme

The Banding Scheme has been handed over to the Dominion Museum as at 1/4/62. The O.S.N.Z. will make contributions of £78/18/2 to the Scheme for this and the next two years, this being the total of banding stocks at cost price at above date.

Library

The valuation of the Library having become an accounting problem, a fixed figure of £500 has been decided upon for the time being.

Printing and Distributing "Notornis"

Surplus copies of each issue are no longer to be charged to Back Numbers Account. Postage of journal and envelopes used are being charged so that the true cost in this respect is shown.

Mr. B. S. Chambers and his helpers have again had a successful year with the Christmas Card Scheme. Miss M. C. R. McIntyre once more has borne the brunt of the heavy task of making up and despatching the parcels of cards.

In the Income and Expenditure Account for the next two years, expenditure may be expected to be about the same as for this year. After two years any subsidy to the Banding Scheme will have to be made by cash.

We again thank Messrs. Chambers, Worth and Chambers for the voluntary work of auditing the books.

On behalf of the Society and also personally I thank Mr. D. F. Booth for coming forward and taking the new position of Assistant Honorary Treasurer. He is taking a large share in this task.

H. R. McKENZIE, Hon. Treasurer

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REPORT BY CONVENER OF CARD COMMITTEE

It is very pleasing to show that surplus in last year's operations was an improvement on the previous year. We did not produce new designs but instead sold cards used in previous years which had proved popular. As a result of the saving in our blocks for printing, we were able to reduce our price to 5/- per dozen: a move that was well received because we sold more cards than in any other year previously.

Already some surplus funds have been invested in securities and it is our intention to undertake similar investment in the near future. However, it is necessary to keep sufficient cash in hand to finance the coming season's cards. It is hoped that the reduction in overheads can be maintained so that the profits remain at a satisfactory level.

As in past years, Miss M. C. R. McIntyre rendered valuable assistance to the scheme. The task of packing such a vast number of orders is immense and we record our appreciation for her valuable assistance. The support received from the Royal Forest & Bird Protection Society and its members is appreciated, and as usual a donation was made to that Society in recognition of their help.

B. S. CHAMBERS, Convener

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LIBRARY ANNUAL REPORT, 1962 - 63

During the past year, 41 items have been borrowed by members, and 3 by other libraries on interloan. Circulation of journals has continued, and 3 circuits are in operation.

Work is well under way on the collection of separates, etc., donated by Dr. H. G. Deignan, of the U.S. National Museum. 700 have now been catalogued.

I would like to express my very great appreciation of the work of Miss C. Bernrieder, without whom it would not have been possible to get so many of these items catalogued. She has done the typing of all the cards for these, and is continuing with the work.

I wish also to thank Miss M. McIntyre for the assistance she has given. She also has given much of her time to helping with the work of the library.

ENID A. EVANS, Hon. Librarian

BALANCE SHEET AS AT 31st MARCH, 1963

Last Year	Current Liabilities						Last Year	Current Assets					
85	Sundry Creditors	158 15 8					132	Bank of New Zealand	612 15 3			
67	Subscriptions in Advance	90 11 3					444	Post Office Savings Bank	– – –			
40	"Notornis" Index Provision	15 0 0					20	Sundry Debtors	56 9 0			
192				264	6	11	596				669	4	3
	Loan Mrs. M. McGrath			100	0	0		**Stocks on Hand —**					
	Reserve Account (invested) —						25	Printing & Stationery	– – –				
469	Life Subscriptions	539 2 6					138	Banding Scheme	157 16 5				
300	Special Reserve	300 0 0					357	Booklets & Sundry Publications	300 0 0				
							14	Nest & Beach Patrol Scheme	– – –				
769				839	2	6	534				457	16	5
	Accumulated Funds:						6	Addressograph			–	–	1
	Balance 1/4/62	1249 18 3						**Library —**					
	Add revaluations —						374	Current Valuation			500	0	0
	Banding Scheme	69 2 4						**Reserve Investment Fund —**					
	Library	125 13 2					700	Auck. Electric Power Board			700	0	0
		1444 13 9											
	Less Devaluations —												
	Notornis & Reprints	355 19 0											
		1088 14 9											
	Add Excess of Income over Expenditure	34 16 6											
1249				1123	11	3							
2210				£2327	0	8	2210				£2327	0	8

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH, 1963

Last Year	Expenditure				Last Year	Income			
397	Cost of Printing & Distributing Magazine	563	1	0	685	Subscriptions	715	1	5
59	Postages	32	6	5	40	Donations	17	4	9
64	Printing & Stationery	68	15	4	57	Interest Received	55	12	6
27	General Expenses	58	9	1	5	Net Surplus on Field Week-ends	24	10	11
–	Income Tax	12	1	6	36	Profits on Miscellaneous Sales	71	19	6
182	Contribution to Dominion Museum Banding Scheme	78	18	2					
9	Beach Patrol Scheme	16	17	6					
7	Nest Record Scheme	12	15	11					
1	Depreciation	6	7	8					
77	Excess of Income over Expenditure	34	16	6					
£823		£884	9	1	£823		£884	9	1

Auditors' Report to Members of the Ornithological Society of New Zealand (Incorporated):

We report to the members of the Ornithological Society of New Zealand (Incorporated) that we have examined the books, accounts and vouchers for the Society and also those relating to the Card Committee for the year ended 31st March, 1963. We certify that the balance sheets for the Society and the Card Committee are properly drawn up to show the true financial position of the Society at that date. We have accepted the values placed before the Treasurer of stocks on hand.

23rd May, 1963

CHAMBERS, WORTH & CHAMBERS, Auditors

CARD COMMITTEE

STATEMENT OF EARNED SURPLUS FOR YEAR ENDED 31st MARCH, 1963

			This Year	Last Year
From the cash received from the sale of the cards, we deduct the cost of printing them, leaving a **Gross Profit**			345	360
Less the following Expenses —				
Advertising		80		227
General Expenses		12		3
Exchange		3		–
Donation		20		20
Postages		23		13
Sundry Services		35		13
Packing Expenses		10		23
which total			183	299
Leaving a Profit of			162	61
To this we add: Interest Received			22	16
Donations			–	1
So that the **Surplus** for the year is			£184	£78

BALANCE SHEET AS AT 31st MARCH, 1963

We own:				
Cash at Bank			833	660
Printing Blocks			40	40
			873	700
Less what we owe to others:—				
Sundry Creditors			25	36
Leaving us with			£848	£664
This comprises of Accumulated Profits			664	586
Plus Current Surplus			184	78
Giving Accumulated Surpluses of			£848	£664

THE EXCURSIONS

The Auckland isthmus is so wickedly short of native forest-birds that ornithological visitors almost inevitably are taken to the coast, even in winter. This year, after the Annual General Meeting, very high mid-day tides and mild weather, mostly sunny, contributed to the success of the two excursions and enabled the harbours of Manukau and Kaipara to justify the reputation they have earned as haunts of great flocks of the commoner waders, with a fair sprinkling of rarities to add the spice of eager expectation to the chase.

On the morning of Saturday, May 25th, the rendezvous was Kidd's Bay, Karaka, on the south shore of Manukau. Mrs. Ian Urquhart and Ross McKenzie directed such operations as there were, but it was not strenuous birding; for as we sat comfortably on a bank between the brimming tide and the saltmarsh scrub where Fernbirds called, flocks of Oystercatchers, Godwits, Knots, Wrybills, Stilts and Dotterels flew past or overhead to gather on the narrowing tops of the shellbanks or to settle in the close-grazed paddocks behind us. As the tide fell, those visitors who were prepared to get wet and muddy — among them we welcomed Lt.-Commander R. Morris from H.M.S. Cook — set off for Higham's paddock or the still crowded shellbanks. Flocklets of Wrybills were spreading out to feed. Suddenly there rang out, loud and clear, the triple 'tchew' of a Greenshank. Its flight was carefully followed till it settled near some feeding Stilts. When it was slowly walked up, it rose calling and showed the inverted 'V' of white up the back. It was a very correct Greenshank and its behaviour was exactly according to the book. Another very gratifying surprise was the discovery of a Large Sand Dotterel, feeding quietly on a slope of the big shellbank near Turnstones and Red-breasted Dotterels. One had been present over much of the summer but it had not been expected to stay for the winter. Meanwhile those who had been watching the hundreds of South Island Oystercatchers had found a partial albino among them.

For the next day it had been suggested that visitors from more southerly districts might like to see Kaipara Harbour. The suggestion was so warmly received that on Sunday morning a cavalcade of more than a dozen cars wound down the narrow lane that leads to the farm of Mr. Graham Jordan and a promontory once — so local legend has it — very popular with godwit-shooters. A rising tide had already brought many waders into the paddocks and other flocks could be seen in the air. Ross McKenzie, strategically posted near a shallow creek and some sandbanks, which were judged to be the main roost, saw a small tern, which he thought was *nereis* starting to assume breeding dress. Meanwhile the keen eye of Donald Urquhart had detected among the Banded Dotterels, many of which were already well-coloured, a stranger which on closer examination proved to be another Large Sand Dotterel. All the paddocks near the sea were alive with birds. Even Red-breasted Dotterels — only odd ones reddening — were in little flocks. Among the thousands of Oystercatchers and the hundreds of Godwits and Stilts, a Red-necked Stint, four Knots, three Black Oystercatchers and a near-black stilt were picked out. It would be interesting to know just what was missed.

One rare wader still awaited discovery. When most of the party met on the sea-wall overlooking the main roost, there in front of them among a concentration of Pied Stilts stood an Asiatic Whimbrel, thigh-deep in salicornia. A little later it was well seen in flight with four Godwits. The ebb had set in; but we lingered over lunch and departure from this delectable spot was delayed by the need for further observations on *leschenaulti*. On the two excursions, thirteen species of waders had been found and most of them studied at close quarters.

On the way home, one party decided to drop in at Muriwai and to walk as far as the stream. The only corpse to reward the beach-combers was quite a notable one — that of a Light-mantled Sooty Albatross.

— R.B.S.

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NEST RECORDS SCHEME

Annual Report for Year Ended 31st March, 1963

Owing to the receipt of a considerable number of cards late in the season, this year's intake showed a slight improvement over last year, as did the number of contributors. A total of 230 cards was received from 18 contributors, some of whom sent in cards for the first time. The collection now stands at 2938 records, and the North Island Kiwi and South Island Fernbird were added to the list for the first time.

The following contributed cards during the year:

Over 50 — J. R. Jackson. Over 25 — D. G. Dawson, Dr. M. F. Soper. Under 25 — Robert Bateman, Dale E. Calvert, C. N. Challis, J. C. R. Claridge, H. W. Crozier, Miss M. M. Davis, E. Dear, Ian James, B. M. Fitzgerald, B. R. Keeley, S. R. Kennington, H. R. McKenzie, Mrs. R. V. McLintock, H. R. Secker, Juliette Urquhart.

Species List of Nest Record Cards:

North Island Kiwi 1 Stewart Island Kiwi 1 Great Spotted Kiwi 1 Yellow-eyed Penguin 6 Little Blue Penguin 27 White-flippered Penguin 7 New Zealand Crested Penguin 2 Southern Crested Grebe 2 New Zealand Dabchick 1 Fairy Prion 16 Flesh-footed Shearwater 1 Sooty Shearwater 1 Fluttering Shearwater 7 Allied Shearwater 3 Black Petrel 1 Grey-faced Petrel 13 White-faced Storm Petrel 2 Diving Petrel 49 Gannet 4 Black Shag 14 Pied Shag 11 Little Black Shag 1 White-throated Shag 8 King Shag 6 Spotted Shag 3 Blue Heron 16 White-faced Heron 5 Bittern 2 Canada Goose 14 Mute Swan 3 Black Swan 15 Paradise Duck 4 Grey Teal 9 Brown Teal 2 Grey Duck 20 Mallard 30 Shoveler 10 Black Teal 6 Harrier 44 New Zealand Falcon 4 Pheasant 6 California Quail 6 North Island Weka 3 Pukeko 54 Australian Coot 2 South Island Pied Oystercatcher 60 Northern Oystercatcher 5 Black Oystercatcher 19 Spur-winged Plover 14 Banded Dotterel 106 New Zealand Dotterel 22 Wrybill 4 Pied Stilt 87 Black Stilt 1 Black-backed Gull 108 Red-billed Gull 26 Black-billed Gull 44 Black-fronted Tern 33 Caspian

Tern 12 Fairy Tern 2 White-fronted Tern 44 New Zealand Pigeon 5 Rock Pigeon 49 Kaka 3 Kea 41 New Zealand Parakeet 2 Yellow-crowned Parakeet 1 Shining Cuckoo 2 Morepork 2 Little Owl 13 Kingfisher 18 South Island Rifleman 29 Rock Wren 5 Skylark 69 Fantail 49 Pied Tit 10 Yellow-breasted Tit 9 North Island Robin 7 South Island Robin 12 South Island Fernbird 3 Brown Creeper 1 Whitehead 4 Yellowhead 11 Grey Warbler 40 Song Thrush 438 Blackbird 366 Hedge Sparrow 66 New Zealand Pipit 17 Bellbird 9 Tui 5 White-eye 51 Greenfinch 48 Goldfinch 165 Lesser Redpoll 34 Chaffinch 58 Yellow Hammer 20 House Sparrow 142 Starling 86 Myna 9 White-backed Magpie 9. TOTAL 2938.

The scientific importance of Nest Record Schemes is perhaps more widely appreciated overseas than is as yet the case in New Zealand. The main object of such schemes is to provide abundant and comprehensive statistical data on breeding seasons, clutch size, hatching and fledging success. A number of analyses of records have already been published in overseas journals. No analytical work has yet been possible in New Zealand because of paucity of records. Although Song Thrush and Blackbird head our list of cards received at 438 and 366 respectively, more records are needed even of these common birds before accurate analytical work can be undertaken.

All O.S.N.Z. members are entitled to participate in the scheme, and may also submit cards completed by non-members provided that the member accepts responsibility for their accuracy and that his name, as well as that of the non-member observer, appears on each card.

The cards are easy to fill in if the instructions on the back of the card are carefully studied. The cards provide space for recording a series of observations made over the whole period of nest building, laying, incubation and fledging; it may be that some members have refrained from filling in cards because they felt that their observations of individual nests seen perhaps once or twice only were so incomplete as to be of no value to the scheme. This is not necessarily so. Cards are not required for nests which have not been laid in or which appear already to have been deserted on the only occasion on which they have been seen, but partial records are useful provided that the observer has been able to count the nest contents accurately at least once, or if this is impossible (as in the case of hole-nesting species) that the date of laying, or hatching, or of the young leaving the nest have been observed. As the object of the scheme is to collect data for statistical analysis it is extremely important that observers should not select only those nests which seem most interesting; every nest with eggs or young should be recorded even if it is visited only once and totally destroyed the very next day. It will also help if nest searching is maintained throughout the season and not concentrated at the beginning when nest-finding is easiest. All reliable records are of value, whether they are those of closely watched nests in the observer's garden, nests found during searches further afield, or those found casually in the course of ornithological or other outdoor expeditions. Even if a nest record is written up for publication in *Notornis,* please fill in a record card for the collection.

The value of the record is of course increased if a series of visits can be made to the nest. Much information can be obtained from even a few visits if they are planned as follows (for passerine

species which lay one egg daily): two afternoon visits during egg-laying period (to get date of first egg and egg-laying sequence); two during incubation (to determine clutch size); two at hatching time, one when the young are 7-8 days old, one just before fledging and thereafter occasional visits to see if the young are still there. If so many visits are not possible, try to pay at least one visit before the clutch is complete, one after completion of the clutch and another when the young have hatched.

Space is provided on the record card for noting whether the bird (male or female) was sitting on or flushed from the nest at each visit; if the bird is not on the nest the eggs can be felt with the skin at the base of the finger nail to see if they are warm, and the result entered on the card as evidence of incubation. If eggs and young are found together in the nest, state whether the young are hatching, or the eggs obviously addled. An estimate of the age of nestlings or a description of their plumage development is well worth noting. There is a space on the card for recording time of day of each visit, and this should be filled in.

Correct identification is of course of primary importance. It should be remembered that the nests and eggs of some species are hard to differentiate unless the bird is seen. Do not write "first brood" unless this is certain. As hatching and fledging success is one of the main subjects for enquiry, do not write "Deserted," "Robbed" or "Flown" on the card without sound evidence, which should be briefly stated.

If you find a nest containing a cuckoo's egg or nestling, fill in the "species" space with the name of the cuckoo, followed by the name of the host in brackets, e.g., Shining Cuckoo (Grey Warbler); enter the number of eggs or young of the host plus the cuckoo's egg or nestling, putting the host first, e.g., 4 + 1 = four eggs of the host and one of the cuckoo; do not complete a separate card for the host.

Please see that nesting birds are disturbed as little as possible. The use of a mirror fixed to the end of a stick saves climbing, avoids disturbance, and is the recommended method for observing the contents of high nests.

Please do not use a pencil or ball point pen when filling in cards, as both fade or smudge. Before sending in cards please check carefully for errors and omissions of available information. Completed cards should be returned to me as soon as possible after the end of the nesting season and not later than 28th February in each year.

The success of the Nest Record Scheme depends upon the co-operation of members. It is hoped that the above explanation of the objects and working of the scheme will encourage many members to contribute during the coming year. Please obtains cards from your R.O., or write to me direct, in good time before the start of 1963/64 nesting season. Besides the individual record cards to which interested members are accustomed, colonial nesting cards are being prepared for use in recording nesting colonies of gulls, terns, etc., and will be supplied on request.

My address is 82 Mungavin Avenue, Porirua.

J. C. R. CLARIDGE, Hon. Organiser

RECORDING SCHEME

REPORT FOR THE YEAR 1962-63

During 1962-63 102 members supplied information on 159 species or sub-species. Much of this information was collected by R.O's. and forwarded to the Editor as Classified Summarised Notes, or direct to me in response to requests contained in R.O. Newsletters. In addition many items were given verbally, or extracted from letters addressed to me, or to other members who kindly sent them on after perusal.

All notes received on winter dispersal of White Heron, Little Egret and Royal Spoonbill were sent to Mr. I. G. Andrew for collation. Information on these species is still wanted in 1963-64 season.

The following is a list of contributors:—

Northland — D. E. Calvert, G. W. Devonshire, A. T. Edgar, P. Gross, R. H. Michie. M. Ross.

Auckland — D. F. Booth, Miss J. Coles, Mrs. P. Fooks, M. J. Hogg, Kings College Bird Club, Miss M. C. R. McIntyre, D. V. Merton, Mrs. A. Prickett, Mrs. S. M. Reed, R. B. Sibson, P. D. G. Skegg.

South Auckland — Mrs. A. E. Blundell, H. S. Cameron, E. Coulthard, Misses A. E. and A. J. Goodwin, I. James, C. A. McCall, A. McDonald, H. R. and Mrs. H. M. McKenzie, Mrs. M. L. Orum, J. W. St. Paul, Miss M. R. Trower, Mrs. J. Urquhart.

Waikato — D. Bettesworth, T. A. Brown, M. P. Daniel, Mrs. M. L. Templer.

Volcanic Plateau — Mr. and Mrs. M. J. S. Black, C. D. Blomfield, W. J. Brown, R. Swift, J. F. Thomas, G. F. Yerex.

Bay of Plenty — V. T. Davis, Mrs. D. Dawson, M. E. Fitzgerald, Mrs. J. M. Hamilton, M. Hodgkins, H. D. London, Mrs. R. V. McLintock, Mrs. P. M. Roberts, R. St. Paul, R. Weston.

Gisborne/Wairoa — A. Blackburn, W. H. Way.

Hawke's Bay — J. S. Heighway, N. B. Mackenzie.

Taranaki — M. G. Macdonald, M. J. Williams.

Wanganui — D. E. Crockett, R. W. Macdonald, J. Martin.

Manawatu — I. G. Andrew, R. R. Baker, E. Dear.

Wellington — B. D. Bell, R. R. Cavanagh, C. N. Challies, E. W. Dawson, C. A. Fleming, Miss A. Hutson, F. C. Kinsky, Mrs. R. Mander, P. Rider, R. R. Wiblin.

Marlborough — J. A. Cowie, J. R. Eyles, S. R. Kennington.

West Coast — E. W. Crack, P. Grant, T. Hartley-Smith, A. B. Munden, D. J. Panckhurst.

Canterbury — D. H. Brathwaite, D. Graham, J. R. Jackson, B. R. Keeley, G. A. Tunnicliffe, E. G. Turbott.

Otago — J. H. Allan, Dunedin Naturalists Field Club, M. Keillor, I. G. McLaren, R. J. Nilsson, W. T. Poppelwell, Mrs. A. C. Prnetice, Mrs. L. E. Walker.

Southland — B. D. Heather, E. Le Huquet, S. L. Lobb, R. M. Royds, Mrs. O. A. B. Simth, T. M. Smith.

Stewart Island — R. H. Traill.

(E. & O. E.)

A. T. EDGAR, Recorder

NOTICES

25th ANNIVERSARY EXPEDITION

To celebrate the twenty-fifth anniversary of its founding, it has been proposed that the Ornithological Society should foster and organise an expedition to study the birds of the Kermadec Islands. Preliminary discussions have already been held. Tentative dates are November, 1964 - January, 1965.

Applications are invited from members of the O.S.N.Z. who wish to be considered as participants in the expedition. The number of participants will be limited to 12 and their final selection will be decided by the Council. Successful applicants must be prepared to contribute at least £25.

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LIBRARY CHANGE OF ADDRESS

Would users of the Library please note that the address now is: C/o Auckland Institute and Museum, P.B., Auckland.

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REGIONAL ORGANISERS, O.S.N.Z.

The list of Regional Organisers published in *Notornis* X, page 95, and amended in *Notornis* X, page 143, is further amended as follows:

Far North — Delete D. G. McMillan, Box 59, Rawene, and substitute Vacant.

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DONATIONS for year ending 31/3/1963

Cash: McDougall, Miss, £2/2/-; Fenwick, D., £1/13/-; Blackburn, A., Boeson, B. W., £1/10/-; Dawson, E. W., Nuttall, A., Parsonson, C. F., £1/1/-; Broun, W. J., St. Paul, E., Swift, R., Bunce, L. J., Clark, E. M., Fagan, J. A., Love, T., Waller, M. A., 10/-; and smaller amounts totalling £1/5/7.

Photographs: Blanshard, D., Blanshard, R. H., Ford, C.R., Galey, D., Jackson, J. R., Kinsky, F. C., Martin, J., Moon, G. J. H., "Northern Advocate," Reid, B., Roberts, P. M., Soper, M. F., Taylor, R. H.

Life Subscriptions: Davis, Miss M. M., Hood, J. B. (Australia), Wettenhall, Dr. N. W. (Australia), all at new rate of £20. Increased from £10 to £20, Rowe, E. K. S.

Hawke's Bay Labour Day Week-end Field Study Course. Car running expenses (approximate) donated: Armstrong, Dr. J. S., £2/5/-; Edgar, A. T., £3/15/-; Gibbons, Dr. Elsie, £1/17/6; Hall, W., £1/10/-; Kendrick, J. L., £1/2/6; McIntyre, Miss M. C. R., £1/10/-; McKenzie, G. K., £4/13/3; Mackenzie, N. B., £11/5/-; Way, W. H., £1/2/6.

Southland Coast Field Study Course, January, 1963. Car running expenses donated: Henderson, L. E., £7/10/-; Lobb, L., £3/14/-; Cash donations: Fraser, 10/-; Poppelwell, W. T., £1.

Back Numbers of Notornis, Etc.: Boult, A. A., 14 copies; Bunce, Mrs. L. J., 12; Falla, Dr. R. A., 21; Glue, D., 49; Huggins, W. P., 13; Prentice, Mrs. A. C., 34.

PERSONALIA

Congratulations to Dr. C. A. Fleming, who has been awarded the Hector Medal by the Royal Society of New Zealand.

Auckland and Wellington members have enjoyed the opportunity to entertain Dr. Alan Lendon, of Adelaide, and Lt.-Commander Roger Morris, of H.M.S. Cook.

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NEW MEMBERS to 31/5/63

Allingham, Mr. Robert, Patumahoe
Bailey, Mr. M., C/o The Laboratory, Hutt Hospital, Lower Hutt
Barfoot, Mrs. V. H., 13 Peacock Street, Glendowie, E.1
Barfoot, Mr. V. H., 13 Peacock Street, Glendowie, E.1
Barron, Mrs. M. J., No. 1 R.D., Pouto, Te Kopuru
Baskett, G. G., 140 Long Drive, St. Heliers Bay, Auckland
Beveridge, Mrs. A. E., 158 Kawaha Pt. Road, Rotorua
Bowyer, Mr. N., Moehau Street, Te Puke
Canning, Mrs. Mary, Oakbourne, P.B. 525, Waipukurau, Hawkes Bay
Clark, Mr. J. A., 29 Michaels Avenue, Ellerslie
Daniel, Mr. M. J., C/o Forest Research Institute, Whakarewarewa, Rotorua
Davis, Mr. B. S., 42A Old Lake Road, Narrow Neck, Auckland, N.2
Dickison, Mr. D., 5 Rockbrook Road, East St. Kilda, Victoria, Australia
Doggett, Mr. B. C., 20 Bracken Street, Whakatane
Emanuel, Miss Rae, Central Laboratory, Auck. Public Hospital, Auck., C.2
Ewen, Mr. J., Mellons Bay Road, West Howick, Auckland
Gilbert, Mr. C. V., 254 Ormond Road, Gisborne
Hardingham, Mr. A. N., Te Rae Road, Titirangi
Hewitt, Mrs. M. O., 24 Clyde Street, Epsom, Auckland, S.E.3
Houghton, Dr. N. I., No. 1 R.D., Titirangi
James, Mr. Walter, 101 The Ridgeway, Mornington, Wellington, S.W.1
Jowsey, Mr. V., 32 Churchill Street, Whakatane.
Jukes, Mr. W. M., No. 6 R.D., Springhills, Invercargill
Kelly, Mrs. B. E., Bay Road, Waitati
Leitch, Mr. Graeme, 38 Esmond Road, Takapuna
Livingstone-Thomas, Stanley, J.H.N.F.D., 6 Marire Ave., Frankton Junction
Marston, Mr. O. J., 15 Bank Street, Blenheim
Mandahl, Mr. G. I., R.D. 8., Masterton
Mead, Mr. G. A., Roseneath Street, Palmerston, Otago
McNeil, Mr. D., No. 3 R.D., Matamata
Rodger, Mr. D., C/o The School Rangiuru, Via Te Puke
Salt, Mr. Robert, 329 Dee Street, Invercargill
Scanlan, Mr. A. B., Cnr. Victoria & Shortland Streets, New Plymouth
Stewart, Miss Janet, 22 Rawiri Street, Gisborne
Towart, Mrs. G. R., 7 Aotea Terrace, St. Martins 2, Christchurch
Urquhart, Mr. Ian G., Karaka, Papakura
Walter, Mr. D. M., Allen & Eyrer Road, Onewhero
Wheeler, Mr. Robert, 288 Carrington Street, New Plymouth
Ward, Master Paddy, Morrisons Bush, Greytown