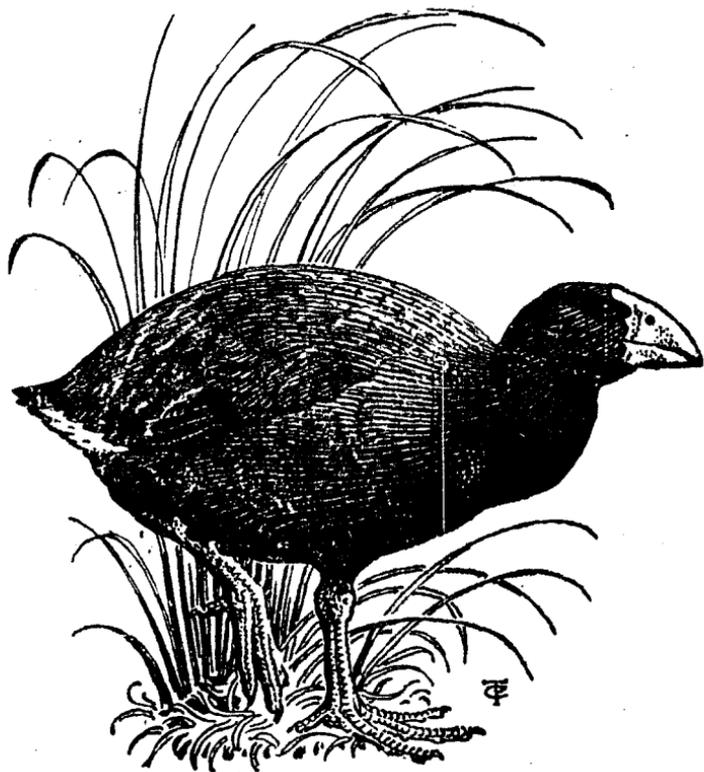


NOTORNIS



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(Incorporated)



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PRELIMINARY REPORT ON DISCOVERY OF NESTING SITE OF HUTTON'S SHEARWATER

By G. HARROW

Last January a Kaikoura deerstalker, Mr. I. Hislop, mentioned to me that he had seen muttonbird burrows with an odd dead bird nearby, at the headwaters of the Kowhai River at an altitude of about 6000 feet above sea level, in January 13 years ago.

The thought of muttonbirds nesting at such great heights in the Seaward Kaikoura mountains seemed unbelievable, although Mr. Hislop's description of the burrow area was so typical of a shearwater nesting site, I could not dismiss it altogether. I discussed this report with Dr. M. F. Soper, who stated that he knew of no seabirds that nested at such a great height, and he raised the possibility that it could be the solution of the baffling problem of the nest site of *Puffinus huttoni*. With this possibility in mind I searched the literature, and began an intensive campaign of contacting Kaikoura people who knew the adjacent high country well.

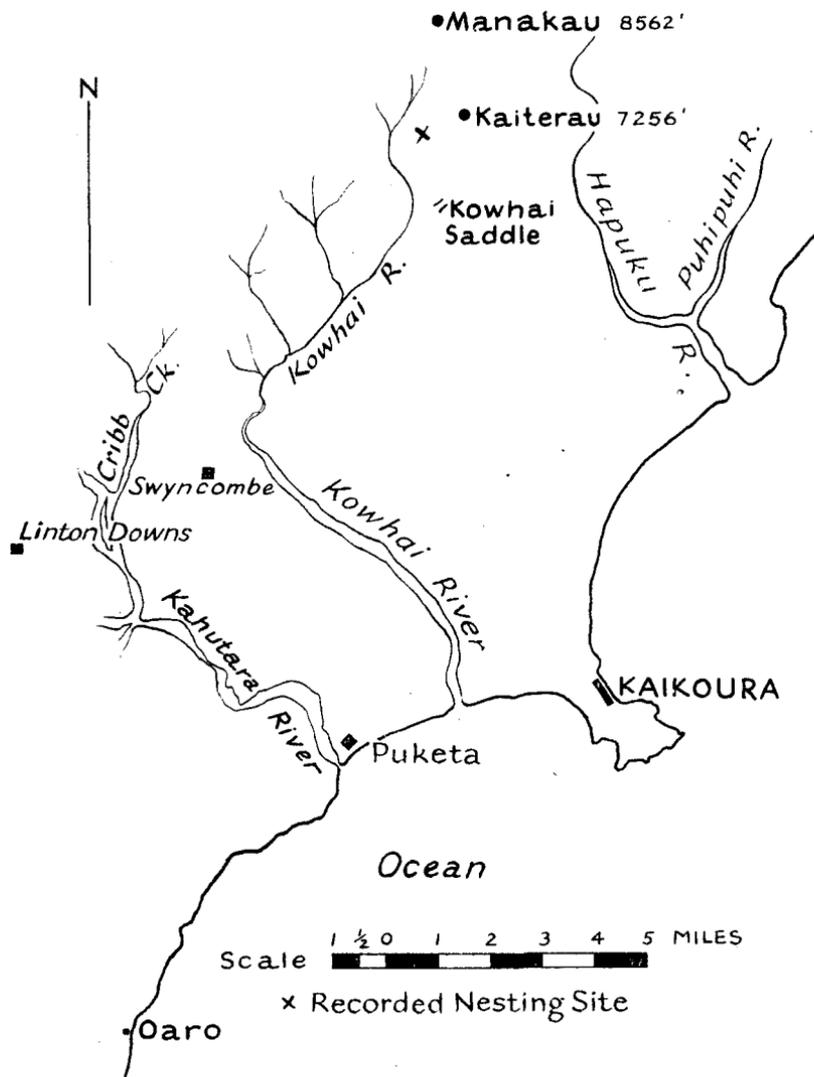
In this task I was greatly assisted by Dr. and Mrs. A. L. Johnston, of Kaikoura, and it soon became evident that many local people had heard about muttonbirds nesting in burrows high in the Kaikoura mountains; and that young birds, both alive and dead, whose description could fit Hutton's Shearwater, had been picked up in several areas near Kaikoura. All this was exciting and encouraging, but as the only eye witnesses I had were Mr. Ivan Hislop and his brother, Archie, I must admit my excitement was somewhat tempered by the fact that their report was thirteen years old.

On 20th February last, armed with a very provisional Lands and Survey map of the Seaward Kaikoura mountains, and what later proved to be excellent directions from the Hislop brothers, I set off alone up the Kowhai River in rather foggy conditions. I travelled up this river until opposite the Kowhai Saddle, when I was forced to climb a steep face on the true right bank of the river to avoid a quite impassable gorge in the upper Kowhai River. This steep face led on to a narrow ridge, mostly tussock-covered, that gradually rose to 5500 feet above sea level.

I had a major problem of navigating the rough alpine country which was unknown to me, with the added handicap of a heavy fog. I had planned to camp right at the site of the burrows, but at 6 p.m., after eight hours of heavy swagging with several false leads, I decided to camp in some snow grass near the first water I had encountered for some hours. I hoped that I was not too far from the reported burrows and therefore kept a careful check in case I could hear birds flying in the evening, but I was unrewarded. The fog cleared away about 10 p.m. that evening and I was able to see that I was only about half a mile from my objective. I left my camp among the tussocks at 5 a.m. next morning, 21/2/65, and within a quarter of an hour, while descending a steep deer track on the true right bank of the upper Kowhai Gorge, I found the remains of a shearwater minus the head. This specimen appeared to have been mutilated by a rat, stoat, or falcon. I could

find no burrows adjacent to this bird, but only a quarter of a mile away, just where the Hislops had described, right under Mount Kaiterau, I found quite an extensive burrow area (see map and Plate 1).

The height above sea level was certainly not 6000 feet, but I estimate the colony to be near enough to 4800 feet. On my first visit I guessed that there were several thousand burrows, but as described below, this later proved to be an overestimate. The aspect of the colony faced due south, and the slope was moderately steep at about 25 degrees.



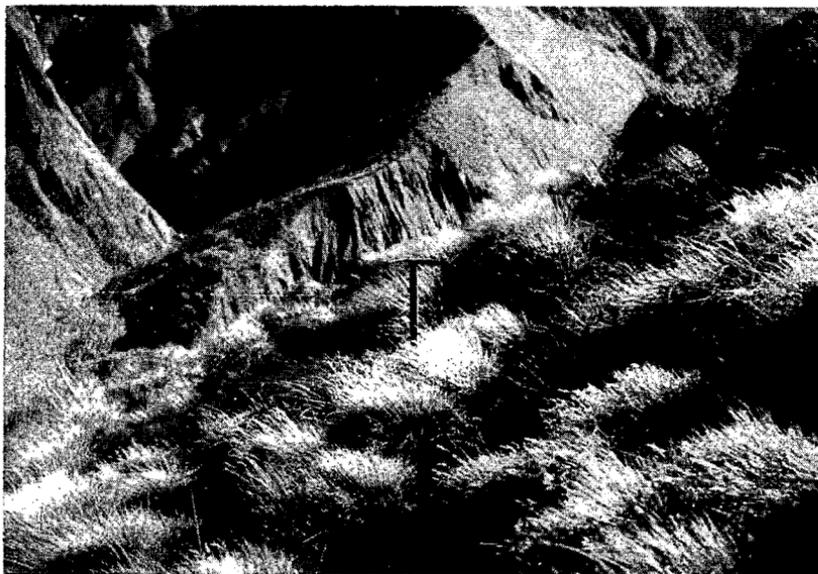
The vegetative cover (Plate 2) of the nesting area included two groups of mountain ribbonwood (*Hoheria lyallii*). The big snow tussock *Chimochloa flavescens* and a smaller grass, probably a *Notodanthonia*, were the predominant low cover which the shearwaters tended to use as a veranda to their burrow entrances. *Aciphylla colensoi* appeared to form a boundary to the lower extent of the burrows, possibly because its spiny habit would be a landing hazard at night for shearwaters. The soil was friable, sandy loam, which would not be difficult for the birds to excavate. Two burrows that had fresh droppings at the entrance were excavated but had been abandoned, though a *Puffinus* skull, egg fragments, and a quantity of snow grass stems and root fibres, in the nest chamber were recovered.

The measurements of the burrows (Plate 3) were five inches wide by four inches high, while the first burrow was five foot nine inches long and the second burrow was seven foot six inches long with the nest chamber one foot back from the end of the burrow. A typical burrow would have a small entrance platform, made no doubt, from earth excavated from the burrow. From the platform the burrow went



[G. Harrow

X (1) — Upper Kowhai river-gorge, with Mt. Manukau (8562 ft.) on left skyline, and Mt. Kaiterau on the right.



[G. Harrow

XI (2) — Site of Hutton's Shearwater nesting colony at c. 5000 ft. a.s.l. under Mt. Kaiterau.

straight into the hillside for 18 inches, then made either a sharp right or left hand turn, and then continued usually another five feet across the slope, often the floor of the burrow rising gradually to a slightly enlarged nest chamber. Very few of the burrows were at any stage more than 18 inches from the surface, although if a large stone formed an obstruction, the birds would burrow a little further inwards to circumvent the obstacle. The area has a high deer and goat population and I noticed that the animals had collapsed the odd burrow with their hooves. I systematically traversed the colony at every 20-foot contour, and recovered a complete shearwater not too decomposed for identification, a further pair of wings and many isolated feathers.

At this stage I was hopeful, and suspected that the birds were *Puffinus huttoni*, but I was by no means certain. With the aid of Mr. R. Scarlett at the Canterbury Museum, I checked my specimens with the one skin they had labelled as "doubtful *P. g. huttoni*," but this was not very helpful, as I have since clearly established that this skin is in fact *Puffinus gavia*. Mr. D. H. Brathwaite was also asked for an opinion, and together with Mr. Scarlett and myself, felt that the measurements were well in the *huttoni* range and too large for *gavia*, and the colouration seemed to correspond to this race. The matter of confirmation was so important, that it was decided to seek a second opinion from Dr. R. A. Falla regarding identification. I now quote from Dr. Falla's reply to my inquiry, "Your specimens are all *Puffinus huttoni*. The underwing coverts of your birds are all in the

huttoni range, i.e. they are more smudged with grey brown than any *gavia*. Axillaries are of the narrow dark *huttoni* type. Lastly the undertail coverts of your No. 1 are definitely *huttoni*. The outermost are flecked on their outer webs with brown, a character invariable in all our dozen or so skins of *huttoni* and not noted in any of our 50-60 *gavia*." It was now quite certain that the first nesting area of *P. huttoni* had been revealed, and because of a suggestion from Dr. Falla that young birds might still be in the burrows until late March, I returned to the colony exactly a month later with Messrs. J. Chambers and M. Harrison on 21/3/65, armed with long flexible probes. Remoteness and fog once again foiled attempts to camp right at the colony overnight. The second visit did enable an accurate burrow count to be made, and a sample of one hundred burrows were probed without finding a single bird. There was a total of 11,000 square feet in the main colony, and a representative sample of 20 x 20 feet gave a burrow count of 25, making a total of only approximately 700 burrows, to which could be added another 150 burrows in scattered areas nearby. There were many signs of great activity in the colony since my first



[G. Harrow

XII (3) — Excavated burrow of Hutton's Shearwater; 7ft. 6 in. long, 5 in. wide and 4 in. high; nest chamber in front of left hand.

visit a month earlier, with several more partial remains of *huttoni* scattered about the area, that I had definitely not missed before, and most of the burrows had many very fresh dropping around the entrances. I now feel that had I dug out a burrow without excreta at the entrance, I would have found young birds on the February visit. The March visit did enable us to find a complete but fractured egg, which when reconstructed gave this description, ovoid, white, 59.5 x 40.7 mm.

I have definite reports from the following Kaikoura districts, of bird calls answering to the description of shearwaters flying inland after dark, but the dates have been difficult to establish: Puketa, Linton Downs Station, Swincombe Station, north end of Kaikoura township, Hapuku Valley, and the Puhī Puhī Valley. Birds which would fit the description of *P. huttoni* have been picked up during February and March of different years, in the middle reaches of the Kowhai River and the Hapuku River, and Dr. A. L. Johnston reports that he has seen many live and dead birds every March, in Beach Road, Kaikoura, which he is now certain were *huttoni*. Some of the young birds still had a collar of chick down, and he tells me he has released many of these young birds successfully from Kaikoura beaches.

He recalled that it was on foggy, wet March nights that he has seen most of the birds, which seemed to be confused by the fog and attracted to car lights or street lamps. He said the street lamp outside the Kaikoura camping ground in Beach Road was a spot that he had



[G. Harrow

XIII (4) — Hutton's Shearwater found alive under a street lamp in Kaikoura by Dr. A. L. Thompson on 19/3/65.

picked up most of the living and dead specimens. Dr. Johnston has a theory based on the fact that as the birds he has picked up are all healthy, and are invariably taken on a wet bitumen road at night, under a street lamp, he believes they mistake the reflection from the road surface to be their first sight of the sea on their route from the burrows and make a landing. This autumn he found a beautiful adult *huttoni* in excellent condition which had been killed by a car in Beach Road on the evening of 18/3/65. On 19/3/65 he captured a live bird (Plate 4) under a street lamp and on 23/3/65 he sent me a further dead young specimen taken in the same road. The live bird had its call recorded and was released at Shag Rock, Sumner, Christchurch, on the evening of 22/3/65 after being banded. The vent was examined by D.H.B. and the cloacal opening found to be in the form of a pronounced transverse slit though not noticeably distended, and it seems likely that the bird was an adult female (Serventy, 1956). Falla received a live young *huttoni* 12/3/65 from Island Bay, Wellington, and he mentions young *huttoni* regularly landing on the inter-island steamer express off Kaikoura between 15-25th March in several different years.

I have just received from Mr. A. Y. Haywood of Christchurch, a report that on 14th-16th October, 1964, when a member of a party searching for the body of D. Winter, who was blown off the summit ridge of Mount Kaiterau, July 1964, he traversed most of the steep faces downstream on the same side of the valley adjacent to the colony I have described, and he reports a whole series of burrows, some much more extensive than I have recorded. This is obviously a downstream continuation of the one colony and should increase the population count tremendously. Mr. Haywood records that he saw a hawk fly up with an egg in its talons, which was promptly dropped and slightly broken. He describes the egg as being fresh and about the size of a pullet's, but less pointed and creamy white. They put their arms down many burrows and were able to pull out very fresh nesting straw but discovered no eggs or birds. Two freshly dead adult shearwaters were noted lower than the burrows on this date. I intend to carry out an intensive study of the breeding habits next season and hope to publish the results in due course.

ACKNOWLEDGEMENTS

To the following, who all contributed greatly to the above discovery and identification, I acknowledge grateful thanks: Messrs. Ivan and Archie Hislop, Dr. M. F. Soper, Dr. and Mrs. A. L. Johnston, Mr. and Mrs. O. Gray, Mr. S. M. Macleod, Mr. R. Scarlett, Mr. D. H. Brathwaite, Dr. R. A. Falla and Mr. A. Y. Haywood. My thanks are due to Mr. C. Holdsworth for his reproduction of the map. For criticism, assistance and checking of this paper, I am greatly indebted to Mr. D. H. Brathwaite.

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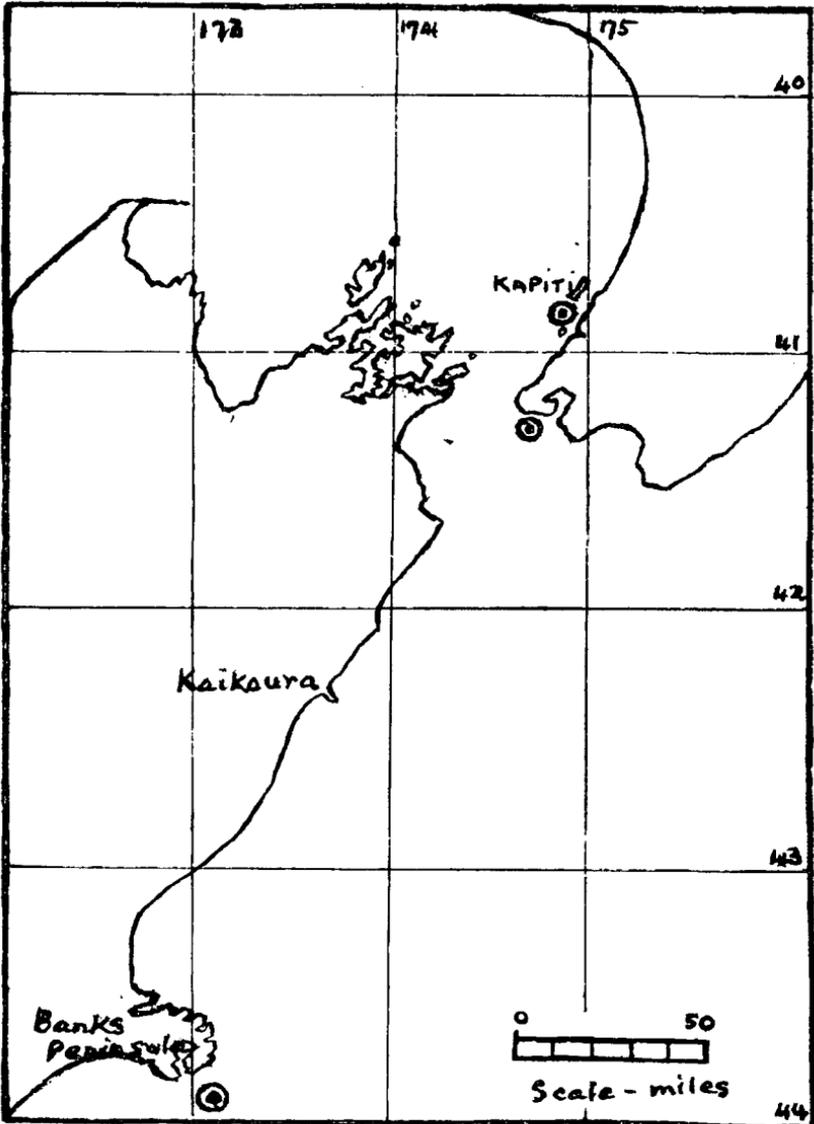
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DISTRIBUTION OF HUTTON'S SHEARWATER IN NEW ZEALAND

By R. A. FALLA

The discovery of a breeding place of Hutton's Shearwater, described elsewhere in this issue (Harrow, p. 59) seems an appropriate occasion to review what is already known about this elusive seabird. Although Mathews (1912) had singled out a specimen said to be from the Snares and described it as *Puffinus gavia huttoni*, subsequent reviewers of New Zealand birds disregarded it until Serventy (1939) drew attention to the fact that the common fluttering shearwater of South Australian seas at certain seasons must be referred to *P. gavia huttoni* and not to the typical subspecies. On the basis of this and the supposed occurrence of the same form at the Snares he postulated a probable zonal distribution of the race south of the known range of *P. gavia gavia* from New Zealand to eastern Australia. In the following year the presence in New Zealand of the 'new' form was confirmed when C. A. Fleming detected a specimen in the Dominion Museum which had been collected on Kapiti Island by A. S. Wilkinson, and several years later V. I. Clark found dead specimens at Pukerua Bay, Wellington (Clark & Fleming, 1948). It is noteworthy that when the late A. S. Wilkinson had sent his specimen to the Dominion Museum in 1934 he had recognised that it was not a typical fluttering shearwater.

Since that time there has been no lack of specimens or records, but not from Mathew's type locality, the Snares, where a number of careful searches has failed to disclose a trace. Since 1947 the series of specimens in the Dominion Museum has grown by accidental accession from 1 to 25, twelve of them immature. The Kapiti bird was an adult but for some time the new accessions were all immature and newly fledged. Most of them crash-landed on the Lyttelton-Wellington steamer express at night between Kaikoura and Cape Campbell, and this pattern of occurrence, between 18th March and 3rd April, had been repeated in several later seasons. Over the same range of dates other immature specimens have been found alive in the southern coastal suburbs of Wellington during thick or stormy weather, the earliest of such so far being 12th March, 1965. Although the occurrence of immature birds has been limited to a period of two months, a wider range of season and distance is represented by wrecks of adults, which have been found at Pukerua Bay (October), Waitarere (January) and Himitangi (September). The only months not so far included in specimen records are May to August inclusive. It is instructive to examine the analyses of 'Beach Patrol' records published since *P. huttoni* has been recognised and identified. In 1960 (Bull and Boesen 1961) 13 specimens are recorded in November-December, all from south and west coasts of Wellington; in 1961 (Bull and Boeson 1963) of a total of 20, North Canterbury produced 4, north coast of South Island 2, Wellington West Coast 10, and Auckland West Coast 4, over a time range September-February; in 1962 Boeson, 1964) the total of 24 (October-March) came



from North Canterbury 21 and Wellington West Coast 3. Assuming that identifications were in the main correct, these figures probably reflect a slow but steady build-up of recognition by collectors.

To all records combined can be added some observations at sea, for in good condition of light *P. huttoni* can be distinguished from *P. gavia* by the smudgy underwing pattern. Its dark plumage also is less liable to fading; by February when adult *P. gavia* are ready to moult and much faded, the contrast of plumage tone is very marked. Regular areas of feeding concentration are the tide-rip off Karori Rock, Cook Strait (observations in September and December) and the channel between Kapiti Island and the Waikanae Coast, where in February there is usually a daily concentration of up to several hundred birds in a single flock. *P. huttoni* has not so far been observed feeding either in the sheltered inlets of Wellington Harbour or of the Marlborough Sounds as *P. gavia* regularly does. There may be unrecorded feeding areas of *P. huttoni* off-shore further south as R. H. Beck (Murphy 1952) collected eight specimens from flocks off the south-east tip of Banks Peninsula on 28th and 29th January 1926. The known range at sea of *P. huttoni* therefore appears to be coincident with the southern sections of New Zealand populations of *P. gavia* though its trans-Tasman migration takes it to a more southerly destination. *P. gavia* has an earlier breeding season, the exodus flight of its young from the nest being from mid-January, while that of *P. huttoni* is from mid-March.

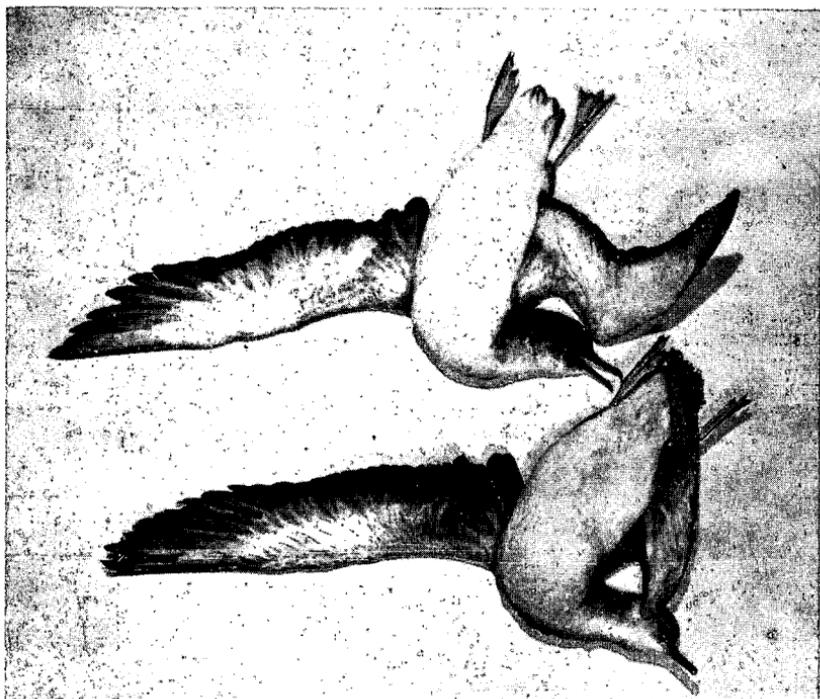
Of the search for nesting places up to 1965 all that need be said here is that every accessible islet and stack from Banks Peninsula to Cook Strait has been examined by several field parties with no result other than the location of more breeding colonies of *P. gavia*. Kapiti at its higher levels and steep western coast remains a possibility not yet fully explored.

IDENTIFICATION

The distinguishing characters originally given by Mathews (1912) have been confirmed and elaborated by later writers, especially Serventy (1939) and reference should be made to them for plumage details and dimensions. As the most likely confusion is with *P. gavia gavia* and the smaller subspecies *P. g. byroni* which occurs in New Zealand but has not been recorded nesting, salient differences will bear re-iteration.

<i>Character</i>	<i>gavia</i> (probably two forms)	<i>huttoni</i>
Bill length	30 - 35	35 - 38 mm.
Underwing coverts	mainly pure white	variably smudgy with dark shafts
Long axillaries	greyish, square ended white tipped	brown, more pointed, rarely white-tipped
Under tail coverts	pure white	lateral coverts variably flecked with brown on outer webs.

Some of these features are apparent in Plates XIV & XV.



[Dominion Museum

XIV — Specimens of *P. gavia* (upper) and *P. huttoni* (lower).

[Dominion Museum

XV — Adult Hutton's Shearwater found ashore at Wellington, Jan. 1962.

There are few recorded observations of the habits of *P. huttoni* at sea to indicate much marked difference from *P. gavia*. The large flocks of several hundreds already mentioned as seen by the writer between Paraparaumu Beach and Kapiti Island on 3rd February, 1957, were deployed on a calm surface in a light southerly wind. They were swimming with heads submerged, or plunging straight from flight into shoals of a small silvery post-larval fish.

SYSTEMATIC STATUS

In distribution *P. huttoni* may be assumed to be sympatric in its breeding range with *P. gavia*. The evidence for its occurrence at the Snares has been questioned by Murphy (1952) and there is little doubt but that locality labels on the material acquired in New Zealand from commercial collectors were often unreliable. Murphy (*loc. cit.*) regards both *gavia* and *huttoni* as separate subspecies of *Puffinus puffinus*, assuming, however, a zonal separation in breeding range. If the altitudinal separation indicated by Mr. Harrow's discovery can be accepted as a valid criterion, this subspecific link may perhaps be sustained. For the purposes of this paper I have retreated to the neutral ground of binominal usage.

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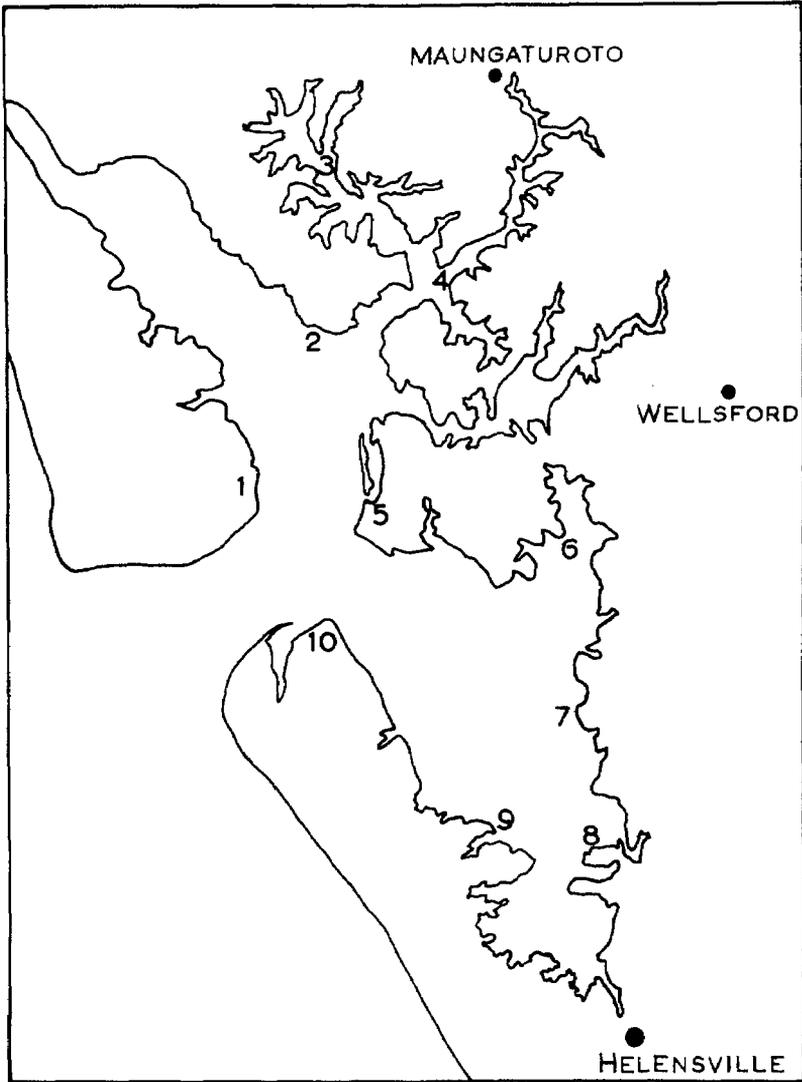
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FIELD STUDY COURSE KAIPARA HARBOUR, JANUARY, 1965

By H. R. McKENZIE

For the survey of this vast harbour, reputed to have over two thousand miles of shoreline, a period of very high tides was chosen, so that the birds would be restricted to the minimum number of high tide resting places. Hundreds of miles of sinuous mangrove creeks and vast areas of mangrove-covered flats did not need to be patrolled. Twenty-seven Society members and six members of their families took part, divided into ten teams of from two to four Society members, each with one or more experienced leaders. A larger number of observers would have been an advantage. Previously briefed teams for the more northerly assignments went directly to their centres on Saturday, 16th. The southern teams met and camped at the base at Helensville and proceeded to stations early on Sunday, 17th. The plan was for each team to work part of its area over the full tide and then spend the later part of the day surveying the ground to be covered on the following day. This was to occupy the 17th, 18th and 19th, and on 20th, teams



- 1 Pouto Peninsula (East Side)
- 2 Tinopai — Ruawai
- 3 Arapaoa River (Pahi Area)
- 4 Otamatea River and Ngamotu
- 5 Tاپora
- 6 Tauhora River
- 7 Glorit (Hoteo River and Makarau River)
- 8 Jordan's, Kaukapakapa
- 9 Mid. South Head Peninsula
- 10 Upper South Head Peninsula

were to finish assignments or visit other interesting places and return to base at the Oddfellows' Hall at Helensville. It was of course impossible to undertake a one-tide census of such a great area. A north-east gale raged for the Sunday, Monday and Tuesday, with heavy driving rain and in some parts long torrential downpours. This prevented most of the projected boat work until the Wednesday morning, when local residents took parties out to special places. M. G. Dill and J. Lambert took their boats out in the Tauhoa River area, including Moturimu Island. John Robinson took the writer to a special shag nesting colony in Helena Bay, South Head coast. On the 19th, during the storm, Reg. Hart ferried the Tabora team to and from an island; and member M. K. Jones, with three Senior Scouts, brought his boat from Riverhead to Tauhoa but owing to the storm could only use it in the Hoteo River.

It was no trouble to organise shelter for the far-flung teams. Houses and up-to-date shearers' quarters were freely offered and the greatest kindness extended everywhere. All property owners gave access readily. The participants and the Society are grateful indeed. Typical of the helpful spirit shown was the action of member M. A. Waller, who, on holiday with his family at Bay of Islands, came down alone especially to his property at the tip of the South Head Peninsula, spent a day showing the team around, lent them his Land-rover and gave them the use of his house. Vital to success was information from Mr. C. Butterworth, Headmaster, Clevedon School, and Mr. G. K. McKenzie, farmer, Clevedon, as to whom to approach for advice and help and for general knowledge of the district beyond that already known to the organiser. Mr. G. J. H. Moon did great work in finding boats when all seemed lost in that direction. It was fortunate that, as a Veterinary Surgeon in his part of the country, he knew to whom to go. Admiration of the women of the teams is readily accorded. In braving the fury of the elements and in efficiency in their tasks they were no whit behind the men.

On the Wednesday evening most of the party made camp at the hall in Helensville, others nearby. Leaders gave quite full reports of the work of their teams. The 21st and 22nd had been set aside for visits to some of the best places for the study of birds. This was also to be some compensation for those who had seen little in their allotted areas but had nevertheless worked cheerfully, realising that in a census the poorer parts must be covered, being no less important than the rich parts. In this Kaipara scheme all showed the right spirit. On the 21st, a fruitful and enjoyable visit was made to No. 5 area, Mr. Graham Jordan's, near Kaukapakapa, where an impressive variety of birds was seen. That evening Brian D. Bell, using a blackboard, gave a most interesting account of the making of a survey of the sections of the Waitaki River and nearby country which are or will be affected by hydro-electric schemes, giving particular attention to the effect on the Black Stilt population. Members D. V. Merton and D. E. Crockett then showed coloured slides of the eruption on Raoul Island, of the Island generally and the embarkation and return to New Zealand. D.V.M. also gave an account and pictures of his going to the Island as "Advance party," with stores, on the "Holmburn." Those present felt that they were privileged indeed to receive such a first-hand presentation of this unlucky expedition. On the 22nd it was decided to have a picnic at a most desirable and restful spot on the farm

of Mrs. J. Robinson, who was another of our beneficent friends throughout the Course. However, the change of wind had brought more birds to this very special area and picnicking was largely forgotten when a Black Stilt and three part-black ones arrived with a flock of the pied species, making an excellent study. In the evening G. J. H. Moon was unable to come to give a talk so B. D. Bell again made use of the blackboard and gave a racy and soundly informative talk on the adventures of D. V. Merton, himself and others who moved Saddlebacks and Stead's Bush Wren from Big South Cape Island, off Stewart Island, to other islands which were free from the destructive European rats. The best traditions of the Navy came to light when putting the party ashore and taking it off at various islands in atrocious weather. D.V.M. showed some slides of the birds. Even though the account was given in light vein the audience could not help but realise how these devoted officers of the Wildlife Branch of the Internal Affairs Dept. lived and toiled in the foulest of weather and grim conditions, even risking their lives at times, to save our rare birds. B.D.B. also gave an account of the bird life in the islands in Cook Strait, a big subject in itself.

The Hon. Secretary, A. T. Edgar, came from Kerikeri, Bay of Islands, to visit the Course and discuss business. Member M. K. Jones, of Riverhead, attended the evening meetings. It was pleasing to have visits from friends in the district, nor did they come empty-handed. At the end of the final meeting the President, A. Blackburn, expressed appreciation of the work done and stressed its value. The Editor, R. B. Sibson, spoke of the possibilities of the Kaipara and the organiser, H. R. McKenzie, thanked all who had helped and worked in this ambitious scheme.

BIRDS ON THE HARBOUR AND ALONG ITS SHORES

This list has been compiled mainly according to the order and nomenclature of the "Checklist of New Zealand Birds," 1953. The accompanying map shows the number and name of each of the areas. In the list the common and the scientific names are given, then in parenthesis the number of the area and, in plain figures, the number of the species seen in that area, followed by the total of the species. For instance "Australian Gannet," *Sula bassana serrator*: (1) 2; (2) 1; Total 3" indicates that two were seen at Poutu and one at Tinopai. It is hoped that this method, used in conjunction with the map, will facilitate study of any place visited by members. Mrs. Helen Hall, Wildlife Branch, Internal Affairs Department, is heartily thanked for making this map and Miss A. J. Goodwin, Clevedon, for making large scale maps of each of the ten areas.

SEABIRDS

SOOTY SHEARWATER (*Puffinus griseus*), (1) 1. (5) 1. Total 2.
A desiccated specimen on the beach towards North Head and another at Tapora.

COOK'S PETREL (*Pterodroma c. cooki*). Calls generally recognised as of this petrel heard in late evenings from Helensville to Tinopai. Mrs. M. J. Barron reports that calls were heard at Poutu just before and just after the survey so that the species moves across the whole of the Kaipara Harbour (cf Fleming, N.Z.B.N. 1, 58-59).

AUSTRALIAN GANNET (*Sula bassana serrator*), (1) 2; (2) 1. Total 3.
These would probably be from Oaia Islet, off Muriwai Beach.

WATERFOWL AND SALT-MARSH BIRDS

BLACK SHAG (*Phalacrocorax carbo novaehollandiae*), (2), 3; (3) 5; (4) 6; (7) 1; (8) 2; (9) 16 plus 43. Total 76.

A reported shag nesting colony on Mr. Rolston's farm, south of Shelly Beach, was visited and found to be entirely of Black Shags, situated in huge green Cupressus macrocarpa trees on the edge of a large mangrove swamp. B. D. Bell was able to climb part way up and eight nests were counted, one containing at least one large young. Very few birds were about so Master John Rolston, a keen observer, was asked to tally the evening incoming which he knew would occur. He obtained the above count of 43 birds, so these trees were obviously used also as a roost. A few of the 43 birds may already have been counted elsewhere during the day. It was deemed a most unusual place for this species to breed and no other such colony was found in the Harbour.

PIED SHAG (*Phalacrocorax v. varius*), (1) 21; (2) 4; (3) 3; (4) 85; (5) 7; (6) 19 and two colonies too distant to count; (7) 43, including a colony; (8) 1; (9) 81; (10) 39. Total 303, plus the two further colonies not counted. The nesting colonies were small, all in mangrove. There would almost certainly be others in the vast mangrove areas, particularly in the south where boats could not be used owing to the storm. The Helena Bay colonies will be described below with White-throated.

WHITE-THROATED SHAG (LITTLE SHAG) (*Phalacrocorax melanoleucos brevirostris*)

White-throated phase, (4) 2; (5) 3; (7) 1; (9) 156. Total 162	
Little Pied phase, not called <i>P. m. melanoleucos</i> in N.Z. Checklist, (6) 1; (7) 1; (9) 13.	Total 15
Intermediate phase, smudgy, (9) 14.	Total 14

Grand Total 191

By far the most interesting colony was a mixed one of Pied and the three phases of White-throated in Helena Bay, south-east from Kaipara South Head. A small mixed colony in one creek had 10 Pied and 6 nests, 7 White-throated with 3 nests, 1 Small Pied and 1 smudgy bird. The nests were not occupied. The main colony was in another creek, so narrow that the mangroves at high tide were only far enough apart to allow the runabout to brush through, so that it was impossible to keep far enough away to count accurately. Large young were dropping into the water and diving and newly hatched chicks were left exposed to a hot sun so the boat had to be run past quickly and back again without stopping. Counts of flying, diving and sitting birds could only be approximate. A rough attempt was made to count the numerous young of all sizes up to flying stage. Some nests were so low that the contents could be seen. Most of these contained four eggs each so it was evidently a late fringe of the colony. One nest had been flooded by a previous tide. The tightly packed colony was all on the west side of the creek although the mangroves on the east side were exactly the same. Approximate counts were: Pied, 70 flying, 30 chicks,

- mostly very large, and 40 nests. White-throated, 140 flying, 60 chicks of all stages, and 120 nests, about 20 of which had eggs. Small Pied, 12 flying. Smudgy, 12 flying.
- BLUE HERON (REEF HERON) (*Egretta s. sacra*), (2) 8; (4) 2; (6) 4; Total 14.
- WHITE-FACED HERON (*Ardea novaehollandiae*), (1) 11; (2) 75; (3) 25; (4) 38; (5) 20; (6) 217; (7) 124; (8) 76, (9) 134, (10) 3. Total 723.
- AUSTRALIAN BITTERN (*Botaurus stellaris poiciloptilus*), (2) 2; (4) 1. Reported plentiful in tidal swamps and inland. Total 3.
- BLACK SWAN (*Cygnus atratus*), (1) 2; (5) 245; (7) 1000; (9) 550. Total 1797. No doubt many more to arrive from inland breeding grounds.
- GREY DUCK (*Anas s. superciliosa*), (1) 5, (2) 250, (3) 86, (4) 30, (5) 125, (6) 51, (7) 24, (9) 76, (10) 3. Total 650.
- MALLARD (*Anas p. platyrhynchos*), (5) 10, (9) 1. Total 11. Reported fairly common. Some hybrids seen. No particular care was taken with Grey and Mallard ducks.
- NEW ZEALAND SHOVELER (*Anas rhynchotis variegata*), (5) 1, (9) 2. Total 3.
- NEW ZEALAND BANDED RAIL (*Rallus philippensis assimilis*), (1) 3, (2) 2, (4) 1 others calling, (6) 2, (9) 1. Total 9. Only those near tidewater counted. Others inland.
- NORTH ISLAND FERNBIRD (*Bowdleria punctata*), (1) 1, (2) 3, (6) 15 or so, some seen, some heard, (7) 1. Total 20. Only those in saltmarsh counted. Others inland.

SKUAS, GULLS, TERNS

- ARCTIC SKUA (*Stercorarius parasiticus*), (2) 2, (4) 1. Total 3.
- SOUTHERN BLACK-BACKED GULL (*Larus dominicanus*), (1) 16, (2) 88, (3) 25, (5) 18, (6) 58, (7) 124 including a late nesting colony, (8) 13, (9) 47, (10) 37. Total 471.
- RED-BILLED GULL (*Larus novaehollandiae scopulinus*), (1) 54, (2) 234, (3) 189, (4) 110, (5) 17, (6) 19, (7) 72 (8) 279, (9) 106, (10) 36. Total 1080. Probably more to come from northern breeding places.
- CASPIAN TERN (*Hydroprogne caspia*), (1) 11, (2) 1, (3) 6, (4) 16, (5) 55, (6) 46, (7) 37, (8) 8, (9) 39, (10) 105. Total 324.
- WHITE-FRONTED TERN (*Sterna striata*), (1) 5, (3) 2, (4) 81, (7) 1, (8) 1, (9) 33, (10) 27. Total 150.
- LITTLE TERN (*Sterna albigrons*), (6) 11. Total 11. These were fishing at the mouth of the Tauhoa River and were identified by G. J. H. Moon, who has known and photographed Fairy Tern (*S. nereis*) on the east coast for many years and immediately saw that these were different, being the same as those at Firth of Thames when in winter plumage.

WADERS

- SOUTH ISLAND PIED OYSTERCATCHER (*Haematopus ostralegus finschi*), (1) 7, (2) 2, (3) 17, (4) 1, (5) 1068, (6) 80, (7) 125, (8) 1000, (9) 783, (10) 147. Total 3230. More winterers can be expected from the South.

NORTHERN OYSTERCATCHER (*Haematopus unicolor reischeki*)

Black phase, (1) 1, (5) 4. Total 5.

It is practically certain that there must have been others in distant flocks of S.I.P.O. of both black and pied phases.

Pied phase, (5) 2, (6) 1, (10) 5. Total 8.

Grand Total 13.

PACIFIC GOLDEN PLOVER (*Charadrius dominicus fulvus*), (5) 4, (6) 3, (10) 1. Total 8.

BANDED DOTTEREL (*Charadrius bicinctus*), (1) 6, (5) 7, (6) 10, (8) 100, (9) 5, (10) 41. Total 169. Hundreds still to come from South.

LARGE SAND DOTTEREL (*Charadrius leschenaulti*), (10) 3. Total 3.

NEW ZEALAND (RED-BREADED) DOTTEREL (*Charadrius obscurus*), (1) 13, (5) 26, (6) 5, (8) 5, (9) 5, (10) 25. Total 79.

WRYBILL (WRYBILLED PLOVER) (*Anarhynchus frontalis*), (3) 23, (5) 212, (8) 64, (10) 56. Total 355.

LONG-BILLED CURLEW (*Numenius madagascariensis*) (8) 1. Total 1.

ASIATIC WHIMBREL (*Numenius phaeopus variegatus*), (5) 2. Total 2.

EASTERN BAR-TAILED GODWIT (*Limosa lapponica baueri*), (1) 700, (5) 3000, (6) 1500, (7) 1825, (8) 2309, (9) 1900, (10) 700. Total 11934. Some showing colour. Total smaller than expected.

KNOT (*Calidris canutus rogersi*), (1) 2200, (5) 1000, (6) 12, (7) 140, (8) 600, (9) 40, (10) 350. Total 4342.

BLACK-TAILED GODWIT (? species), (8) 1. Total 1.

TURNSTONE (*Arenaria i. interpres*), (5) 91, (8) 4, (10) 70. Total 165.

SIBERIAN PECTORAL (SHARP-TAILED) SANDPIPER (*Calidris acuminata*), (8) 8. Total 8.

RED-NECKED STINT (*Calidris r. ruficollis*), (10) 6. Total 6.

PIED STILT (*Himantopus himantopus leucocephalus*), (1) 75, (2) 80, (3) 405, (4) 223, (5) 63, (6) 302, (7) 25, (8) 559, (9) 125, (10) 45. Total 1902. Obviously not the full winter population.

BLACK STILT (*Himantopus novaezealandiae*), (9) 1 all black and 3 heavily smudgy. Two others had smudgy heads. Larger than the Pied with them. Not seen, except for one smudgy, until 22nd, so must have been previously in the area south of Shelly Beach (Aotea), where the storm precluded exploration by boat, or they may have just arrived from the South.

BIRDS OF INLAND AND LAKES

No comprehensive survey was made, as these places were outside the scope of the Course. These notes are being appended so that parties studying the harbour area may find a further interest.

The Pouto party (1), found on Upper Rototuna Lake 11 New Zealand Dabchicks (*Podiceps rufopectus*), one pair having a chick with creamy stripes on its head, 2 Pied Stilts and a mixture of shags, Black, Pied, White-throated, Little Pied and Little Black (*P. sulcirostris*). One of the Little Pied had strongly rufous markings on its white front. A mixture of ducks contained Grey, Shoveler and Mallard. Lower Rototuna Lake had one Little Black Shag, four Dabchicks and

10 N.Z. Scaup or Black Teal (*Aythya novaeseelandiae*). On a lakelet, "Shag Lake," by Lake Kanono, a mixed shag colony had a preponderance of Little Pied, with White-throated and Little Black also present. Twenty-four nests were from one to ten feet above the water in drowned manuka trees. Some birds had colour variations, one being buffy where it should have been white. On Lake Kanono were 6 Dabchicks, 11 Black Swans, including one pair with seven cygnets, and Grey, Shoveler and Mallard ducks.

On the Tinopai peninsula Mr. and Mrs. J. A. Brown were told by local residents of the presence of New Zealand Pigeon (*Hemiphaga n. novaeseelandiae*), Kiwi (*Apteryx australis mantelli*), N.Z. Red-crowned Parakeet (*Cyanoramphus n. novaezelandiae*), North Island Kaka (*Nestor meridionalis septentrionalis*), Eastern Rosella (*Platycercus e. eximius*), Fernbird and Banded Rail. Some of the two latter were inland and not in the same places as those included in the counts for the Course. They frequent both tidal creeks and inland swamps and scrub.

In the Whakapirau area A. Blackburn described a possible N.Z. Red-crowned parakeet and G. K. McKenzie one at another spot.

At Ngamotu R. B. Sibson found a Brown Teal (*Anas chlorotis*) on a dam on Hargreave's farm. He was told that Kookaburras occur fairly often. Mr. Russell Hargreaves reported them present the next day. Passerines here, as elsewhere, were plentiful, most species still singing. Flocks of Starlings were a welcome sight.

Eleven or twelve Welcome Swallows (*Hirundo neoxena*) were found at the last bridge on Island Road, Tapora, by Misses McIntyre and Goodwin, with 1 nest, 1 egg, 1 nest flattened as if used and 1 apparently just started.

B. D. Bell reported on M. A. Waller's lagoons, South Head, Pied Shag 37, White-throated Shag 30, Pied Stilt 16, White-faced Heron 4, Bittern 3, Dabchick 5, plus two young, Grey Duck 40, Shoveler 2 or more, Mallard 5. On lakes and ponds on Mr. Donohue's property Brown Teal 1, White-throated Shag 8, Grey Duck 10, Black Shag 2, and Black Swan 4. A night roost of shags was reported.

Such birds as Pukeko (*Porphyrio porphyrio melanotus*), Indian Myna, White-backed Magpie and Kingfisher (*Halcyon sancta vagans*) were not included in the Course count.

Participants for full time (marked *) and part time were: Miss M. M. Neill*, B. D. Bell*, Wellington; D. E. and Mrs. Crockett*, Wanganui; Michael Bysouth*, R. and Mrs. and Miss Bysouth*, Hawera; R. J. E. and C. W. Taylor*, Havelock North; A. M. C. Davis*, Te Kuiti; A. Blackburn*, Gisborne; D. Bettesworth*, Cambridge; J. A. and Mrs. Brown and family*, Papakura; G. K. and Mrs. McKenzie*, Miss A. J. Goodwin*, H. R. and Mrs. McKenzie*, Clevedon; Miss M. C. R. McIntyre*, Howick; Miss J. Key-Jones*, R. B. Sibson*, D. V. Merton*, Auckland; M. K. Jones and three Senior Scouts, Riverhead; G. J. H. Moon*, Warkworth; L. L. and Mrs. Wintle*, Mangawhai; F. P. Hudson, M. G. Dill, Kaipara Flats; M. A. Waller, Kaipara South Head; Thos. Cowan*, Tapora; Mrs. M. J. Barron, Pouto; M. M. Ross*, Punaruku, Northland; A. T. Edgar, Kerikeri, Bay of Islands.

In order to add to the usefulness of the 1965 Survey for future observers the writer asked Mr. R. B. Sibson to make a historical record of some birds previously noted in the Kaipara Harbour. In May, 1941, R.B.S., E. F. Dodson and W. Ridland travelled by rail to Helensville,

then by steamer to Pouto. For the first night they slept with no bedding on the very hard planks in the Pouto wharf shed, but "men was men" in those days! On this trip they explored the coast and the lakes of the lower Pouto Peninsula. R.B.S., with Mr. and Mrs. Prickett and others, has since made many trips to several parts of the Harbour and F. P. Hudson has reported on the coast and the waters at and beyond Tauhoa.

ADDITIONAL NOTES AND COMMENTS

By R. B. SIBSON

As old narrow country roads have improved and new roads have been built, Auckland ornithologists have been able to visit the tips of some peninsulas and some remote stretches of shoreline on the Kaipara much more frequently. One result has been that the list of some less common breeders and of rare visitors is becoming impressively long. So that the ornithological picture of Kaipara may be more complete and the report of the 1965 census more valuable for future reference, the following notes are appended. Most, though not all of these observations have been reported in *Notornis* and the references are given.

DABCHICK. On 6/1/49 (3, 202) 3+ pairs were breeding on a big shallow lake among the sand dunes at Tapora. Also on the lake were some scores of Shoveler ducks and several Scaup, including two ducks, each with five ducklings. This lake has since been drained and its floor is rough pasture.

SHEARWATERS. Numbers of petrels and shearwaters of various species are annually cast ashore, but on 30/12/55 after it had been blowing strongly from the north-east for two days — Northland was catching the edge of a tropical cyclone — some hundreds of *P. carneipes* and a few *P. bulleri* were flying over mid-Kaipara especially where the grey-brown silt-laden water met the blue-green oceanic water of the Tasman.

LESSER FRIGATE BIRD (*Fregata ariel*). One at Pahi in March, 1907. More recently single birds recorded in March 1959, January 1960 and March 1963 (9, 109 and 10, 238).

WHITE HERON (*Egretta alba*). A regular winter visitor, sometimes in fair numbers (10, 313).

LITTLE EGRET (*Egretta garzetta*). One at Port Albert on 16/4/61 (10, 44). Probably overlooked in winter among *E. alba*.

WHITE-FACED HERON. Still rather rare in 1956, viz. only one seen in December during a week's exploration based on Tinopai; but becoming plentiful by 1958 (7, 194 and 8, 68). c75 in one roost at Journey's End, Tapora, on 1/5/60.

WHITE IBIS (*Threskiornis strictipennis*). One at Te Kopuru, winter 1957 (8, 56).

ROYAL SPOONBILL (*Platalea regia*). Three during autumn 1958 (8, 68) and 4 in May 1959 (8, 202) at Tapora. Possibly now a regular visitor.

GREY PLOVER (*Charadrius squatarola*). One at the "Island" at Tapora on 16/4/61 (9, 242).

PACIFIC GOLDEN PLOVER. Regular summer visitor: the biggest flock so far being 28 at Tapora on 11/11/62.

- BANDED DOTTEREL.** Only a few pairs breed. Winter flocks of 80+ at Tapora and 300+ at Jordan's have been recorded (10, 250).
- LARGE SAND DOTTEREL.** One with Banded Dotterels at Jordan's on 26/5/63 (10, 250).
- RED-BREASTED or NEW ZEALAND DOTTEREL.** Kaipara Harbour is one of the most important areas for the survival of this scarce endemic species.
- WRYBILL.** The winter population has been estimated at 400-500 (10, 151) but in view of the recent survey this figure may be too low.
- ASIATIC WHIMBREL.** Eight near Parkhurst on 29/12/56 (7, 196). One at Jordan's on 26/5/63 (10, 250).
- TEREK SANDPIPER (*Tringa terek*).** Tapora, 1 on 3/5/59 and 1/2/60 (8, 265); 1 on 1/5/60 (9, 76); 1 on 13/4/63).
- TATTLER.** 1 at Mairetahi on 16/3/64; identity, *incanus* or *brevipes*, not determined.
- TURNSTONE.** A characteristic bird of the shoreline at Tapora. Biggest flock before the survey 80+ on 11/11/62; but 150+ on 19/4/65.
- SHARP-TAILED SANDPIPER.** 2 at Tapora on 13/4/63 appear to be the first recorded in Kaipara.
- CURLEW SANDPIPER (*C. ferruginea*).** 1 at Tapora on 1/4/64, apparently the only record so far.
- RED-NECKED STINT.** Small numbers so far, max. 4. Often with Wrybills at Tapora.
- ARCTIC SKUA.** On 30/12/55, during a north-easterly gale, c50 skuas were harrying the terns off South Head. At least two were suspected of 'pomarinity.'
- BLACK-FRONTED TERN (*Chlidonias albostrigatus*).** At Tangaihi, 16 on 23/4/55 (6, 244) and 14 on 15/6/57 (7, 197). At Tapora 1 on 11/11/62 (10, 186). Possibly a regular winter visitor in small numbers.
- WHITE-WINGED BLACK TERN (*Chlidonias leucopterus*).** 1 on Lake Kanono, Pouto, on 6/5/41 (6, 46).
- CASPIAN TERN.** One of the largest breeding colonies in this country is near Waionui Inlet on the sands below South Head.
- FAIRY TERN (*Sterna nereis*).** A pair has been seen near Tapora in the nesting season but no nest could be found. Otherwise there are no recent records that are wholly acceptable.
- LITTLE TERN.** Small non-breeding terns seen in summer at Tapora show the same plumages and moults and behave in the same way as Little Terns in the Firth of Thames. On 11/11/62 there were at least 13 resting among waders.
- WHITE-FRONTED TERN.** There is usually a big breeding colony on the sands below South Head; and in some years they breed on the 'Island,' Tapora.
- WHITE-CAPPED NODDY (*Anous tenuirostris minutus*).** The first and second North Island records both come from Kaipara; viz. 1 at South Head on 19/10/53 (6, 176) and one near Woodhill, 5/8/64, skin now in Auckland War Memorial Museum.

OBSERVATIONS OF SEABIRDS IN THE TASMAN SEA AND IN NEW ZEALAND WATERS IN OCTOBER AND NOVEMBER, 1962

By Lieut. A. Y. NORRIS, R.N.

Between 1 October 30 November, 1962, I made observations of seabirds from a submarine, H.M.S. TABARD, in which I was serving as Navigating Officer. The submarine steamed from Sydney, N.S.W., to operate with units of the Royal New Zealand Navy in New Zealand waters before returning to Sydney through the Foveaux Strait and across the South Tasman Sea. The ship's track around the Dominion is shown in the map.

I have frequently watched birds from the bridges of submarines during the last 6½ years. Such a situation is in many ways, ideal. In "Tabard" the height of eye is about 24 feet — high enough to see over successive waves or a moderate swell, yet sufficiently low to see the undersides of seabirds, particularly *Procellariiformes* as they performed their tell-tale jinks while altering direction when too close to the boat. Furthermore, the bulk of the superstructure is relatively small and birds are not frightened away from the submarine until they are very close. The conning position is fairly stable because of the low centre of gravity of the ship: thus, the observer remains fairly steady. Finally, he is able to see all round without having to move from one position. Generally I have found it unsafe to attempt identification outside a range of 200 yards but fortunately most birds usually pass close to the boat. As species become more familiar to a watcher, the range at which the correct identification can be achieved increases.

CONDITIONS

No prolonged periods of bad weather were experienced. Light conditions were generally good and the boat remained reasonably steady.

Information on currents in the South Tasman Sea and around New Zealand is scanty. However, it seems that there is an easterly water flow across the Tasman which becomes N.E. as it nears the West coasts of New Zealand, while there is a S.E. set away from the S.E. coasts of the Dominion. Off the N.E. coast of North Island to seaward of the Poor Knights, Moko Hinau, Great Barrier, Mercury and Alderman Islands the effect of the S.E. set was only noticeable outside the 100 fathom line, markedly so on several occasions when the submarine was dived.

Measurements of surface water temperatures taken during the east-bound crossing of the Tasman Sea and off the N.E. coast of North Island showed that temperatures differed very little from those off the E. coast of Australia. Off the E. coast of New Zealand the temperature decreased markedly as the submarine crossed the Subtropical Convergence in the approaches to the Cook Strait. In the Foveaux Strait and during the first half of the N.W. passage of the Tasman Sea the surface temperature was very cold until the convergence was crossed once more in an approximate position of 42°S. 161°E.

Apart from birds and fish, few animals were encountered except in the offshore approaches to the Hauraki Gulf where many dolphins



were observed. Unidentified whales were seen on six occasions during the period. In the Hauraki Gulf and its offshore approaches, visual and mechanical observations showed the region to be particularly rich in fish and plankton; this has been confirmed by Dr. A. Olssen of the Naval Research Laboratory, Auckland. At night I was especially impressed by the large areas of phosphorescence which occurred here: a phenomenon which I have rarely seen so marked elsewhere. Further evidence of the high concentration of plankton in this region was repeatedly obtained at night when the submarine surfaced; I always found large quantities of organisms trapped as the water drained out of the fin and casing. Once again, this was unprecedented in my experi-

ence. Thus there was ample evidence to demonstrate why this region can support a seabird population rich in variety and numbers.

The remains of cephalopods were found after surfacing in the fin and casing when the submarine was operating beyond the 100 fathom line. This may be significant in relation to the notes upon the distribution of albatrosses which follow.

OBSERVATIONS

Details of all observations made during the period under review are listed in a systematic order which follows Alexander (1955).

Where they have been found to be of value in identification at sea, notes of comparative differences between closely related species have been added. Such criteria must be used with great care for their successful use depends upon a good view of the individual. Observations on behaviour are included together with notes on the appearances of seabirds; descriptions occurring in many references have been taken from skins, and, often, salient points noticeable at sea, seem to have been missed.

In my experience, positive identification of seabirds during a watch is achieved with about half the total number seen. Range is often the most important limiting factor.

PENGUINS

Eudyptula minor. Little Penguin.

13/10/62 (1330) Sea area within 3 miles and E. of Oruawharo Pt., Great Barrier Island, N.I. Twelve birds.
(1640-1800) Sea area within 2 miles E. of Cape Barrier, Great Barrier Island, N.I. Eight birds.

20/10/62 (0900) S. Hauraki Gulf. 36°40'S. 174°49'E. One bird.

Eudyptula sps.

21/11/62 (1000) 44°04'S. 172°49'E. One bird.

Generally observations of penguins at sea were found to be impossible in sea states which were slightly worse than calms. Since such conditions were common few penguins were seen, despite a careful watch in the sea areas adjacent to known breeding areas. Under ideal conditions, penguins were only seen with great difficulty.

On 21 November one bird *Eudyptula* sp. was seen swimming under the surface near the submarine. Using a stop watch and estimates involving the ship's speed and relative positions, three observers estimated the penguin's speed to be approximately 15 ft./sec. This bird remained dived for 25 seconds and swam parallel to the ship's side for 12 seconds. It showed no concern for the submarine at any time.

ALBATROSSES

Specific identification of albatrosses at sea is usually possible provided the light conditions are good and provided the watcher takes care to note systematically every mannerism besides plumage details and shape. Although this may seem obvious, several persons in Australia and New Zealand have told me that because of the basic similarity of the smaller albatrosses, they cannot be told apart at sea. Thus many seemed unwilling to attempt specific identification when the opportunity occurred.

Diomedea epomorphora. Royal Albatross.

22/11/62 (0630) Off-shore approaches to Otago Harbour. 45°43'S. 170°50'E. One bird.

The Royal Albatross was identified with certainty only in the vicinity of Taiaroa Head near Dunedin. Great care was taken with the

identification of the Wandering Albatross *D. exulans* throughout the period. In order to be certain, only one characteristic was used to differentiate between these very similar species: the black line along the cutting edge of the bill of *epomorphora*. F. C. Kinsky, of the Dominion Museum, Wellington, suggested that an indication of the Northern race of the Royal Albatross in flight was the almost black dorsal surface of the wings with possible pale edging of the feathers of the greater wing coverts. When sighted such an individual always proved to be of this species subsequently. Under good light conditions the bill markings could be seen clearly out to a range of 40 yards. During two periods of observation in moderate light conditions from the headland at Tairaroa on 23 and 24 November this range was checked over land and was estimated to be 30 yards. Flight characteristics of Royals appeared to be the same as those of Wanderers, but another suggestion that the former have their wing tips turned back slightly could not be checked.

In company with Mr. S. Sharpe on the afternoon of 23 November, I saw an individual of the Southern race over the breeding area at Tairaroa Head where the bird remained for 15 minutes. The plumage of this bird seemed very similar to that of an adult Wandering Albatross, but the black cutting edge of the bill was seen on four occasions. A maximum of eleven individuals was seen at one time during a total of three hours actual observation from the land and at sea.

Diomedea exulans Wandering Albatross.

2/10/62	(0500-0800K)	Tasman Sea	34°09'S. 158°35'E. to 34°09'S. 159°19'E.	One adult.
	(1430-1620K)	Tasman Sea	34°09'S. 160°49'E. to 34°09'S. 161°12'E.	One juv., 2 immatures.
3/10/62	(1030-1230L)	Tasman Sea	34°20'S. 164°22'E. to 34°20'S. 164°48'E.	Two adults, 1 juv.
4/10/62	(0830-1030L)	Tasman Sea	34°29'S. 168°30'E. to 34°30'S. 169°03'E.	Three adults, 3 immatures, 1 juv.
	(1700-1800L)	Tasman Sea	34°29'S. 171°29'E. to 34°29'S. 171°40'E.	Two adults, 1 immature, 1 juv.
5/10/62	(0530-0530M)	Off North Cape, North Island.	Nil.	
	(1120-1335)	Off-shore approaches to the Bay of Islands,	34°57'S. 174°02'E. to 35°16'S. 174°25'E.	Two adults, 1 immature.
9/10/62	1330-1800	S.W. Pacific	35°25'S. 175°45'E. to 35°40'S. 175°19'E.	One adult.
11/10/62	1030-1230	S.W. Pacific	35°45'S. 175°14'E. to 37°00'S. 176°14'E.	One immature.
12/10/62	(0530-0530)	S.W. Pacific	35°29'S. 176°57'E. to 35°28'S. 176°43'E.	Two adults, one immature.
26/10/62	(1000)	S.W. Pacific	40°28'S. 176°51'E.	Three immatures, 1 juv.
28/10/62	(0915)	Sea area between Kapiti island and the Mainland.		One adult.
1/11/62	(1030-1230)	Hawke Bav.		Ten adults.
8/11/62	(0415-0530)	S.W. Pacific	35°10'S. 177°00'E.	One adult, 3 immatures.
	(1100-1230)	S.W. Pacific	35°08'S. 177°10'E.	Two adults.
	(1700-1830)	S.W. Pacific	35°09'S. 177°08'E.	Two adults, 3 immatures, 1 juv.
15/11/62	(0430-0530)	S.W. Pacific	35°09'S. 175°55'E.	One adult, 1 immature.
19/11/62	(0840-1035)	S.W. Pacific	37°16'S. 177°47'E. to 37°26'S. 178°10'E.	1 adult, 2 immatures.
	(1430-1630)	S.W. Pacific	37°54'S. 178°35'E. to 38°20'S. 178°31'E.	Nil.
20/11/62	(0430-0630)	S.W. Pacific	40°10'S. 177°19'E. to 40°27'S. 177°01'E.	Six adults, 1 immature.
	(1430-1630)	S.W. Pacific	41°30'S. 175°50'E. to 41°47'S. 175°32'E.	3 adults, 1 immature.
21/11/62	(0430-0530)	S.W. Pacific	43°24'S. 173°42'E. to 43°38'S. 173°25'E.	Two adults.
	(0850-1000)	S.W. Pacific	43°54'S. 172°59'E. to 44°04'S. 172°49'E.	One adult.
	(1400-1600)	S.W. Pacific	44°34'S. 172°14'E. to 44°50'S. 171°55'E.	Three adults.
22/11/62	(0630)	Off-shore approaches to Otano Harbour	45°43'S. 170°50'E.	One adult.
27/11/62	(1630-1830)	Tasman Sea	45°54'S. 166°07'E. to 45°44'S. 165°53'E.	11 individuals. Seven plus adults. 2 immatures.
28/11/62	(0430-0630)	Tasman Sea	44°25'S. 164°18'E. to 44°10'S. 163°58'E.	Five adults, 1 juv.
	(1640-1720L)	Tasman Sea	42°52'S. 162°05'E. to 42°48'S. 161°59'E.	Four adults, 2 immatures.
29/11/62	(0430-0530L)	Tasman Sea	41°24'S. 160°05'E. to 41°10'S. 159°41'E.	Three adults, 1 immature.
	(1630-1900L)	Tasman Sea	39°37'S. 157°48'E. to 39°15'S. 157°20'E.	Ten adults, 2 immatures.
30/11/62	(1440-1630L)	Tasman Sea	36°40'S. 154°16'E. to 36°23'S. 153°50'E.	One adult.

This was the albatross most frequently observed during the entire period. It was seen on eleven out of twelve watches kept during

transits of the Tasman Sea; the higher the latitude, the greater the numbers seen. Off the N.E. coast of North Island, 19 watches, varying from 5 minutes to 5 hours, were kept during daylight hours. In twelve of these watches, kept while the submarine was operating within the 100 fathom line, this albatross was only seen in the offshore approaches to the Bay of Islands and approximately ten miles N. of Cape Runaway. The remaining watches were conducted while the ship was either in the vicinity of or to seaward of the 100 fathom line, out to some 80 miles E. of Great Barrier Island, and this species was observed during each watch.

East Coast Observations. From 25 October to 3 November, the ship travelled from East Cape to Cape Palliser and back. Unfortunately it was not possible to watch regularly but observations were made on two occasions. Brief observations were obtained at other times in this period but because of operational commitments, time did not allow me to record positions or times. These glimpses always showed at least 12 Wandering Albatrosses around the ship. This contrasted with the situation some $2\frac{1}{2}$ weeks later when the numbers of this magnificent bird in the same area were noticeably less. The ship's track followed the 100 fathom line on each of the three passages.

In the period 19 to 22 November, H.M.S. "Tabard" steamed from East Cape to Otago Harbour. Four observations were made in the latter half of this passage from the vicinity of Banks Peninsula to Taiaroa Head. A maximum of 3 individuals was seen at one time. This section of the trip was from 2 to 20 miles within the 100 fathom line.

South Coast Observations. None were made in two periods each of two hours in the approaches to the Foveaux Strait.

Diomedea melanophris. Black-browed Albatross.

1/10/62	(1630-1800K)	Tasman Sea.	34°04'S.	155°51'E.	to	34°05'S.	156°11'E.	Two adults.
2/10/62	(0300-0355K)	Tasman Sea.	34°09'S.	158°35'E.	to	34°09'S.	159°19'E.	One adult.
8/11/62	(1700-1830M)	S.W. Pacific.	35°09'S.	177°08'E.	One adult.			
15/11/62	(0430-0530M)	S.W. Pacific.	35°08'S.	175°55'E.	One immature.			
20/11/62	(1430-1630M)	S.W. Pacific.	41°30'S.	175°50'E.	to	41°47'S.	175°32'E.	One immature.
21/11/62	(1400-1600M)	S.W. Pacific.	44°34'S.	172°14'E.	to	44°50'S.	171°55'E.	One adult.
	(1930M)	S.W. Pacific.	45°03'S.	171°48'E.	Four immatures.			
22/11/62	(0530M)	Off-shore approaches to Otago Harbour.	45°43'S.	170°50'E.	One immature.			
26/11/62	(1430-1630)	S.W. Pacific.	46°19'S.	170°05'E.	to	46°33'S.	169°45'E.	One immature.
27/11/62	(0830-1030M)	W. approaches to Foveaux Strait.	45°26'S.	167°25'E.	to	46°25'S.	167°03'E.	One adult.
	(1630-1830M)	Tasman Sea.	45°54'S.	165°07'E.	to	45°44'S.	165°53'E.	Three adults.
28/11/62	(1640-1720L)	Tasman Sea.	42°52'S.	162°05'E.	to	42°43'S.	161°59'E.	One adult.
29/11/62	(0430-0610L)	Tasman Sea.	41°24'S.	160°05'E.	to	41°10'S.	159°41'E.	One adult.
	(1630-1900L)	Tasman Sea.	39°37'S.	157°43'E.	to	39°15'S.	157°20'E.	Four adults.
30/11/62	(1440-1630L)	Tasman Sea.	36°40'S.	154°16'E.	to	36°23'S.	153°50'E.	One immature.

Seven of fifteen watches during which this mollymawk was seen, were kept during the transits of the Tasman Sea. In 27 periods of observation off the coasts of North Island, it was seen on three occasions, always outside the 100 fathom line. It was encountered during five of seven watches when the boat was in coastal waters off South Island. While "Tabard" was in New Zealand waters 3 adults and 8 immatures were seen.

The Black-browed Albatross is perhaps the easiest of the dark-backed albatrosses or mollymawks to identify at sea. A long range characteristic which I have repeatedly used is the very short but thick neck of this species in proportion to the length of the body, compared to other albatrosses which I have encountered in the S.W. Pacific.

Diomedea bulleri. Buller's Albatross.

20/11/62	(1430-1630)	S.W. Pacific.	41°30'S.	175°50'E.	to	41°47'S.	175°32'E.	One.
21/11/63	(0430-0630)	S.W. Pacific.	43°24'S.	173°42'E.	to	43°38'S.	173°25'E.	Two.
	(0850-1000)	S.W. Pacific.	43°54'S.	172°59'E.	to	44°04'S.	172°49'E.	Five.
	(1400-1600)	S.W. Pacific.	44°34'S.	172°14'E.	to	44°50'S.	171°55'E.	Four.
	(1930)	S.W. Pacific.	45°03'S.	171°48'E.				Three.
22/11/62	(0530)	Off-shore approaches to Otago Harbour.	45°43'S.	170°50'E.				Three.
26/11/62	(1430-1630)	S.W. Pacific.	45°19'S.	170°06'E.	to	45°33'S.	169°45'E.	Four.
27/11/62	(0830-1030)	W. Approaches to Foveaux Strait.	46°26'S.	167°26'E.	to	46°26'S.	167°03'E.	Seven.
	(1630-1830)	Tasman Sea.	45°54'S.	166°07'E.	to	45°44'S.	165°53'E.	One.
28/11/62	(0430-0630)	Tasman Sea.	44°25'S.	164°18'E.	to	44°10'S.	163°58'E.	Two.

While operating in high latitudes to the S. of Australia, I have seen *D. chrysostoma*, the Grey-headed Albatross. With the prospect of operations in waters where "the rarest and least known member of the Albatross family (Alexander, 1955) could be found, I expected difficulty in identifying Buller's Albatross — another "Grey-head." In retrospect, particularly since the early morning of 28 November when *bulleri* and *chrysostoma* were seen together, I think that this doubt was unjustified. My impressions of the comparative differences between these species are as follows:—

(a) The head of *bulleri* appears proportionately larger out to 200 yards range.

(b) In *bulleri* the colour of the head in good light conditions (i.e. clear sun) is a delicate blue-grey whereas that of *chrysostoma* under similar conditions is a dusky grey.

(c) In wind conditions of Force 3 and less the flight of *bulleri* is much more laboured and the bird is usually very close to the surface of the water while in rougher conditions the flight of *bulleri* appeared much more powerful.

Buller's Albatross was seen during every period that I spent on the bridge off the E. and S. coasts of South Island from the E. approaches to Cook Strait to a position 176 miles N.W. of Puysegur Point. Generally it showed no marked disposition to follow the ship for any length of time. However, it frequently came to within 30 yards.

Diomedea cauta. Shy Albatross.

26/11/62	(1430-1630M)	S.W. Pacific.	45°19'S.	170°05'E.	to	45°33'S.	169°45'E.	One bird.
28/11/62	(1640-1720L)	Tasman Sea.	42°52'S.	162°05'E.	to	42°48'S.	161°59'E.	Two.
29/11/62	(0430-0510L)	Tasman Sea.	41°24'S.	160°05'E.	to	41°10'S.	159°41'E.	One.
	(1630-1900L)	Tasman Sea.	39°37'S.	157°45'E.	to	39°15'S.	157°20'E.	Two.

All three races of the Shy Albatross occur in the region covered by these notes. In nearly 2½ years service in Australian waters I have become familiar with the typical race in the Bass Strait and off the coast of N.S.W. *D. cauta* has a characteristic pattern on the ventral surfaces of the wings, and it is noticeably larger than other members of the 'mollymawk group' which occur in the Tasman Sea. Australian observers prefer to call this bird the "White-capped Albatross." At sea I have never found this cap at all distinctive although modern colour photography does appear to accentuate this feature in breeding birds on the nest. All the observations except the first refer to white-headed birds of the typical form. The head and nape of the bird seen off the S.E. of South Island on 26 November was tinged very pale grey. This was the first time that I saw this colouration and it is probable that this individual belonged to the race *salvini*. In the typical race and *salvini*, the colour of the bill is mid-grey. The race *eremita* has a dark grey head and yellow bill but appears to have a limited distribution near the Chatham Islands.

[It has now been recorded off Bank's Peninsula.—Ed.]

Diomedea chlororhynchos. Yellow-nosed Albatross.

- 1/10/62 (1630-1800K) Tasman Sea. 34°04'S. 155°51'E. to 34°05'S. 156°11'E. One adult, two immatures.
 4/10/62 (0830-1030L) Tasman Sea. 34°29'S. 168°30'E. to 34°30'S. 169°03'E. One immature.
 (1700-1800L) Tasman Sea. 34°29'S. 171°29'E. to 34°29'S. 171°40'E. One adult.
 5/10/62 (1120-1335M) Off-shore approaches to the Bay of Islands, 34°57'S. 174°02'E. to 35°16'S. 174°25'E. One immature.
 12/10/62 (0630M) S.W. Pacific. 36°29'S. 176°43'E. One adult.

It is my experience that this albatross is fairly frequently encountered in winter and early spring along the shipping routes from Fremantle to Sydney and in the Tasman Sea. It was no surprise therefore that it was seen in early October throughout the passage eastwards across the Tasman and off the N.E. coast of North Island. It was not observed during the return passage to Sydney. Since *D. chlororhynchos* does not normally occur as far E. as New Zealand a full description taken from my notes for both the adult and the immature birds is included, thus:—

A noticeably small and slim albatross which lacked the thick, neckless appearance of *D. melanophris*. Although most mollymawks tend to have this 'neckless' appearance, the slimmness of *chlororhynchos* does lessen the effect considerably. This characteristic was used as an aid to identification for adults and immatures at ranges between 200 and 400 yards using binoculars, with final confirmation when and if the birds approached the ship. Head, neck, upper tail coverts, rump and underparts white. Tail short and brownish. Back sooty black, where in *melanophris* almost slate/black and in *chrysostoma* darkish grey. Upper surfaces of wings brownish black. The pattern on the under surfaces of the wings is quite distinctive in that the linings are white with a moderately thick and fairly well defined black edge on both the leading and trailing edges of the wings. Out to range of approximately 400 yards, this pattern contrasts with that of *melanophris* in which the forewing between the body and the carpal joint is thickly edged black while the rest of the edge of the forewing is moderately dark; the trailing edge sometimes has a thin black edging or is occasionally white with a few black marks. The wing linings are white. The bill colour of *chlororhynchos* is black with a bright yellow line down the ridge of the upper mandible to a bright orange tip which is only visible in excellent light conditions out to 25 yards. There is no suggestion of a dark brow. Length about 30 inches.

The immature differed from the adult in that (a) the bill is entirely dull black, (b) the underwing pattern while being similar, is not so distinct, and (c) at very close ranges and in excellent light conditions, the head has slight grey striations. I seldom saw the last characteristic and any immature which appeared to have an almost completely white head was of this species. The underwing pattern of the immature *melanophris* differs in that it is dark grey/black with a thin grey/white or sometimes dusky lining.

The adult was seen down to 20 yards on 12 October but an immature seen on 5 October only approached to 100 yards. On both occasions light conditions were good and the birds were observed for at least 5 minutes.

Diomedea chrysostoma. Grey-headed Albatross.

- 28/11/62 (0530M) Tasman Sea. 44°10'S. 163°58'E. One adult.

I have already discussed relative differences between *chrysostoma* and *bulleri*. The grey head differentiates between the former and

chlororhychos. In the Grey-headed Albatross the red tip to the upper mandible is visible out to 30 yards in good light conditions. The bill is grey/black and has a yellow line along the ridge of the upper mandible; there is also a yellow stripe on the ridge of the mandible but I have only seen this once at sea. There is a black mark through the eye.

I expected to see *chrysostoma* in the higher latitudes around the S. of the Dominion and was surprised not to meet it.

Phoebetria palpebrata. Light-mantled Sooty Albatross.

24/11/62 (1500M) Approaches to Otago Harbour, 45°45'S. 170°49'E. One.

Observed once during the period, the individual was first seen close inshore under Taiaroa Head but subsequently it meandered in a general E.N.E. direction until lost from sight.

I have seen individual Sooty Albatrosses *P. fusca* in spring in the shipping routes across the Great Australian Bight and in June, 1962, one was observed in a position 67 miles E.S.E. of Montagu Island, N.S.W. Therefore I took great care on the return passage to Australia to investigate every possible bird which presented itself but nothing eventuated. In general '*Phoebetria*' albatrosses are easily identified as such because of their dark colouration and the apparent length of the body behind the wings, an effect caused by the long, wedge-shaped tail. The dark colouration tends to make this group rather inconspicuous in indifferent weather and as a result I suspect that these albatrosses may be overlooked along recognised shipping routes within their ranges.

PETRELS AND SHEARWATERS

Macronectes giganteus. Giant Petrel.

5/10/62	(0530-0630M)	Sea area off North Cape, N.I.	One bird.
	(1630-1835M)	N. approaches to Hauraki Gulf.	35°46'S. 174°45'E. to 36°10'S. 174°54'E. One bird.
9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E. Three birds.
14/10/62	(1115-1230M)	S.W. Pacific.	36°24'S. 175°33'E. to 36°24'S. 175°46'E. One bird.
20/10/62	(0700)	Hauraki Gulf.	36°20'S. 174° 59'E. Two birds.
26/10/62	(1000)	S.W. Pacific.	40°28'S. 176°51'E. Six birds.
28/10/62	(0930)	Sea area between Kapiti Island and the Mainland.	One bird.
1/11/62	(1030-1230M)	Hawke Bay.	Twelve birds.
6/11/62	(1430M)	Approaches to Auckland Harbour.	Six birds.
8/11/62	(0415-0530M)	S.W. Pacific.	36°10'S. 177°00'E. One bird.
	(1700-1830M)	S.W. Pacific.	36°09'S. 177°08'E. One bird.
16/11/62	(0615-0830M)	S. Hauraki Gulf.	36°22'S. 175°23'E. to 36°35'S. 175°00'E. Five birds.
19/11/62	(0840-1035M)	S.W. Pacific.	37°16'S. 177°47'E. to 37°26'S. 178°10'E. Two birds.
	(1430-1630M)	S.W. Pacific.	37°54'S. 178°35'E. to 38°20'S. 178°31'E. Three birds.
20/11/62	(0430-0630M)	S.W. Pacific.	40°10'S. 177°19'E. to 40°27'S. 177°01'E. Two birds.
	(1430-1630M)	S.W. Pacific.	41°30'S. 175°50'E. to 41°47'S. 175°32'E. Three birds.
21/11/62	(0850-1000M)	S.W. Pacific.	43°54'S. 172°59'E. to 44°04'S. 172°49'E. One birds.
	(1400-1600M)	S.W. Pacific.	44°34'S. 172°14'E. to 44°50'S. 171°55'E. One bird.
26/11/62	(1430-1630M)	S.W. Pacific.	46°19'S. 170°06'E. to 46°33'S. 169°45'E. One bird.

The scavenging habits of the Giant Petrel are well known to those who have ventured into the higher latitudes of the Antarctic Ocean. I have witnessed large concentrations of this petrel off the sewerage outfall off Malabar, N.S.W. and by the outlet from the abattoir into the N. side of Wellington Harbour. It was not surprising, therefore, that it was more often encountered close to the shore, particularly where the proportion of effluence was high, than in areas well offshore.

Brief glimpses during the period 25 October to 3 November showed never less than 8 individuals around the ship. Some 2½ weeks later, the numbers of "Stinkers" seen were less. In the same period,

the numbers in Auckland Harbour and its approaches dropped steadily from 18 to one. Thus a departure from the coastal and offshore areas of the N.E. and E. coasts of North Island is indicated in early November.

Murphy (1936) states that black Giant Petrels are juveniles and that increasing amounts of pale feathers on the head and breast indicate aging. Using this criterion, it was found that adults usually frequented inshore waters while juveniles and immatures were found further out. This phenomenon was also noted in two years of observations off the coasts of central and southern N.S.W.

The "stiff-winged" attitude of this bird in flight together with its colouring and large size make it relatively easy to identify. It seems usual for it to remain within 30 feet of the surface of the water in flight; however, on 19 November during the afternoon watch, one Giant Petrel flew over and around the ship at heights estimated to be between 50 and 70 feet for nearly 4 minutes. At this time the wind was S.W. force 2 to 3.

Daption capensis. Pintado Petrel or Cape Pigeon.

1/10/62	(1630-1800K)	Tasman Sea.	34°04'S.	155°51'E.	to 34°05'S.	156°11'E.	One bird.
2/10/62	(0500-0800K)	Tasman Sea.	34°09'S.	158°35'E.	to 34°09'S.	159°19'E.	One bird.
	(1430-1620K)	Tasman Sea.	34°09'S.	160°49'E.	to 34°09'S.	161°12'E.	One bird.
3/10/62	(1050-1230L)	Tasman Sea.	34°20'S.	164°22'E.	to 34°20'S.	164°45'E.	One bird.
4/10/62	(0830-1030L)	Tasman Sea.	34°29'S.	168°30'E.	to 34°30'S.	169°03'E.	Nine birds.
	(1700-1800L)	Tasman Sea.	34°29'S.	171°29'E.	to 34°29'S.	171°40'E.	Six birds.
5/10/62	(0930-0930M)	Sea area off	North Cape, N.I.		Three birds.		
11/10/62	(0330-1230M)	S.W. Pacific.	36°46'S.	176°14'E.	to 37°00'S.	176°14'E.	One bird.
26/10/62	(1000M)	S.W. Pacific.	40°28'S.	176°51'E.	Ten birds.		
1/11/62	(1030-1230M)	Hawke Bay.	Forty birds.				
8/11/62	(0515-0530M)	S.W. Pacific.	36°10'S.	177°00'E.	One bird.		
20/11/62	(0430-0530M)	S.W. Pacific.	40°10'S.	177°19'E.	to 40°27'S.	177°01'E.	One bird.
	(1430-1630M)	S.W. Pacific.	41°30'S.	175°50'E.	to 41°47'S.	175°32'E.	Fourteen birds.
21/11/62	(0430-0530M)	S.W. Pacific.	43°24'S.	173°42'E.	to 43°38'S.	173°25'E.	Seven birds.
	(0850-1000M)	S.W. Pacific.	43°54'S.	172°59'E.	to 44°04'S.	172°49'E.	Five birds.
	(1400-1600M)	S.W. Pacific.	44°34'S.	172°14'E.	to 44°50'S.	171°55'E.	Twelve birds.
22/11/62	(0630)	Off-shore approaches	to Otago Harbour.		45°43'S.	170°50'E.	Five birds.
25/11/62	(1430-1630M)	S.W. Pacific.	45°19'S.	170°06'E.	to 46°33'S.	169°45'E.	38 birds.
27/11/62	(1630-1830M)	Tasman Sea.	45°54'S.	166°07'E.	to 45°44'S.	165°53'E.	Two birds.
28/11/62	(1400-1720L)	Tasman Sea.	42°52'S.	162°05'E.	to 42°48'S.	161°59'E.	One bird.

This is one of the most distinctive petrels of the Southern Oceans. Its chequered plumage of black, grey brown or grey, and white combined with its pigeon-like appearance make identification no problem. Many writers have commented upon its ugly behaviour when congregated in large numbers around whaling and sealing centres. Nevertheless, there can be few more beautiful sights than a flock of these birds, in bright sunlight, following astern on rigid wings in the slip-stream of the ship.

I have noticed considerable variation in the plumage of individuals: birds generally become whiter on the back, scapulars and wing coverts as the breeding season approaches. Even so, the differences between some individuals at any one time seem to be great, particularly in October and November. Murphy suggests that such variation is due to wear.

They were observed continuously throughout the East-bound passage of the Tasman Sea. But in 17 periods of observations between North Cape and East Cape, North Island, it was only seen twice, some 70 miles out to sea. During the passage of 25 October to 3 November previously referred to, at least 20 Pintado Petrels were always in view. Two and a-half weeks later numbers had decreased noticeably; it was only when the submarine was S. of latitude 46°S. that numbers arose above 20 again. The species was not recorded in the Foveaux Strait

area and was only seen once in the southern Tasman Sea on the return voyage to Sydney. It was a matter of ship's routine that galley refuse was disposed over the side about mid-day and early evening. Other observers have recorded that the Cape Pigeon is an eager devourer of garbage yet I have never seen it show any interest in this gash although these birds have been in the vicinity frequently following astern.

Pachyptila Spp. Prions.

5/10/62	(1120-1335M)	Off-shore approaches to the Bay of Islands.	34°57'S. 174°02'E. to 35°16'S. 174°25'E.	Five birds.
1/11/62	(1030-1230M)	Hawke Bay.		Three birds.
9/11/62	(0430-0630M)	S.W. Pacific.	35°29' S. 176°21'E. to 36°28' S. 175°04'E.	One bird.
20/11/62	(0430-0530M)	S.W. Pacific.	40°10' S. 177°19'E. to 40°27' S. 177°01'E.	13 birds.
	(1030M)	S.W. Pacific.	41°30' S. 176°22'E.	Two birds.
	(1430-1630M)	S.W. Pacific.	41°30' S. 175°50'E. to 41°47' S. 175°32'E.	Approx. 40 birds.
21/11/62	(0430-0630M)	S.W. Pacific.	43°24' S. 173° 42'E. to 43°38' S. 173°25'E.	Eight birds.
	(1400-1600M)	S.W. Pacific.	44°34' S. 172°52'E. to 44°50' S. 171°55'E.	65 birds.
26/11/62	(1430-1630M)	S.W. Pacific.	45°19' S. 170°06'E. to 46°33' S. 169°45'E.	49 birds.
27/11/62	(1630-1830M)	Tasman Sea.	45°54' S. 166°07'E. to 45°44' S. 165°53'E.	Two birds.
28/11/62	(0430-0530M)	Tasman Sea.	44°25' S. 164°18'E. to 44°10' S. 163°58'E.	Three birds.
29/11/62	(0430-0530L)	Tasman Sea.	41°24' S. 160°05'E. to 41°10' S. 159°41'E.	800+ birds.

The problem of specific identification of members of this genus at sea has long been regarded as insoluble except when the bird is in the hand. The six species are all small with blue/grey upperparts, white underparts, a distinctive dark W across the wings and back, and a dark-tipped, wedge-shaped tail. The very similar Blue Petrel *Halobaena caerulea* differs in that it is slightly bigger and has a squarish tail with a white terminal band. Under good light conditions, I have noticed some variation in the colour of the backs of individual prions when seen together. This has ranged from blue-grey to light blue/grey tinged with buff. The flight sequence of prions is alternate flaps and glides during which the bird seldom attains much height above the water. While feeding, they either swoop to pick food from the surface or patter along the surface with the bill in the water acting as a scoop. Scooping has been timed to continue for up to 5 seconds and has been observed in calm seas and on the back of the huge swell often encountered in the open ocean. Picking is more likely to be used in areas of confused water.

Few prions were seen off the N. of New Zealand where they were only seen on 3 of 19 watches. As the ship progressed southwards from East Cape, they were observed more frequently and in increasing numbers. On the East-bound transit of the Tasman Sea no "Whale-birds" were found and, on the return passage to Sydney from Foveaux Strait, they were only observed twice. On the last occasion, a great flock of 800 was encountered in calm, fine weather crossing ahead of the ship feeding mainly by scooping. This large flock made a delightful sight, the effect being of a gentle snow flurry—hence another colloquial name, the "Snow-bird."

Procellaria aequinoctialis. White-chinned Petrel.

27/11/62	(1630-1830M)	Tasman Sea.	45°54' S. 166°07'E. to 45°44' S. 165°53'E.	One bird.
28/11/62	(0430-0530M)	Tasman Sea.	44°25' S. 164°18'E. to 44°10' S. 163°58'E.	Two birds.
29/11/62	(0430 0510L)	Tasman Sea.	41°24' S. 160°05'E. to 41°10' S. 159°41'E.	One bird.
	(1630-1900L)	Tasman Sea.	39°37' S. 157°45'E. to 39°15' S. 157°20'E.	One bird.

This large petrel was only seen during the N.W. transit of the southern Tasman Sea from the Cape Puysegur region. Of the birds seen, 2 had some white on the chin while the other 3 had black. This species is fairly distinctive on account of its size, which makes it the second largest petrel after the Giant Petrel, to occur in New Zealand

waters, and its long bill, which may be either straw-coloured or pale green, tipped black. In a good light the body appeared sooty black with the wings slightly darker and the flight feathers black, out to 100 yards. The wings are long and fairly broad. In the White-chinned Petrel there is no suggestion of the stiff-winged appearance of the closely related Black Petrel *P. parkinsoni* and the flight sequence was a continuous flap and glide with some shearwatering. In calm weather, the flight of *aequinoctialis* was laboured. This laboured appearance was lost in wind force 4 conditions and in force 6 the wing action became more flexible and, at times, was similar to the wing flapping of the

Wedge-tailed Shearwater *Puffinus pacificus*.

Identification of this petrel in New Zealand waters, particularly the S. and W. of South Island, is complicated by the existence of the "Westland Petrel." Oliver (1955) considers this petrel breeding in South Island is a small, dark chinned race of *aequinoctialis*. He is supported by W. R. P. Bourne (pers. comm.) who states that the size and proportions of this race fit into a cline of decreasing size in low latitudes and the dark chin into a cline of loss of white from W. to E. However, Murphy (1936) considers that the extent of white on the chin is without geographical significance. Certainly there were no differences in size, shape, colour or manner of flight between dark- and white-chinned birds observed from H.M.S. TABARD, if the former were "Westland Petrels." Thus it seems that observation at sea may help in the solution of this problem.

Procellaria parkinsoni. Black Petrel.

5/10/62	(1630-1835M)	N. approaches to the Hauraki Gulf.	35°46'S. 174°45'E. to 36°10'S. 174°54'E.	Four birds.
9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E.	One bird.
11/10/62	(1030-1230M)	S.W. Pacific.	36°46'S. 176°14'E. to 37°00'S. 176°14'E.	One bird.
20/10/62	(0515M)	Hauraki Gulf.	Approx. 2 miles off the S. coast of Little Barrier Island.	Eight birds.

Any ship constantly operating in the Hauraki Gulf region in October and November must surely encounter this little known petrel which breeds on Little Barrier Island. Alexander (1955) and Murphy (1936) have treated it as a full species, while Harrison (1962) prefers to regard it as a race of *P. aequinoctialis*. In flight there are a number of differences in the characteristics of the Black and White-chinned Petrels in most wind conditions. In calm weather on 9 and 20 October the flight of *parkinsoni* was stiff-winged with a sequence of flap and glide. On 5 October with the wind force 3 to 4 the appearance of 3 of these birds was the same but the sequence involved some swooping and soaring. In force 7 conditions the petrel observed demonstrated much swooping and soaring. At no time did the flight of the Black Petrel look laboured. The characteristics of *aequinoctialis* have been discussed.

Puffinus carneipes. Pale-footed Shearwater.

4/10/62	(0330-1030L)	Tasman Sea.	34°29'S. 168°30'E. to 34°30'S. 169°03'E.	One bird.
5/10/62	(1630-1835M)	N. approaches to the Hauraki Gulf.	35°45'S. 174°45'E. to 36°10'S. 174°54'E.	One bird.
9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E.	10 birds.
11/10/62	(1030-1230M)	S.W. Pacific.	36°46'S. 176°14'E. to 37°00'S. 176°14'E.	Three birds.
13/10/62	(0545-0930M)	Sea area off Gt. Barrier Is., Cape Barrier to Whakatautuna Pt.		Three birds.
	(1640-1800M)	Sea area within 2 miles E. of Cape Barrier.		One bird.
14/10/62	(1115-1230M)	S.W. Pacific.	35°24'S. 175°33'E. to 35°24'S. 175°46'E.	One bird.
1/11/62	(1030-1230M)	Hawke Bay.		Two birds.
9/11/62	(1233-1430M)	S. Hauraki Gulf.	35°32'S. 176°11'E. to 36°42'S. 174°53'E.	Approx. 250 birds.
15/11/62	(0430-0530M)	S.W. Pacific.	36°08'S. 175°55'E.	One bird.

16/11/62	(0615-0830M)	S. Hauraki Gulf.	36°22'S. 175°23'E. to 36°35'S. 175°00'E.	Approx. 240 birds.
19/11/62	(0840-1035M)	S.W. Pacific.	37°16'S. 177°47'E. to 37°26'S. 178°10'E.	One bird.
	(1430-1630M)	S.W. Pacific.	37°54'S. 178°35'E. to 38°20'S. 178°31'E.	41 birds.
20/11/62	(0430-0530M)	S.W. Pacific.	40°10'S. 177°19'E. to 40°27'S. 177°01'E.	Three birds.
	(1430-1630M)	S.W. Pacific.	41°30'S. 175°50'E. to 41°47'S. 175°32'E.	One bird.
21/11/62	(1400-1600M)	S.W. Pacific.	44°34'S. 172°14'E. to 44°50'S. 171°55'E.	Four birds.
29/11/62	(1630-1900L)	S.W. Pacific.	39°37'S. 157°45'E. to 39°15'S. 157°20'E.	Two birds.
30/11/62	(1440-1630L)	S.W. Pacific.	36°40'S. 154°16'E. to 36°23'S. 153°50'E.	One bird.

Alexander (1955) states that this species is "larger than the Wedge-tailed Shearwater, with a very pale bill, but hardly distinguishable in life." With care there should be no problem for the observer at sea in the identification of either of the species in the S.W. Pacific. Table I demonstrates the differences which are clear out to a range of 200 yards, the bill and feet of *carneipes* being obvious out to approximately 50 yards.

This shearwater was sighted once in 6 periods of observation on the E. bound crossing of the Tasman Sea and during 2 of 6 watches on the return trip from Point Puysegur. It was most frequently observed in the Hauraki Gulf, where it was seen on nine of thirteen watches kept within the 100 fathom line. On the voyage from Auckland to Dunedin and the Foveaux Strait, it was encountered on each of five watches from the vicinity of Cape Palliser and again during one watch when approaching latitude 45°S.

R.B. Sibson (pers. comm.) states that the Pale-footed Shearwater had been observed to concentrate in the S.E. corner of the Hauraki Gulf off the Firth of Thames, where tidal conditions were found to be strong. The two large concentrations seen on 9 and 16 November in this area were fishing in company with large numbers of Australian Gannets *Sula serrator* and Fluttering Shearwaters (*P. gavia*) on both occasions and with White-fronted Terns (*S. striata*) in addition on the first. The majority of *carneipes* appeared to catch their prey by lunging at their targets after fluttering above the surface; the individuals then settled in the water for a few seconds either to swallow their food or to recover before commencing this clumsy performance once more. This species was not observed to immerse itself completely while fishing. When the shoals of fish seemed to concentrate, the ensuing melee of shearwaters, gannets and terns produced much splashing; indeed, the diving of the gannets seemed to make the fishing of the other birds a somewhat hazardous task, some near misses being observed.

Puffinus bulleri. Buller's or Grey-backed Shearwater.

4/10/62	(0830-1030L)	Tasman Sea.	34°29'S. 168°30'E. to 34°30'S. 169°03'E.	One bird.
5/10/62	(0530-0630M)	Sea area off North Cape, N.I.		Twenty birds.
	(1120-1335M)	Off-shore approaches to the Bay of Islands.	34°57'S. 174°02'E. to 35°16'S. 174°25'E.	74 birds.
	(1630-1835M)	N. approaches to the Houraki Gulf.	35°46'S. 174°45'E. to 36°10'S. 174°54'E.	26 birds.
9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E.	31 birds.
11/10/62	(1030-1230M)	S.W. Pacific.	36°46'S. 176°14'E. to 37°00'S. 176°14'E.	21 birds.
13/10/62	(0645-0830M)	Sea area off Gt. Barrier Is., Cape Barrier to Whakatautuna Pt.		5 birds.
	(1640-1800M)	Sea area within 2 miles E. of Cape Barrier.		Three birds.
14/10/62	(1115-1230M)	S.W. Pacific.	36°24'S. 175°33'E. to 36°24'S. 175°46'E.	Three birds.
	(1400-1405M)	S.W. Pacific.	36°22'S. 176°00'E.	One bird.
8/11/62	(0415-0530M)	S.W. Pacific.	36°10'S. 177°00'E.	Two birds.
	(1700-1830M)	S.W. Pacific.	35°09'S. 177°08'E.	Three birds.
9/11/62	(0430-0630M)	S.W. Pacific.	36°29'S. 176°21'E. to 36°28'S. 176°04'E.	Approx. 100 birds.
15/11/62	(0430-0530M)	S.W. Pacific.	36°08'S. 175°55'E.	Eight birds.
	(1500M)	S.W. Pacific.	36°06'S. 175°44'E.	Two birds.
16/11/62	(0615-0830M)	S. Hauraki Gulf.	35°22'S. 175°23'E. to 36°35'S. 175°00'E.	Three birds.
19/11/62	(0840-1035M)	S.W. Pacific.	37°16'S. 177°47'E. to 37°26'S. 178°10'E.	Two birds.
20/11/62	(0430-0630M)	S.W. Pacific.	40°10'S. 177°19'E. to 40°27'S. 177°01'E.	Six birds.
	(1030M)	S.W. Pacific.	41°00'S. 176°22'E.	Ten birds.
	(143-1630M)	S.W. Pacific.	41°30'S. 175°50'E. to 41°47'S. 175°32'E.	Two birds.
29/11/62	(1630-1900L)	Tasman Sea.	39°37'S. 157°45'E. to 39°15'S. 157°20'E.	Six birds.

On the east-bound crossing of the Tasman Sea, this shearwater was first seen some 180 miles W. of Cape Maria Van Diemen. However, the majority of observations over the entire period were made along the E. coast of North Island. Thus it was seen during 19 of 26 watches. It was not observed in the vicinity of South Island, but, somewhat surprisingly, a group of 6 was seen well meandering westwards in fine weather some 400 miles east of Bass Strait on 29 November.

This is one of the easier "tubinares" of New Zealand waters to identify. Buller (188) has likened it to a small shag with the long neck and relatively long tail. He might have included the longish, slightly hooked beak in his simile, too. Beck (Loomis 1926) has compared the flight of the Grey-backed Shearwater in light winds to that of an albatross under similar conditions. Such a comparison presumably refers to the effect of the combination of the long wings and their flexibility. The body seems to dip and rise with each wing beat cycle. In addition, the salient plumage features are (i) the entirely white underparts and the ventral surfaces of the wings (no other shearwater of this region of comparable size shows this characteristic), (ii) the dark cap, nape, wing tips and tail, and (iii) the inverted W across the wings and back.

The majority of Australian records of this bird refer to specimens which have been either washed ashore or storm-blown inland along the S.E. coast. Therefore, it seems worth quoting the following personal records made off the coast of N.S.W.:—

24 February, 1961 34°32'S. 151°25'E. One bird. Wind: S. force 2.
17 October, 1961 34°54'S. 151°07'E. One bird. Wind: N.E. force 5.

Puffinus griseus. Sooty Shearwater.

5/10/62	(0530-0630M)	Sea area off North Cape, N.I.	31 birds.
	(1120-1335M)	Off-shore approaches to the Bay of Islands.	34°57'S. 174°02'E. to 35°16'S. 174°25'E. Approx. 50 birds.
5/10/62	(1630-1835M)	N. approaches to the Hauraki Gulf.	35°46'S. 174°45'E. to 36°10'S. 174°54'E. Seven birds.
9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E. Four birds.
11/10/62	(1030-1230M)	S.W. Pacific.	36°46'S. 176°14'E. to 37°00'S. 176°14'E. Six birds.
13/10/62	(0645-0830M)	Sea area off Gt. Barrier Is., Cape Barrier to Whakatatuna Pt.	Approx. 50 birds.
14/10/62	(1640-1800M)	Sea area within 2 miles E. of Cape Barrier.	Approx. 60 birds.
	(1115-1230M)	S.W. Pacific.	36°24'S. 175°33'E. to 36°24'S. 175°46'E. Five birds.
	(1400-1405M)	S.W. Pacific.	36°22'S. 176°00'E. Three birds.
26/10/62	(1000M)	S.W. Pacific.	40°28'S. 176°51'E. Two birds.
28/10/62	(0915M)	Sea area between Kapiti Island and the Mainland.	Six birds.
1/11/62	(1030-1230M)	Hawke Bay.	Eight birds.
8/11/62	(0415-0530M)	S.W. Pacific.	36°10'S. 177°00'E. Four birds.
	(1100-1230M)	S.W. Pacific.	36°08'S. 177°10'E. Two birds.
	(1700-1830M)	S.W. Pacific.	36°09'S. 177°08'E. Four birds.
9/11/62	(0430-0630M)	S.W. Pacific.	36°29'S. 176°21'E. to 36°28'S. 176°04'E. Six birds.
15/11/62	(0430-0630M)	S.W. Pacific.	36°08'S. 175°55'E. Eight birds.
	(1500M)	S.W. Pacific.	36°06'S. 175°44'E. Two birds.
19/11/62	(0840-1035M)	S.W. Pacific.	37°16'S. 177°47'E. to 37°26'S. 178°10'E. Two birds.
	(1430-1630M)	S.W. Pacific.	37°54'S. 178°35'E. to 38°20'S. 178°31'E. 171 birds.
20/11/62	(0430-0630M)	S.W. Pacific.	40°10'S. 177°19'E. to 40°27'S. 177°01'E. Two birds.
	(1030M)	S.W. Pacific.	41°00'S. 176°22'E. Approx. 1,500 birds.
	(1430-1630M)	S.W. Pacific.	41°30'S. 175°50'E. to 41°47'S. 175°32'E. Nine birds.
21/11/62	(0430-0630M)	S.W. Pacific.	43°24'S. 173°42'E. to 43°38'S. 173°25'E. Forty birds.
	(0850-1000M)	S.W. Pacific.	43°54'S. 172°59'E. to 44°04'S. 172°49'E. 170 birds.
	(1400-1600M)	S.W. Pacific.	44°34'S. 172°14'E. to 44°50'S. 171°55'E. 240+ birds.
22/11/62	(0530M)	Off-shore approaches to Otago Harbour.	45°43'S. 170°50'E. Ten birds.
26/11/62	(1430-1630M)	S.W. Pacific.	46°19'S. 170°06'E. to 46°33'S. 169°45'E. 112 birds.
27/11/62	(0830-1030M)	W. approaches to Foveaux Strait.	46°26'S. 167°26'E. to 46°26'S. 167°03'E. Approx. 2,000 birds.
29/11/62	(0430-0610M)	Tasman Sea.	41°24'S. 160°05'E. to 41°10'S. 159°41'E. One bird.
	(1630-1900L)	Tasman Sea.	39°37'S. 157°48'E. to 39°15'S. 157°20'E. Five birds.

It may be significant that the Sooty Shearwater was not observed in the Tasman Sea in early October and only in small numbers further S. on two occasions in late November. It was frequently observed off

the entire length of the Eastern seaboard of New Zealand. The observations show that it was not seen during any watches kept in the Hauraki Gulf but was always noted in the turbulent waters off Cape Barrier in the Eastern approaches to the Gulf. Taken together the observations that the further southwards the ship progressed, the more Sooty Shearwaters were seen.

Many writers have shown diffidence when dealing with reports of sightings of very dark shearwaters in areas where Sooty, Wedge-tailed and Short-tailed Shearwaters *P. tenuirostris* are likely to occur (Robinson 1964). Such an area is the Tasman Sea. With a reasonable view, good light and a careful, systematic examination, specific identification of the bird in question should be possible. Table I summarises the "field characteristics" of each of the dark shearwaters.

TABLE I — CHARACTERISTICS OF SOME DARK SHEARWATERS OF THE TASMAN SEA REGION

	<i>P. carneipes</i>	<i>P. pacificus</i>	<i>P. griseus</i>	<i>P. tenuirostris</i>
Length	19"	15"	Variable, 16 - 20"	12"
Body appearance	Heavy build.	Slight build giving appearance of longish body.	Fairly heavy build.	Stock. Very short body behind wings.
Wings	Long & narrow.	Long & broadish, flexible.	Long & narrow. Stiffly held. Silver wing linings.	Long & narrow.
Bill	Large, heavy & straw-coloured.	Long & fine. Colour variable; appears darkish.	Long & dark.	Slender, small & dark.
Colour —				
(a) Upperparts	Chocolate brown.	Dark brown.	Dusky black.	Sooty brown.
(b) Underparts	ditto	Grey brown.	Medium brown.	Lighter than uppers.
Feet	Pink.	Dusky flesh; dark borders to leg and outer toe. Tips to feet dark. Flesh is variable, in some birds being absent.	Blue-grey.	As <i>griseus</i> .
Flight	Laboured with a flap & glide sequence.	Buoyant with much shearwatering. Flexible wing action at low wind speed (Force 2 and less).	Flutter & glide at low wind speed. Stiff-winged with much shearwatering at high wind speeds.	Flap & glide at low wind speeds. Swooping & soaring with shearwatering at high wind speed. Very fast.

- Notes: (1) The wedge-shaped tail of *pacificus* is never obvious. I have only been satisfied with this characteristic with the bird in my hands.
- (2) A white phase form of *pacificus* occurs, and appears rare in the Tasman Region. The underparts have white on the abdomen, breast and face.
- (3) The salient differences of these species occur in body appearance, wings and manner of flight.

Puffinus tenuirostris. Short-tailed Shearwater.

1/10/62 (1630-1800K)	Tasman Sea.	34°04'S. 155°51'E. to 34°05'S. 156°11'E.	49 birds.
2/10/62 (0500-0800K)	Tasman Sea.	34°09'S. 158°35'E. to 34°09'S. 159°19'E.	Approx. 300 birds.
(1430-1620K)	Tasman Sea.	34°09'S. 160°49'E. to 34°09'S. 161°12'E.	47 birds.
3/10/62 (1030-1230L)	Tasman Sea.	34°20'S. 164°22'E. to 34°09'S. 164°48'E.	Approx. 300 birds.

There can be few more apt names for a seabird than that given to this bird. Differences between this and other dark shearwaters are given in Table I.

In early October a fairly vigorous depression moved slowly northwards through the Tasman Sea, the centre appearing to pass astern of the submarine. Thus from 1 to 4 October the wind was initially force 5 to 6, N.W. veering N. and N.E. and moderating slowly. On each of four daylight watches kept during this time, a passage of Short-tailed Shearwaters moving in a general S.W. direction was noted. The passage was fairly marked in the forenoon watches with parties averaging 7 birds but occasionally totalling 15 individuals. Other officers of the watch confirmed that the passage was continuous, with a marked movement in the morning easing off to a few birds in the early evening. Estimations of speed by 5 officers showed that the birds were progressing at speeds between 25 and 30 knots. The effortless flight involved a sequence of swooping and soaring. Calculations showed that a total of approximately 1,000 birds flew within half a mile of the submarine in daylight hours on both 2 and 3 November.

Puffinus gavia. Fluttering Shearwater.

5/10/62	(1120-1335M)	Off-shore approaches to the Bay of Islands. 34°57'S. 174°02'E. to 35°16'S. 174°25'E. Approx. 150 birds.
	(1630-1835M)	N. approaches to the Hauraki Gulf. 35°46'S. 174°45'E. to 36°10'S. 174°54'E. Twenty birds.
9/10/62	(1330-1800M)	S.W. Pacific. 36°25'S. 175°45'E. to 36°40'S. 176°19'E. Approx. 100 birds.
13/10/62	(0645-0830M)	Sea area off Gt. Barrier Is., Cape Barrier to Whakatautuna Pt. Approx. 300 birds.
	(1640-1800M)	Sea area within 2 miles E. of Cape Barrier. Approx. 350 birds.
14/10/62	(1115-1230M)	S.W. Pacific. 36°24'S. 175°33'E. to 36°24'S. 175°46'E. 21 birds.
20/10/62	(0630M)	Hauraki Gulf. Approx. 3 miles off the S. coast of Little Barrier Island. Six birds.
6/11/62	(1430M)	Approaches to Auckland Harbour. One bird.
9/11/62	(1230-1430M)	S. Hauraki Gulf. 36°32'S. 175°11'E. to 36°42'S. 174°53'E. Approx. 100 birds.
16/11/62	(0615-0830M)	S. Hauraki Gulf. 36°22'S. 175°23'E. to 36°35'S. 175°00'E. Approx. 50 birds.
19/11/62	(1430-1630M)	S.W. Pacific. 37°54'S. 178°35'E. to 38°20'S. 178°31'E. Seven birds.
21/11/62	(0430-0630M)	S.W. Pacific. 43°24'S. 173°42'E. to 43°38'S. 173°25'E. 17 birds.
	(0850-1000M)	S.W. Pacific. 43°54'S. 172°59'E. to 44°04'S. 172°49'E. 34 birds.

This bird is a familiar winter visitor to the coastal waters off central N.S.W. During the period under review, it was only seen regularly and in sizeable flocks close to the islands off the N.E. coast of North Island between latitudes 35° and 37°S. and well inside the 100 fathom line. Elsewhere, it was seen between East Cape and Gable-end Foreland and in the offshore approaches to the Banks Peninsula. Fluttering Shearwaters showed a marked preference for the tidal eddies west of the Coromandel Peninsula and to the east of Great Barrier Island, depending upon the direction of the tidal stream in that region. It was also observed in the eddies just N. of Cape Brett.

I was impressed by the manner in which Fluttering Shearwaters along with gannets appeared to gravitate towards areas where shoals of small fish were being forced to the surface layers by submerged predators. On 13 October close to the E. coast of Great Barrier Island in a good light and with a calm sea, using radar and direct vision, gannets were observed to approach from 9 to 10 miles away while Fluttering Shearwaters converged from 3 to 4 miles away. The noise made by large shoals of fish is often detectable at fair ranges depending upon water conditions. The question which puzzles me relates to the manner in which these birds receive an indication of the presence of shoals of fish at such ranges. The Fluttering Shearwater seems to spend a considerable time at sea resting upon the water where it is conceivable that the bird may hear fish noise and be attracted to the source; once an individual is attracted, others follow in a "follow my

leader" order. Gannets appear to spend much of their time at sea in flight so that excellent eye-sight may provide the initial indication to the first birds; other birds following in a "follow my leader" order.

During the period, Fluttering Shearwaters were observed usually resting on the water. If large numbers were present then the birds gathered into small rafts of 20 to 60 individuals in each. They appeared to feed whenever the opportunity occurred. There was a tendency to use particular areas at particular times in the tidal cycle; this also applied, to a lesser extent, to the Pale-footed Shearwater. However, there was insufficient time available to confirm such a phenomenon by direct observation.

The taxonomics of the smaller *Puffinus* shearwaters have been discussed at length by Murphy (1936) and more recently by Bourne (1962). My $2\frac{1}{2}$ years in Australasian waters have been followed by $1\frac{1}{2}$ years service in the N.E. Atlantic. This 4-year period has allowed comparison of the Manx Shearwater *P. puffinus* with *gavia*. Certainly the flight and behaviour of these two at sea is similar in every respect. In appearance, they differ slightly in shape in that *gavia* is bulkier and has proportionately shorter and broader wings.

Puffinus assimilis. Dusky or Allied Shearwater.

2/10/62	(0500-0800K)	Tasman Sea.	34°09'S. 158°35'E. to 34°09'S. 159°19'E.	One bird.
3/10/62	(1030-1230L)	Tasman Sea.	34°20'S. 164°22'E. to 34°30'S. 164°48'E.	One bird.
4/10/62	(0830-1030L)	Tasman Sea.	34°29'S. 163°30'E. to 34°30'S. 169°03'E.	Four birds.
5/10/62	(0530-0630M)	Sea area off North Cape, N.I.		Six birds.
	(1120-1335M)	Off-shore approaches to the Bay of Islands.	34°57'S. 174°02'E. to 35°16'S. 174°25'E.	25 birds.
	(1630-1835M)	N. approaches to the Hauraki Gulf.	35°46'S. 174°45'E. to 36°10'S. 174°54'E.	Five birds.
9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E.	18 birds.
11/10/62	(1030-1230M)	S.W. Pacific.	36°46'S. 176°14'E. to 37°00'S. 176°14'E.	Three birds.
12/10/62	(0530-0630M)	S.W. Pacific.	36°29'S. 176°57'E. to 36°28'S. 176°43'E.	Three birds.
13/10/62	(0445-0830M)	S.W. Pacific.	Sea area off Gt. Barrier Is., Cape Barrier to Whakatautuna Pt.	Eight birds.
14/10/62	(1115-1230M)	S.W. Pacific.	36°24'S. 175°33'E. to 36°24'S. 175°46'E.	Two birds.
8/11/62	(0415-0530M)	S.W. Pacific.	36°10'S. 177°00'E.	One bird.
	(1100-1230M)	S.W. Pacific.	36°09'S. 177°10'E.	One bird.
9/11/62	(0430-0630M)	S.W. Pacific.	36°29'S. 176°21'E. to 36°28'S. 176°04'E.	Five birds.
29/11/62	(0430-0610L)	Tasman Sea.	41°24'S. 160°05'E. to 41°10'S. 159°41'E.	Two birds.

Since this is a winter breeder (Falla 1934), it was not surprising that it was encountered in the Tasman Sea on both passages across this region. Otherwise the species was seen off the N.E. coast of North Island between latitudes 34°20' and 37°S. on 12 occasions.

Observers at sea seem to experience some difficulty in differentiating between *P. assimilis* and *P. (p) gavia*. The following table summarises the differences between the species:

	<i>P. assimilis</i>	<i>P. gavia</i>
Length	11 ins.	13 ins.
Upperparts	Dark grey to black.	Back varying black to dark brown.
Underparts	White	White.
Body appearance	Compact & stubby with small head. Neckless.	Fairly bulky, largish head.
Wings	Longish and narrow.	Fairly long and broadish.
Flight:		
(a) Light to mod. winds	Stiff-winged with very rapid beats. Some shearwatering.	Labourd flap and glide sequence.
(b) High winds	Stiff-winged with shearwatering. Few wing beats, buoyant.	Flap and glide sequence with some shearwatering.
Bill	Small.	Fairly long.
Legs & feet	Grey.	Pink.

Gavia seems to be more gregarious in its behaviour and is more likely to be seen settled upon the water, whereas *assimilis* is more likely to be encountered in flight and individually.

Pterodroma macroptera. Great-winged Petrel.

1/10/62	(1630-1800K)	Tasman Sea.	34°04'S.	155°51'E.	to 34°05'S.	156°11'E.	Five birds.
2/10/62	(0500-0800K)	Tasman Sea.	34°09'S.	158°35'E.	to 34°09'S.	159°19'E.	Five birds.
	(1430-1620K)	Tasman Sea.	34°09'S.	160°49'E.	to 34°09'S.	161°12'E.	20— birds.
3/10/62	(1030-1230L)	Tasman Sea.	34°20'S.	164°22'E.	to 34°20'S.	164°45'E.	14 birds.
4/10/62	(0830-1030L)	Tasman Sea.	34°29'S.	168°30'E.	to 34°30'S.	169°03'E.	10 birds.
	(1700-1800L)	Tasman Sea.	34°29'S.	171°29'E.	to 34°29'S.	171°40'E.	Five birds.
5/10/62	(1630-1835M)	N. approaches to the Hauraki Gulf.	35°46'S.	174°45'E.	to 36°10'S.		
			174°54'E.				Two birds.
9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S.	175°45'E.	to 36°40'S.	176°19'E.	Ten birds.
11/10/62	(1030-1230M)	S.W. Pacific.	36°46'S.	176°14'E.	to 37°00'S.	176°14'E.	Eight birds.
12/10/62	(0530-0630M)	S.W. Pacific.	36°29'S.	176°57'E.	to 36°28'S.	176°43'E.	Twelve birds.
1/11/62	(1030-1230M)	Hawke Bay.					Four birds.
8/11/62	(0415-0530M)	S.W. Pacific.	36°10'S.	177°00'E.			Twelve birds.
	(1100-1230M)	S.W. Pacific.	36°08'S.	177°10'E.			Eleven birds.
	(1700-1830M)	S.W. Pacific.	36°09'S.	177°08'E.			Six birds.
9/11/62	(0430-0630M)	S.W. Pacific.	36°29'S.	176°21'E.	to 36°28'S.	176°04'E.	Ten birds.
19/11/62	(0840-1035M)	S.W. Pacific.	37°16'S.	177°47'E.	to 37°26'S.	178°10'E.	Four birds.
20/11/62	(0430-0530M)	S.W. Pacific.	40°10'S.	177°19'E.	to 40°27'S.	177°01'E.	Three birds.
	(1430-1630M)	S.W. Pacific.	41°30'S.	175°50'E.	to 41°47'S.	175°35'E.	Two birds.
27/11/62	(1630-1830M)	Tasman Sea.	45°54'S.	166°07'E.	to 45°44'S.	165°53'E.	One bird.
29/11/62	(1630-1900L)	Tasman Sea.	39°37'S.	157°48'E.	to 39°15'S.	157°20'E.	17 birds.
30/11/62	(1440-1630L)	Tasman Sea.	36°40'S.	154°16'E.	to 36°23'S.	153°50'E.	22 birds.

On the east-bound transit of the Tasman Sea this petrel was observed in small numbers on all six periods of observation. It was only seen during the second half of the return passage to Sydney. The analysis of sightings around New Zealand showed that this bird was more often found either in the region of the 100 fathom line or beyond over deeper water. Thus it was observed on 2 of 14 periods within the 100 fathom line off North Island and on 10 out of 12 either on or outside this line. It was not observed during any one of the 8 watches off South Island.

All the individuals of this species which I saw in the Tasman Sea region had the conspicuous grey face of the race *gouldi*. Uniformly dark brown with the grey patch around the bill and on the throat, the Great-winged Petrel has a spectacular flight in rough weather. It sweeps along in a series of towering sine waves often reaching heights of 35 to 50 feet at the peaks of its progress, the wings looking like great scythes. In calmer water the flight sequence is a flap and glide. The reaction of this petrel to shipping seems indeterminate: some follow, while others take no notice.

Pterodroma lessoni. White-headed Petrel.

29/11/62 (1630-1900L) Tasman Sea. 39°37'S. 157°48'E. to 39°15'S. 157°20'E. One bird.

One bird was seen resting on a calm sea in company with ten Great-winged Petrels. Lieutenant B. F. King, U.S.N. (1964) likened *lessoni* to a miniature albatross in colouration; in calm weather, there are also similarities in flight. In rough weather the flight resembles that of *P. macroptera* but is not so spectacular. White-headed Petrels appear to ignore the proximity of shipping.

Pterodroma inexpectata. Mottled Petrel.

27/11/62 (0830-1030M) W. approaches to Foveaux Strait. 46°26'S. 167°26'E. to 46°26'S. 167°03'E. Four birds.

(1630-1830M) Tasman Sea. 45°54'S. 166°07'E. to 45°44'S. 165°53'E. Three birds.

The region where the "Rain-bird" was observed lies to the west of the breeding islands of the species around Stewart Island described by Richdale (1964). This writer suggests that Cuvier Island, E. of the Coromandel Peninsula is also a breeding station; in view of the time spent in the E. approaches to the Hauraki Gulf without seeing this petrel, it seems unlikely that it breeds there now, if it ever did.

This petrel is a distinctive bird out to a range of 100 yards and its appearance has been frequently described. However, little prominence has been given to the most noticeable underwing pattern when the bird is seen at sea. Basically this pattern is white with moderately thick, black edging; from the carpal joint region to that of the abdomen is a thin band of grey. In some individuals, this band is conspicuous while in others it was faint. On 27 November the wind conditions were force 4 to 5. The petrel flew on longish, narrow wings with low swooping and soaring. No flapping was really seen but the species gave the impression of being stiff-winged.

Pterodroma arminjoniana heraldica. Herald Petrel.

30/11/62 (1440-1630L) Tasman Sea. 36°40'S. 154°16'E. to 36°23'S. 153°50'E. Two birds.

One of the most difficult problems associated with the identification of the gad-fly petrels of the genus *Pterodroma* in the Tasman region is that a large series of polymorphic species occurs in the S.W. Pacific. Therefore, whenever a strange gad-fly petrel appeared, I found it imperative to make copious notes upon every aspect of the bird's appearance. A measurement of the water temperature is of great help, too.

The observation relates to two individuals of this series of petrels. The sea was calm, the weather fine and the water temperature relatively high. The birds were resting on the water with a party of Great-winged Petrels some way ahead of the submarine. As the ship approached, the party got up and flew towards us to settle finally at a range of 100 yards. The ship steamed past the group which remained settled until it was lost from sight far astern. After consultation with Dr. W. R. Bourne, I think that they must have been Herald Petrels which have been observed by Warham along the Great Barrier Reef off Queensland (Warham 1959).

The following is a summary of the description taken that afternoon. Length and shape similar to the Great-winged Petrels but a little smaller. Upperparts generally grey-brown; primaries, leading edge of the wings, crown and breast-band blackish-brown, tending to be very dark on the primaries. Undersides of the wings, lightish brown. Face, forehead and remaining underparts white. In one bird, the abdomen to the upper breast-band was dusky brown. Palish shafts to the primaries above and below were not conspicuous. Bill dark. Flight, a flap and glide sequence, being fairly buoyant.

The size of these two birds limited the identification to three species: the Kermadec Petrel *P. neglecta*, the Phoenix Petrel *P. alba* and the Herald Petrel. Although *neglecta* tends to vary from having an entirely dark head and underparts to having a white head and underparts, it does not appear to have the very dark and well-defined breast band whereas *alba* and *heraldica* do. *Alba* has a sooty black face. *Neglecta* always shows conspicuous white patches in the webs of the primaries, a useful field characteristic emphatically indicated by Murphy (1936).

COOKILARIA PETRELS

It was most fortunate that in June, 1962, Captain P. P. O. Harrison's book "Seabirds of the South Pacific" was published for it produced in pocket book form among other things, a basis for the visual identification of the species of this group. "Cookilaria" petrels have long been regarded as impossible to identify at sea unless

examined in the hand. Murphy (1936) has shown how an observer may differentiate between *P. cooki* and *P. leucoptera*. Before H.M.S. TABARD left Sydney for New Zealand waters, I examined the skins available in the Australian Museum, Sydney, besides examining all the references available.

Pterodroma cooki. Cook's Petrel.

9/10/62	(1330-1800M)	S.W. Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E.	15 birds.
11/10/62	(1030-1230M)	S.W. Pacific.	36°46'S. 176°14'E. to 37°00'S. 176°14'E.	Two birds.
13/10/62	(0645-0830M)	Sea area off	Gt. Barrier Is., Cape Barrier to Whakatautuna Pt.	Three birds.
	(1640-1800M)	Sea area within 2 miles E. of Cape Barrier.		Nine birds.
14/10/62	(1400-1405M)	S.W. Pacific.	35°22'S. 176°00'E.	Two birds.
8/11/62	(0415-0530M)	S.W. Pacific.	36°10'S. 177°00'E.	One bird.
	(1100-1230M)	S.W. Pacific.	36°08'S. 177°10'E.	Four birds.
	(1700-1830M)	S.W. Pacific.	36°09'S. 177°08'E.	Five birds.
9/11/62	(0430-0630M)	S.W. Pacific.	36°29'S. 176°21'E. to 36°28'S. 176°04'E.	One bird.
15/11/62	(0430-0630M)	S.W. Pacific.	36°08'S. 175°55'E.	One bird.
	(1500M)	S.W. Pacific.	36°06'S. 175°44'E.	One bird.
16/11/62	(0615-0830M)	S. Hauraki Gulf.	36°22'S. 175°23'E. to 36°35'S. 175°00'E.	Seven birds.
19/11/62	(0840-1035M)	S.W. Pacific.	37°16'S. 177°47'E. to 37°26'S. 178°10'E.	One bird.

The thirteen positive observations of this petrel were made with one exception near Great and Little Barrier Islands or within 80 miles to the east of Great Barrier. The exception occurred some 15 miles north of Cape Runaway, North Island. In the straits between Great Barrier Island and the Coromandel Peninsula individuals were observed moving E. on each of two early morning watches (0630-0830). On the only occasion that a watch was kept in this area in the early evening (1640-1800) nine Cook's Petrels moved westwards in to the Hauraki Gulf. The remaining nine watches during which this petrel was seen were kept when the ship was in the region of the 100 fathom line or beyond. Two watches were kept within 5 miles of Little Barrier Island, the breeding area of *cooki*, and during my visit to the island from 16 to 19 October I made numerous sea watches from the shore in the S.W. quarter of the island. I saw nothing of the "ring of Cook's Petrels" which Sibson (1949) stated surrounds the island by day in considerable depth.

This paper is principally concerned with observations made at sea; nevertheless, notes upon this petrel during my stay on Little Barrier Island may be of interest. During the day nothing was seen or heard of Cook's Petrel. The first were regularly heard to arrive over the coast of the island at approximately 1850 despite considerable variation in the weather and begin the ascent to the nesting areas between the 1,000 feet contour and the 2,370 feet summit of Mount Hauturu (Turbott, 1947 et al.). From then until 0030 this passage continued, with the air full of the chattering cries of the petrels. The volume of noise seemed loudest from 1930 until 2200. A spotlight was frequently used as a searchlight, and revealed tens of the birds crossing the Te Maraeroa at the S.W. corner of the island to begin the ascent with a hesitant, bat-like flight which was quite unlike their flight at sea. At approximately 2300 the volume of sound decreased and by 0030 the passage appeared to have stopped. No birds were observed to fly seawards from 1850 to 0300. On 18 October a watch was continued until 0200; from 0030 until 0200 no Cook's Petrels were seen or heard. On all four days the wind had a southerly component and blew force 1 to 5 over the period. It seemed to be possible that the birds used the updraft on the S. side of the island to ascend on arrival and flew down wind on departure, i.e. departed over the N. coast. Every morning several individuals were found. These had either collided

with the branches of trees in the forest and had either fallen to the ground where feral cats had usually killed them or remained caught in the trees, from when a few were extricated in an exhausted state. They died shortly after. Measurements of a dozen birds showed a variation in overall length of from 10.3 to 11 inches.

Pterodroma leucoptera. Gould's Petrel.

29/11/62 (1630-1900L) Tasman Sea. 39°37'S. 157°45'E. to 39°15'S. 157°20'E. Two birds.
30/11/62 (1440-1630L) Tasman Sea. 36°40'S. 154°16'E. to 36°23'S. 153°50'E. Three birds.

Navigation and measurements of surface water temperature had shown that the submarine was under the influence of the warm East Australian Current which flows southwards from the tropics, when this "Cookilaria" Petrel was encountered in calm weather. On 29 November two birds were seen together and passed close flying S.E. while the following day, three more were seen together meandering southwards. The contrast between the dark dorsal surfaces and the white underparts of Gould's Petrel is quite striking.

STORM-PETRELS

Four species of this intriguing family were seen in New Zealand waters during the period, while the fifth was encountered in the warmer waters of the western Tasman Sea. It has been found that when learning to identify unfamiliar storm-petrels at sea, the birds must approach to well within 100 yards before more than an inspired guess is possible. Fortunately, these tiny birds often approached much closer to the submarine, and many excellent views were obtained sometimes at ranges better measured in feet than in yards.

Oceanites oceanicus. Wilson's Storm-Petrel.

8/11/62 (1100-1230M) S.W. Pacific. 36°08'S. 177°10'E. One bird.
29/11/62 (1630-1900M) Tasman Sea. 39°37'S. 157°45'E. to 39°15'S. 157°20'E. Two birds.

The only Wilson's Storm-Petrel seen in New Zealand waters was seen some 80 miles E. of Great Barrier Island; it remained around the submarine for nearly 5 minutes.

Two species of Storm-petrel generally coloured black and having white rumps have been recorded around the Dominion: Leach's Storm-Petrel, *Oceanodroma leucorhoa* and Wilson's. The latter, being an Antarctic breeder, seems more likely to be encountered. The following table demonstrates the differences:

	<i>O. oceanicus</i>	<i>O. leucorhoa</i> .
Length	7ins.	8½ ins.
Upper parts & wings	Black. White rump. Pale wing coverts.	Sooty black. White rump with grey centre.
Underparts	Slightly paler than back.	Blackish.
Bill	Short, black.	Short, black.
Legs and feet	Long, extending beyond tail in flight. Appear black.	Short, not extending beyond tail in flight. Black.
Tail	Short and square.	Medium length and forked.

Perhaps the most notable difference between the two species is in the manner of flight. That of *oceanicus* is a sequence of erratic gliding and fluttering interspersed with bouts of hovering and pattering. The flight of *leucorhoa* is more direct, faster and bounding. Wilson's follows shipping while Leach's does not. Many observers have claimed that it is possible to see the yellow webs of *oceanicus* at sea; I have only found this possible on one occasion out of nearly 50 with the bird down-sun at 15 yards range. Thus, this 'aid' to sight identification is best forgotten.

Pelagodroma marina. White-faced Storm-Petrel.

5/10/62	(1630-1835M)	N.	approaches to Hauraki Gulf.	35°46'S. 174°45'E. to 36°10'S. 174°54'E.	Two birds.
9/10/62	(1330-1800M)	S.W.	Pacific.	36°25'S. 175°45'E. to 36°40'S. 176°19'E.	Fourteen birds.
11/10/62	(1030-1230M)	S.W.	Pacific.	36°46'S. 176°14'E. to 37°00'S. 176°14'E.	One bird.
14/10/62	(1400-1405M)	S.W.	Pacific.	36°22'S. 176°00'E.	43 birds.
8/11/62	(1700-1830M)	S.W.	Pacific.	36°09'S. 177°08'E.	2 birds.
9/11/62	(0430-0530M)	S.W.	Pacific.	36°29'S. 176°21'E. to 36°28'S. 176°04'E.	Eleven birds.
15/11/62	(0430-0630M)	S.W.	Pacific.	36°08'S. 175°55'E.	Two birds.
	(1500M)	S.W.	Pacific.	36°06'S. 175°44'E.	Three birds.
16/11/62	(0615-0830M)	S.	Hauraki Gulf.	36°22'S. 175°23'E. to 36°35'S. 175°00'E.	Four birds.

This storm-petrel was only found off the N.E. of North Island and was observed during 9 of 20 watches. Of these, it was seen on 2 of 10 periods well inside the 100 fathom line, on each of 6 periods spent close to the 100 fathom line while in deeper water far off shore it was found once in four watches. Again, the numbers seen in any single period were seen along the edge of the littoral region.

This bird is comparatively easy to identify. It is about 8 inches long, having darkish grey upperparts, a very pale rump, a dark terminal bar across the tail and a white forehead and underparts. It has a dusky patch under the eye and on the sides of the breast. The flight feathers are very dark. The Grey-backed Storm Petrel, *Garrodia nereis*, is the only other grey and white storm-petrel of New Zealand waters and lacks the white forehead and pale rump, besides being smaller.

During lulls between exercises in calm weather, it was customary to remain at periscope depth moving slowly with the officer of the watch using one periscope and the author the other for observation of birds and fish. On 14 October during such a period in the early afternoon, a total of 43 White-faced Storm Petrels were seen pattering very close to the periscope. With wings out-spread and heading into a gentle breeze, these birds used their very long legs to bounce and jump forward. On occasions, the range was so short that the small splashes of water caused by the feet striking the water were clearly seen. Fairly frequently the birds dipped their bills to pick at the surface of the water. By dipping the periscope below the surface it was noted that some small marine animal life was close to the surface in spite of strong sunlight.

Fregatta. Storm-Petrels.*Fregatta grallaria*. White-bellied Storm Petrel.

1/10/62	(1630-1800K)	Tasman Sea.	34°04'S. 155°51'E. to 34°05'S. 156°11'E.	Three birds.
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Fregatta tropica. Black-bellied Storm Petrel.

2/10/62	(1430-1630K)	Tasman Sea.	34°09'S. 160°49'E. to 34°09'S. 161°12'E.	One bird.	
5/10/62	(1630-1835M)	N.	approaches to Hauraki Gulf.	35°46'S. 174°45'E. to 36°10'S. 174°54'E.	One bird.
4/10/62	(0830-1030L)	Tasman Sea.	34°29'S. 168°30'E. to 34°30'S. 169°03'E.	Three birds.	
	(1700-1800L)	Tasman Sea.	34°29'S. 171°29'E. to 34°29'S. 171°40'E.	One bird.	
29/11/62	(1630-1900L)	Tasman Sea.	39°37'S. 157°45'E. to 39°15'S. 157°20'E.	One bird.	

Ornithologists seem to have the greatest difficulty in identifying the two storm-petrels of this group. I have seen the White-bellied Storm-Petrel, *F. grallaria*, in tropical waters such as the Coral Sea and as far south as 34°S. in the Tasman Sea where surface waters temperatures have been warm. On the other hand, the Black-bellied Storm-Petrel, *F. tropica*, has been observed in cooler water and in higher latitudes. Murphy (1936) has represented that *tropica* is thoroughly mis-named bird for it breeds at high latitudes close to the Antarctic while *grallaria* is a breeder on islands near the Sub-tropical Convergence. On the scanty evidence available, it seems that both species migrate

to the tropical and sub-tropical areas in the non breeding season. Thus it would seem that *tropica* is the more likely of these two to occur in New Zealand waters. The observations of these storm-petrels during this period fit this pattern.

Both Fregetta Storm-Petrels are disposed to follow ships with a flutter and hop sequence. When following the submarine, they seemed to prefer the wash and to approach the stern from the lee quarter. Specific identification was usually possible when the bird suddenly sheared away when close under the quarter, when a good view was obtained of the entire ventral surface. On several occasions, individuals approached very close to leeward abreast of the bridge. In strong wind, air turbulence around the bridge, a fin-like structure, frequently caused the bird to tilt suddenly on its side thereby allowing a very good view of the underparts. The Black-bellied Storm-Petrel seen in the Northern approaches to the Hauraki Gulf on 5 October was observed for nearly half an hour as it repeatedly approached from each quarter until close under the stern to allow a long series of excellent views in the evening sunlight.

In *tropica*, the upperparts, head, throat, upper breast, wings, tail and under tail-coverts are a sooty black while the rump, upper tail-coverts, wing linings and remaining underparts are white. From the centre of the upper breast, through the abdomen to the under-tail coverts is a fairly thick, sooty black line. The tail is short and square. The feet do not project beyond the tail in flight. In *grallaria* at a distance the only difference is the lack of the stripe through the abdomen. If a good, close view is obtained, then the upperparts are a greyish black and the median wing coverts are a fairly conspicuous greyish brown. The problem of identification is complicated by variable amounts of dark streaking on the under sides of *grallaria*. However, this problem was resolved in good light by examination of the wing coverts and the colour of the dorsal surfaces.

Garrodia nereis. Grey-backed Storm-Petrel.

21/11/62	(0430-0630M)	S.W. Pacific.	43°24'S. 173°42'E. to 43°38'S. 173°25'E.	One bird.
	(1400-1600M)	S.W. Pacific.	44°34'S. 172°14'E. to 44°50'S. 171°55'E.	One bird.
27/11/62	(1630-1830M)	Tasman Sea.	45°54'S. 166°07'E. to 45°44'S. 165°53'E.	One bird.
28/11/62	(0430-0630M)	Tasman Sea.	44°25'S. 164°18'E. to 44°10'S. 163°58'E.	Three birds.

It was expected that this storm-petrel would be found to the S. of the approximate position of the Subtropical Convergence as the submarine steamed S. towards Dunedin. On the night of 20/21 November the surface water temperature dropped 7°F. and early the following morning as we approached the Banks Peninsula a single bird was seen. The last observation occurred when 3 were seen together 150 miles W. of Milford Sound over very cold surface water.

G. nereis is a distinctive bird, generally grey on the dorsal surfaces, having a darkish head, fore-wings and light feathers and a very dark and fairly thick, terminal bar across the tail. The underparts and under wing coverts are white. The flanks showed some variation from light dusky grey in one bird to white in others. The feet projected slightly beyond the square tail in flight which is strongly reminiscent of that of the Wilson's Storm-Petrel. The overall length is about 7 ins. This species showed no interest in the presence of the submarine.

DIVING - PETRELS

Pelecanoides urinatrix. Common Diving-Petrel.

- 5/10/62 (1120-1335M) Off-shore approaches to the Bay of Islands. 34°57'S. 174°02'E. to 35°16'S. 174°25'E. 75 birds.
(1630-1835M) N. approaches to Hauraki Gulf. 35°46'S. 174°45'E. to 36°10'S. 174°54'E. 21 birds.
- 13/10/62 (1640-1800M) Sea area off Cape Barrier, Great Barrier Island, N.I. 11 birds.
- 14/10/62 (1400-1405M) S.W. Pacific. 36°22'S. 176°00'E. One bird.
- 9/11/62 (0430-0630M) S.W. Pacific. 36°29'S. 176°21'E. to 36°28'S. 176°04'E. Approx 70 birds.
- 15/11/62 (0430-0630M) S.W. Pacific. 36°08'S. 175°55'E. One bird.
(1500M) 36°06'S. 174°44'E. One bird.
- 16/11/62 (0615-0830M) S. Hauraki Gulf. 36°22'S. 175°23'E. to 36°35'S. 175°00'E. 11 birds.
- 21/11/62 (1400-600M) S.W. Pacific. 44°34'S. 172°14'E. to 44°50'S. 171°55'E. One bird.
- 27/11/62 (0830-1030M) W. approaches to the Foveaux Strait. 46°26'S. 167°26'E. to 46°26'S. 167°03'E. Fifteen birds.
(1630-1830M) Tasman Sea. 45°54'S. 166°07'E. to 45°44'S. 165°53'E. One bird.

To any ornithologist from the North Atlantic region, this family represents a remarkable example of convergence. It was only with the greatest difficulty that several ship's officers were convinced that these birds were not Little Auks *Plautus alle*. Analysis of the observations shows that these diving-petrels were observed on 8 of 14 occasions from Cape Brett to the vicinity of the Mercury Islands and in the Hauraki Gulf region. Off North Island it was not observed out of the littoral zone. Elsewhere, it was seen on 3 of 8 periods off South Island in small numbers. With the exception of a group of over fifty encountered off Cape Brett, the birds were never seen in groups of more than eight and frequently they occurred in one's and two's.

Over the entire period covered by these notes there seemed to be an increasing incidence of diving-petrels with plumage of lighter colour. According to Falla (1934) the period October/November forms the latter half of the breeding period which is followed by the annual moult. In these faded individuals, the gloss of the black upperparts and the wings was gone and they now seemed to be washed with darkish grey/brown. The deep grey on the sides of the neck and breast had faded to mid-grey, and, on occasions, seemed to be almost completely replaced by a dirty white. The underparts of some birds appeared badly soiled. It seems that this could be the result of nesting activities or the early onset of moult.

OTHER SEABIRDS

Sula serrator. Australian Gannet.

- 5/10/62 (1120-1335M) Off-shore approaches to the Bay of Islands. 34°57'S. 174°02'E. to 35°16'S. 174°25'E. Twelve birds.
(1630-1835M) N. approaches to the Hauraki Gulf. 35°46'S. 174°45'E. to 36°10'S. 174°54'E. Thirteen birds.
- 13/10/62 (0645-0830M) Sea area off Gt. Barrier Is., Cape Barrier to Whakatautuna Pt. Twenty birds.
- (1640-1800M) Sea area within 2 miles E. of Cape Barrier. Approx. 120 birds.
- 14/10/62 (1115-1230M) S.W. Pacific. 36°24'S. 175°33'E. to 36°24'S. 175°46'E. 39 birds.
- 9/11/62 (1230-1430M) S. Hauraki Gulf. 36°32'S. 175°11'E. to 36°42'S. 174°58'E. Approx. 50 birds.
- 16/11/62 (0615-0830M) S. Hauraki Gulf. 36°22'S. 175°23'E. to 36°35'S. 175°00'E. 160 birds.
- 19/11/62 (1430-1630M) S.W. Pacific. 37°54'S. 178°35'E. to 38°20'S. 178°31'E. 12 birds.
- 21/11/62 (0850-1000M) S.W. Pacific. 43°54'S. 172°59'E. to 44°04'S. 172°49'E. One bird.

Apart from a single sighting off Waipiro, North Island, and another off the Banks Peninsula, gannets were seen only near the islands off the N.E. coast of North Island. Numbers were always present in the Hauraki Gulf usually fishing with shearwaters. Gannets were not found well out to sea and seemed to be coastal rather than offshore.

in their distribution. Furthermore, I was surprised that on the two occasions when "Tabard" passed Cape Kidnappers some 25 miles offshore and on the surface, no gannets were seen.

Catharacta skua. Southern Skua.

27/11/62 (0830-1030M) W approaches to the Foveaux Strait. 46°26'S. 167°26'E. to 46°26'S. 167°03'E. One bird.

Stercorarius parasiticus. Arctic Skua.

9/11/62 (1230-1430M) S. Hauraki Gulf. 35°32'S. 175°11'E. to 36°42'S. 174°53'E. Two birds.
20/11/62 (0430-0630M) S.W. Pacific. 40°10'S. 177°19'E. to 40°27'S. 177°01'E. Two birds.
29/11/62 (1630-1900L) Tasman Sea. 39°37'S. 157°45'E. to 39°15'S. 157°20'E. One bird.

Larus dominicanus. Southern Black-backed Gull.

5/10/62 (0530-0630M) Sea area off North Cape, N.I. One adult, two immatures.
(1120-1335M) Off-shore approaches to the Bay of Islands. 34°57'S. 174°02'E. to 35°16'S. 174°25'E. Two adults.
(1630-1830M) N. approaches to the Hauraki Gulf. 35°46'S. 174°45'E. to 36°10'S. 174°54'E. One adult.
9/10/62 (1800M) S.W. Pacific. 36°40'S. 176°19'E. Four adults.
28/10/62 (0900-1000M) Sea area between Kapiti Is. and the Mainland. Approx. 50 birds.
19/11/62 (0840-1035M) S.W. Pacific. 37°16'S. 177°47'E. to 37°26'S. 178°10'E. One adult.
(1430-1630M) S.W. Pacific. 37°54'S. 178°35'E. to 38°20'S. 178°31'E. Eleven adults, two immatures, five juveniles.
20/11/62 (0430-0630M) S.W. Pacific. 40°10'S. 177°19'E. to 40°27'S. 177°01'E. One immature.
20/11/62 (1430-1630M) S.W. Pacific. 41°30'S. 175°50'E. to 41°47'S. 175°32'E. Five adults, one immature.
21/11/62 (0430-0630M) S.W. Pacific. 43°24'S. 173°42'E. to 43°38'S. 173°25'E. Four adults, one immature.

This is the only gull which was seen out of coastal waters. On each of the ten watches during which this bird was observed, the weather was fine and the sea calm. On 9 October four adults settled on the fore-casing of the submarine which was stopped. They remained for nearly half an hour. They disgorged a large quantity of grey sludge and then began to feed; once one bird had completed its own portion it tried to steal from one of its neighbours on several occasions. Such intrusions were successfully repulsed.

Larus novae-hollandiae. Silver Gull.

5/10/62 (1120-1335M) Off-shore approaches to the Bay of Islands. 34°57'S. 174°02'E. to 35°16'S. 174°25'E. Approx. 150 birds.
28/10/62 (0900-1000M) Sea area between Kapiti Is. and the Mainland. Approx. 40 birds.

Sterna striata. White-fronted Tern.

5/10/62 (1120-1335M) Off-shore approaches to the Bay of Islands. 34°57'S. 174°02'E. to 35°16'S. 174°25'E. 64 birds.
9/10/62 (1330-1800M) S.W. Pacific. 36°25'S. 175°45'E. to 36°40'S. 176°19'E. 5 birds.
13/10/62 (1640-1800M) Sea area within 2 miles and E. of Cape Barrier, Gt. Barrier Island. Two birds.
20/10/62 (0630) Hauraki Gulf. Approx. 3 miles off the S. coast of Little Barrier Island. One bird.
28/10/62 (0900-1000M) Sea area between Kapiti Is. and the Mainland. Six birds.
9/11/62 (1230-1430M) S. Hauraki Gulf. 36°32'S. 175°11'E. to 36°42'S. 174°53'E. Approx. 80 birds.
20/11/62 (1430-1630M) S.W. Pacific. 41°30'S. 175°50'E. to 41°47'S. 175°32'E. Eight birds.
21/11/62 (0850-1000M) S.W. Pacific. 43°54'S. 172°59'E. to 44°04'S. 172°49'E. Four birds.
29/11/62 (0430-0610L) Tasman Sea. 41°24'S. 160°05'E. to 41°10'S. 159°41'E. One bird.

The individual seen on 29 November was an immature bird flying westwards in calm weather.

SUMMARY

In October and November, 1962, sightings of 38 species of sea-birds were made from H.M. Submarine TABARD in the Tasman Sea and around New Zealand. In addition, further observations were achieved at Taiaroa Head and during a visit to Little Barrier Island. Descriptions taken at sea together with relative differences of albatrosses and storm-petrels are given; this information results from 2½ years watching in the Australasian Region.

Analysis suggests that there was a departure from the N.E. and E. coasts of North Island of Wandering Albatrosses and Giant and Pintado Petrels in the first two weeks of November. Some evidence was found to account for albatrosses only occurring outside the littoral region north of the Bay of Plenty. The 100 fathom line seemed to be of importance to the distribution in spring of the White-faced Storm-Petrel, the Fluttering Shearwater and the Common Diving-Petrel to the East of Great Barrier Island. It is likely that the feeding habits of the Fluttering and Pink-footed Shearwaters in the Hauraki Gulf are related to the tidal cycle. The speed of a penguin under water was calculated and the submerged swimming of the Fluttering Shearwater was seen. The means by which Fluttering Shearwaters and Gannets achieved indication of the proximity of shoals of fish are discussed; Gannets are attracted from 9 miles and Fluttering Shearwaters from 4 miles. The Herald Petrel was seen 170 miles east of Montagu Island, N.S.W. The position of the Subtropical Convergence off the E. coast of the Dominion and in the Tasman Sea was determined.

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RECORDS OF RARE WADERS WITH REPORTS ON SIGHTINGS OF THREE SPECIES HITHERTO UNKNOWN IN NEW ZEALAND

BLACK-TAILED GODWITS AT INVERCARGILL

On 15/12/63 my husband and I were out on the shell-banks of the Invercargill Estuary, opposite the Woodend Phosphate Works. Most of our field-work is perforce done with two young children, one on my husband's back and one at heel, and on this occasion my husband was near the shore-line with the children and I was alone on Horseshoe Spit (a shell-bank which those who attended the January '63 Field Week in Invercargill will remember as a happy hunting ground for Little Tern (*Sterna albifrons*). As I neared a curve in the shell-bank, a flock of 25-30 Godwits went up from the steep far side of the bank, and with them a black-tailed godwit. I had good views of the bird in clear light, as the small flock made three wheeling turns over the shell-bank before shearing off to the south. Although it was some eight years since I had last seen a black-tailed godwit (on the Firth of Thames), I had no doubts about this bird; my uncertainty was whether it was an Asiatic (*Limosa l. melanuroides*) or a Hudsonian (*haemastica*). Field notes taken on the spot included the following: "White wing bar; white rump above tail; black tail tip; legs extending further than bar-tailed; almost white on underside." Upon returning home and checking the field differences between the two forms (Sibson, *Notornis* VIII, 58, and VIII, 161-162) we decided that this bird was almost certainly an Asiatic (*melanuroides*).

On 22/12/63 B. D. Heather, C. E. Barlow and Mr. Ben King, a visiting American, found a black-tailed godwit on the estuary, which they identified as a Hudsonian.

On 28/12/63 I was again on the Estuary, with B.D.H. and C.E.B. While B.D.H. made his way to a distant spit crowded with birds, C.E.B. and I watched another large group of Bartailed Godwits, Turnstones and South Island Pied Oystercatchers. On the fringe of this group, but slightly apart, was a bird, slimmer and darker than the other godwits. It obligingly raised a wing showing its dark underside. This it did on several occasions, and we knew that this was a Hudsonian. B.D.H., upon nearing his shell-bank, sent "his" birds over to us; they came, obligingly enough, in four or five groups — a mixture of godwits, a few Knots, Turnstones and South Island Pied Oystercatchers. As the last group came over, the entire flock, i.e. c. 1000 Godwits, some hundreds of S.I.P.O., about c. 200 Turnstones and 20 Knots, went up, and we lost sight of the Hudsonian almost immediately among so many oystercatchers. When B.D.H. waded his way to us again, we found that he, too, had had a Hudsonian, and it had come over to us with one of the later groups of "his" birds. As we were watching "our" Hudsonian for some time before his birds started to come over, we decided that there were two Hudsonians there that day.

Eight further visits to the Estuary between January and April produced no further sighting of either Asiatic or Hudsonian.

As far as I know, these are the most southerly recordings of the Hudsonian Godwit in New Zealand. — MAIDA L. BARLOW

[In January, 1963, B. D. Bell found an Asiatic Black-tailed Godwit on Enderby, one of the Auckland Islands. — Ed.]

SUSPECTED COMMON SANDPIPER NEAR NEW PLYMOUTH

On the afternoon of 24/10/64, while W.J.P., R.W.M., and B. J. Tucker were taking part in a Beach Patrol during the Labour Week-end Study Course, about one mile south of Paritutu, New Plymouth, a small unusual wader was seen. It appeared to be a species of sandpiper, but could not be identified. At this point the coastline is very rugged, with steep cliffs and a rocky beach. The weather was dull and overcast. Strong sea-breezes laden with salt spray and dark rocky backgrounds produced conditions which were unsuitable for really accurate observation of details.

On the next day the same three observers, together with Miss M. Johnston and D.V.M. hopefully returned about 10 a.m. to the same stretch of coast and quickly located the unknown wader at the mouth of a small stream. The weather had improved but still left much to be desired. A strong nor-wester was blowing, but the light was good. When first seen the sandpiper was flying from a small rocky freshwater lagoon on the beach upstream to a dune pond about fifty yards inland. When flushed it flew back to its previous haunt. By a more stealthy approach through lupins, we were able to gain a position within twenty yards of the bird and from this vantage point to watch it under favourable conditions for the greater part of an hour, as it fed in shallow water along the edge of the lagoon, which it seemed reluctant to leave. Occasionally it would flit off upstream to the dune pond or rest on the coastal rocks further on; but it was easily retrieved by one of us whenever it made these short excursions.

It was an active wader of typical sandpiper size (D.V.M.). Both W.J.P. and R.W.M. thought it about the size and length of a Banded Dotterel (*C. bicinctus*); but much more slender in shape (R.W.M.) or more graceful in general body contours (W.J.P.). The bill was about an inch long, straight, narrow and dark brown or black. To two of us the legs appeared slightly larger than those of a Banded Dotterel; but D.V.M. thought they were comparatively short and noted their colour as yellowish-green.

At first sight the plumage appeared to be of only two colours: the upperparts from head to tail being a flat even light-grey-fawn (W.J.P.), plain grey-fawn (R.W.M.) or light even greyish-brown (D.V.M.), and the underparts clean pale grey or off-white. The greyish-brown of the upperparts extended down past the bend of the wing, but gradually faded out, leaving the breast white. The colours of the upperparts and underparts were distinct and did not merge. The eye was dark and through the eye was a slightly darker line. The folded wing showed a darker leading edge; but in flight a conspicuous white bar became visible from above and below, running from the body to near the wing-tip, about 1/3" wide and nearer the trailing edge of the wing (W.J.P.). Seen in flight from behind, the 'sandpiper' showed much white; for beside the white wing-bar, the edge of the outer tail-feathers was white. The wing beats were rapid and the flight swift, low, straight without undulations, with the wings sometimes curiously bowed in frequent glides. The wings did not beat much above horizontal but the down-beat was quite deep.

Its stance and movements distinguished it from other sandpipers seen in New Zealand. It often stood with tail and back sloping upwards; and it was most noticeable that that tip of the tail was about the same level as the top of the head. The posterior was held high with

a continual bobbing of the tail (D.V.M.); and the flicking of the tail and back upwards continued whether the bird was standing or moving (R.W.M.). It would feed, often running, amongst the stones at the edge of the lagoon or along the sandy border of the dune pond. Once it explored the timber of a big log heap in the lower stream bed. No calls were audible above the wind. The arrival of some children and a dog put an end to our observations.

From both its appearance and behaviour, and after consulting many books, we are convinced that our unknown wader must have been a Common Sandpiper (*Tringa hypoleucos*).

— W. J. PENGELLY
 — R. W. MACDONALD
 — D. V. MERTON

[This composite description is based on three separate accounts. Each of the three authors submitted his own story of the Paritutu sandpiper.—Ed.]

★

PROBABLE SIGHTING OF A RUFF

At Karaka on the the Manukau Harbour on 11/4/64 a bird which we are satisfied was a Ruff (*Philomachus pugnax*) was closely studied with binoculars at thirty-nine yards. It was standing with its body facing half-right away from us and its head at about right angles in a small clear patch in a flock of hundreds of Knots and Turnstones, with the nearest Knot only a foot away. Both of us were attracted to it at the same time, realising that it was a bird we had not seen before. There was ample time to study it and write notes with the bird in a standing position. Unfortunately, a Harrier (*C. approximans*) put up the whole flock and it was covered up by the other birds so that no flight pattern could be seen. No call was heard. The locality agreed rather well with that of its choice as described by Witherby, i.e., near the mouth of a large tidal drain where it debouched on to a sandy-muddy tide-flat.

The size was carefully discussed. N.B.Mack. described it as like a Knot (*Calidris canutus*) but larger and longer in the neck and legs. H.R.McK. took the body size to be about that of a Greenshank (*T. nebularia*) but having a much shorter bill. It was finally decided to compare it with the Sharp-tailed Sandpiper (*C. acuminata*), this being a smaller bird than the two above, but more like a Ruff in general appearance and proportions and a bird well known to both of us.

The note of the bill as taken down on the spot was: "Compared with Sharp-tailed Sandpiper, longer and somewhat heavier but in smaller proportion to the greater size of the bird. Similar in shape and colour." Witherby gives length of bill as, Ruff 34-38, Reeve 29.5-33. That of the Sharp-tailed Sandpiper is 23-27. The bill alone is sufficient to separate it from all other waders of like size and shape.

The side and back of neck were noted as having "thin striations moving diagonally to the rear." Illustrations vary in this respect, apparently because of the different ways the head may be held. A drawing in "Emu" 63, 38 shows rather over emphasised striations moving forward. Witherby, IV, 280 shows them more or less horizontally crescentic, if such a term may be used. In any case they were definite fine markings.

The upper surface was described as: "Wings brownish. Faint light margins on wing coverts. Back more uniform dark grey, not much pattern. Transverse brownish or grey-brown bars on upper rump, but rump not seen in flight." Illustrations show much white at sides of rump and tail with broad patterned centre stripe. The white would not be spread out except in flight and this we did not have the opportunity of seeing. Only the patterned centre was visible with the bird on the ground.

Of the under surface it was noted: "Mid. to lower breast rufous tinge on grey-brown. No pectoral line. Drab white under. Speckled on side of body below rear- and fore-wing gap between, bird standing on ground." After study of many books it has been decided that the speckling on the side is best shown in the illustration of the Reeve, plate 40 in "Collins Pocket Guide to British Birds," by Fitter and Richardson. In the bird we saw, the moult was not so far advanced, for it had speckling below the rear- and fore-wing, instead of the continuous markings along the side. It also did not have the barring right down on the breast.

It was agreed that the legs were: "Longer by say one inch than those of a Sharp-tailed Sandpiper." They were much heavier, in fact appearing to be disproportionately thick. Witherby gives the male tarsus as 45.5-52 but omits the female. That of the Sharp-tailed Sandpiper is 23-27.

The difference in the average of the two species is 24 m.m. which is only 1 m.m. less than one inch. The long stoutish legs were the first thing to attract our attention. This would indicate that it was a male, or Ruff. A mounted specimen of a female, or Reeve, in the War Memorial Museum, Auckland, is much smaller, paler and more lightly built than the bird we saw at Karaka. H.R.McK. made the leg colour something like bluish-grey or lead-grey but N.B.Mack, after prolonged study, decided that they were of no definite colour. The books allow for almost any colour.

The more upright stance of the figures in Witherby portrays the position in which we saw our bird but the best picture so far found is a reproduction of a photograph in the English magazine "Country Life," Oct. 22, 1959. This really portrays the bird as we saw it.

The prospects of occurrence of this species in New Zealand are not entirely remote. At least two Reeves have recently been collected in Australia and any species of migratory arctic wader going there, even if in small numbers, can be expected to straggle to New Zealand sooner or later.

— N. B. MACKENZIE

— H. R. MCKENZIE

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A RECORD OF THE WESTERN SANDPIPER ON FAREWELL SPIT

During a visit to Farewell Spit in early October, 1964, the attention of one of us was drawn to a bird resting in a tight flock of 31 Red-necked Stints (*Calidris ruficollis*), on account of its distinctive bill. A long period of observation at 18 to 20 feet with 10 x 50 and 7 x 50 binoculars, and subsequent reference to the literature, has enabled us to identify the bird as a Western Sandpiper (*C. mauri*). During the period of observation the bird was put to flight more than once, so that the wing and tail pattern could be noted; and it was at all times

in close company with Red-necked Stints, thus allowing a detailed comparison. Three Curlew Sandpipers (*C. ferruginea*) were nearby.

The following description is taken from our field notes: Size, very slightly larger than a Red-necked Stint; bill black, much longer than that of *ruficollis*; at least $1\frac{1}{2}$ times as long, heavy at the base, and tapering fairly quickly when the bird is observed head-on, and slightly down-curved at the tip; plumage very similar to *ruficollis*, but slightly more rufous; pale forehead, with the crown darkish and faintly streaked longitudinally; very pale sides of neck and nape, and a light superciliary bar; legs black. In flight, there was little to distinguish the bird from a Red-necked Stint, the tail pattern appearing identical, but the wing bars were extremely faint. The manner of feeding was the same as that of its companions.

The Broad-billed Sandpiper (*Limicola falcinellus*), which is known to both of us, has a noticeably heavier bill, and the crown is distinctly striped, compared with the faint markings observed on the crown of the Western Sandpiper.

The Western Sandpiper has been observed once in Great Britain, and so is included in Hollom's "Popular Handbook of Rarer British Birds," where an excellent description is to be found. This tallies very closely with our observations, except that the legs are described as "dark olive, but usually looking black." Also the toes are partially webbed, which we did not observe, mainly because the bird was for most of the time in very shallow water. The length is given as $6\frac{1}{2}$ ins., compared with 6 ins. for the Red-necked Stint as stated by Condon and McGill in "Field Guide to the Waders." Hollom describes it as "a confiding bird," which was definitely our impression during the long period of observation.

The Western Sandpiper breeds on the coasts of north and west Alaska, according to Peterson's "Field Guide to the Western Birds," and winters from San Francisco Bay southwards; so it is a species which, along with the Hudsonian Godwit, Yellowlegs, Wandering Tattler, and others, may be expected as an occasional visitor to New Zealand.

— A. BLACKBURN

— B. D. BELL

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LITTLE WHIMBREL AT MIRANDA

On a routine check of the birds of the Miranda coast on 13/10/64, a dark brown bird was seen on the pools just north of the old Miranda wharf. It was smaller than a godwit and too large for any of the sandpipers which frequent those pools. Mrs. B. Brown and Miss A. J. Goodwin approached it carefully and soon noted its down-curved bill, which then became evident to the rest of the party in the car on the road, (Mrs.) Dr. K. Heinroth of West Berlin, Mrs. McKenzie and the writer. The bird was alone except for an almost fully red Curlew Sandpiper (*Calidris ferruginea*) about two chains away. It allowed close inspection; and was clearly a Little Whimbrel (*Numenius minutus*). It is considered that it was most likely the same bird as the one seen at Karaka, Manukau Harbour, on 28/3/64 (*Notornis* 11, 99).

— H. R. MCKENZIE



[A. Wright

XVI — Large Sand Dotterel (*Ch. leschenaulti*) near Miranda limeworks, Firth of Thames, 27/12/63.



[A. Wright

XVII — Curlew Sandpiper (*Calidris ferruginea*) and Wrybill at Miranda, 27/12/63.

OBITUARY

A. G. HIPWELL

When Arthur Hipwell died on 11th June, 1964, New Zealand lost a distinguished painter and the Ornithological Society a lively member and notable benefactor. Born in Cambridgeshire in 1894, he came with his parents to live at Onehunga in 1910, close to the bird-haunted coast of Manukau Harbour. Since his father was a nurseryman who had conchology as a hobby, Hippy, as he was known to a multitude of friends, grew up in an atmosphere of flowers, shells and natural history. His art education began in Auckland and took him to the Canterbury School of Art. Later he spent three years in Paris. Though primarily a painter, he had a full and varied life as soldier, cartoonist, photographer, teacher, critic and administrator. It was only to be expected that an artist of his versatility would vary his style and experiment in any new media.

In 1957 he was awarded the Kelliher Art Prize for a painting of Mt. Taratara, Northland. In the same year he went north with an O.S.N.Z. party to join Peter Scott in a search for Brown Teal along the streams near Waipu. Hippy, of course, was busy with his pencil and the resultant sketches admirably caught the 'jizz' of the Brown Teal.

Though highly competent in many fields — some of his portraits in oils, for instance, are particularly fine — in his later years he was perhaps happiest out of doors, sketching landscapes and birds. Sometimes they were waders, terns or herons along the shores of Manukau or at Miranda; sometimes the common birds of his own garden. An unusual petrel brought in from Muriwai could at once arouse his enthusiasm to start drawing. From time to time his friends were able to introduce him to rarities; and it was a privilege to share his delight in a Great or Little Egret, a Terek Sandpiper, a White-winged Black Tern or an erythristic Stilt, and to watch the delicate development of his sketches.

When O.S.N.Z. funds were low and the Christmas Card scheme was mooted, the committee turned for help to Hippy as the obvious and natural choice. He undertook the task with zest, to the great financial gain of the Society. Many of his cards will long be remembered for the especial pleasure they gave.

To have Arthur Hipwell in a party was to be assured of witty comment and kindly laughter. In his last years when he became nearly blind, his sense of humour gave him amazing resilience. His zest for living and his eagerness for bird news remained undiminished.

— R. B. S.

ANNUAL GENERAL MEETING

Christchurch, 15th May, 1965

62 members and friends attended, representing 11 Regions.

Organisation of the A.G.M. week-end activities was in the hands of Canterbury Regional Committee. In addition to field outings our hosts had arranged a Dinner. This most enjoyable social gathering was followed by a talk with slides on Antarctic Birds by Dr. Bernard Stonehouse, Reader in Zoology, University of Canterbury. Mr. H. R. McKenzie expressed the thanks of all present for Dr. Stonehouse's vivid and stimulating talk.

In opening the Annual General Meeting, Mr. A. Blackburn thanked Mr. J. R. Jackson and his committee for the excellent arrangements and made special reference to Miss M. M. Davis, whose untiring efforts and generous hospitality had contributed so much to the outstanding success of the annual gathering.

Mr. A. Blackburn delivered as his Presidential Address a paper on Nesting of North Island Fantails.

Mr. H. R. McKenzie presented O.S.N.Z. and Card Committee accounts and reports, which were adopted. The President then called upon the Secretary to summarise Annual Reports, which will be printed in full in *Notornis* and to outline important decisions taken at the Council Meeting.

Membership as at 31st March was 900, an increase of 51 since last year.

Mr. J. C. R. Claridge has handed over the Nest Record Scheme to Miss M. M. Neill. We are grateful to Mr. Claridge for his past efforts, which resulted in a marked revival of interest in the scheme, a record year in 1963/64 and another record year in 1964/65, when 50 members returned 801 cards. It is hoped that the scheme will receive continued and increasing support. Mr. Blackburn, in his address, drew attention to the paucity of records for fantails (only 78 cards available). Mr. J. Hilton, who is working on an analysis of blackbird cards, found that even the 517 cards available for study were insufficient to produce a clear picture, and all members are asked to record blackbird nests in 1965/66 season.

The Beach Patrol Report for 1963 will shortly be ready for publication. 1964 records are not yet complete but publication of these will follow when ready.

Arrangements are in hand for preparation and publication of summaries of Banding Reports Nos. 14 and 15.

The list of contributors to the Recording Scheme shows a 30% increase since last year. All information collected is being passed to the Checklist Committee and two members are working on species summaries.

Work of the Checklist Committee has been interrupted by a variety of circumstances but is now going ahead. Progress has been made on preparation of Ornithological abstracts and publication of part of this material may be expected in the near future. The Field Guide is practically ready for the printers and, barring accidents, should be available before the end of 1965.

Successful Field Study Courses were held at Taranaki and Kaipara during the year. The 25th Anniversary Kermadec expedition came to an untimely end. Reprints of the account of this expedition will shortly be available for purchase by members or non-members who may wish to possess a copy. The possibility of mounting another Kermadec expedition in the near future is being explored.

Provisional future plans for study courses include:—

1965: Labour Day Week-end, North Island, Wanganui; South Island, participation in Wildlife Branch survey of Waitaki River basin.

1966: A joint North Island and South Island Labour Day week-end in Nelson Province.

1967: Labour Day week-end, Hawkes Bay (Black-fronted Dotterels); Summer Study Course, Farewell Spit.

One of the results of a successful conference of Regional Representatives held during the week-end was the decision to produce a pamphlet to replace "Bird Study in New Zealand." It is proposed that this pamphlet should include information about the Society, a diagram of a bird showing feather regions and external structure, a diagram showing how to measure a bird, and a guide for recording field notes.

Council has established a Minor Expeditions Reserve Fund which is intended to provide financial assistance to expeditions privately organised by members. Applicants for grants, which will be made at the discretion of Council, should be supported by:—

(a) An outline of the project and an estimate of costs under various headings, e.g. transport, equipment, etc.

(b) An indication of other grant assistance already received or promised from elsewhere.

(c) Statement of amount requested.

1964/65 Bailey Awards to Junior Members were announced as follows:—

Best contribution to Nest Record Scheme, J. Hilton.

Best member of King's College Bird Club, D. M. Walter.

Best contribution to *Notornis* or Recording Scheme, no award for 1964/65.

Mr. J. Hilton's award was presented to him by the President, with acclamation.

Mr. A. Blackburn (President), Messrs. B. D. Bell and F. C. Kinsky were re-elected to Council, no other nominations having been received. There were two nominations for the vacancy of South Island Vice-President. Messrs. B. D. Bell and P. C. Harper were appointed scrutineers and reported the result of their count of votes to the President. Mr. G. R. Williams was declared re-elected. Messrs. Chambers Worth and Chambers were re-elected Hon. Auditors and thanked for their services to the Society.

The meeting unanimously voted in favour of motions to alter the Constitution so as to permit the Society's financial year to be changed from 1st April-31st March to 1st January-31st December in each year; the A.G.M. to be held within 5 months of the end of the financial year (previously 3 months); and Regional Organisers to be now known as Regional Representatives.

Under General, Mr. D. H. Brathwaite drew attention to errors and omissions in indexing some Volumes of *Notornis*, and to the fact

that birds are now indexed under popular names, this being contrary to a ruling made some years ago that birds should be indexed by scientific names. The President undertook to go into this matter.

Mr. R. J. Scarlett announced that the Card Index system of Canterbury Museum was available for use by students of ornithology. He also stated that he was in need of skeletons of *Puffinus assimilis elegans* and would be grateful for the opportunity to examine any which may be available.

Mr. J. R. Jackson spoke on the subject of New Zealand Nature Films. Messrs. B. D. Bell and D. E. Crockett stated that film catalogues of National Film Library and Wildlife Branch are available on request. It was proposed by Dr. R. A. Falla, seconded Mr. D. E. Crockett, and carried, that O.S.N.Z. should make enquiries and explore the possibility of more New Zealand nature films being made.

LIBRARY, 1964/65

For many years O.S.N.Z. Library has been housed in the Library block, Auckland Institute and Museum, and Miss Enid A. Evans has been Hon. Librarian. The growth of O.S.N.Z. library from a small collection occupying six shelves to one of several thousands items, and the considerable increase in her work as Museum Librarian led Miss Evans to the decision that she must regretfully tender her resignation as Librarian, O.S.N.Z. About the same time it became apparent that the space formerly occupied by our library would be required for museum purposes.

The Society has therefore become responsible for maintenance and control of our library from its own resources. The Council and Director of the Museum have generously agreed to permit housing of our library in Room 133 of the Museum (access to which is by the front door of the Museum and through the Hall of Memories). Mrs. H. M. McKenzie's offer of her services as Hon. Librarian has been gratefully accepted by Council. Provision has been made for purchase of equipment necessary for the library. Service to members will be chiefly by post. Preparation of accession lists for publication in *Notornis* will be put in hand.

Access to our library by O.S.N.Z. members during Museum hours can be obtained by making an appointment with Mrs. H. M. McKenzie, P.O. Box 45, Clevedon (Telephone Clevedon 31D). Members please note that appointment must be made with Mrs. McKenzie at the above address, and NOT BY WRITING OR TELEPHONING AUCKLAND MUSEUM.

Council have approved the principle of limited purchase of standard ornithological books for the library. A member has indicated his intention to donate his ornithological library, for which he has no further use. It is suggested that other members might consider making similar donations or bequests.

This report would be incomplete if it failed to include a tribute to Miss Enid A. Evans. Miss Evans have over a long period of years been a good friend to the Society and we are greatly in her debt, both for her work as Librarian and for the extra trouble she took to make the process of taking over so smooth and easy.

BALANCE SHEET AS AT 31st MARCH, 1965

1964	Current Liabilities		1965		1964	Current Assets		1965			
			£	s. d.				£	s. d.		
150	Sundry Creditors	.....	322	17	0	2956	Bank of New Zealand	.....	956	12	1
130	Subs in Advance	.....	75	12	2	59	Sundry Debtors	.....	58	14	3
35	"Notornis" Indx Provision	.....	-	-	-	3015		.....	1015	6	4
315		.....	398	9	2			.....		
	Reserves:						Stocks on Hand:				
700	Life Subscriptions & Christmas Card Scheme	.....	700	0	0	78	Banding Scheme	.....	-	-	-
139	Publications Fund	.....	139	2	6	300	Copies "Notornis," etc.	.....	300	0	0
5	Kermadec Expedition Fund	.....	-	-	-	378		.....	300	0	0
25	Minor Expedition Fund	.....	30	0	0		Loan to Kermadec Expedition Fund	.....	720	0	0
869		.....	869	2	6			.....		
	Accumulated Funds:							.....		
1124	Balance 1/4/64	.....	4409	7	7	700	Investments:	.....	700	0	0
3250	Bequest	.....	253	5	5	1000	Auckland Electric Power Board	.....	1000	0	0
60	Excess of Income over Expenditure	.....	-	-	-		Dunedin City Council Debentures	.....	1531	19	11
4434		.....	4662	13	0		Shares in Public Companies	.....	3231	19	11
25	Less Transfer to Expedition Fund	.....	-	-	-	1700		.....		
4409		.....	4662	13	0		Library:	.....	500	0	0
-	Less Excess of Expenditure over Income	.....	162	18	5	500	At Valuation	.....		
4409		.....	4499	14	7			.....		
5593		.....	55767	6	3	5593		.....	55767	6	3

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st MARCH, 1965

1964	Expenditure	1965			1964	Income	1965		
		£	s.	d.			£	s.	d.
	Printing and Distributing Magazine,								
656	" Notornis "	846	14	2	798	Subscriptions	817	4	4
45	Less Sales " Notornis," etc.	85	7	10	19	Donations	26	1	3
<hr/>					86	Interest Received	138	3	0
39	Postages	48	17	2	-	Dividend Received	3	15	0
52	Printing & Stationery	96	6	6	38	Surplus on Field Courses	12	4	3
83	General Expenses	153	0	0	-	Excess of Expenditure over Income	162	18	5
15	Income Tax	22	19	10	<hr/>				
80	Contribution to Banding Scheme	77	16	5	£941		£1160	6	3
61	Excess of Income over Expenditure	-	-	-					
£941		£1160	6	3	£941		£1160	6	3

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, 1965. 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.

13th May, 1965

CHAMBERS, WORTH & CHAMBERS, Auditors

CARD COMMITTEE ACCOUNTS

PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED 31st MARCH, 1965

After deducting the cost of the cards from the sales we have a:		
GROSS PROFIT of	329 18 0	
From this we deduct the expenses incurred in selling the cards —		
Advertising	135 17 6	
Postage	8 16 8	
Services	5 0 0	
General Expenses	1 17 9	
Donation	20 0 0	
	171 11 11	
Leaving a Trading Profit of	158 6 1	
Add Interest Received	30 13 3	
	£188 19 4	

BALANCE SHEET AS AT 31st MARCH, 1965

We own:		
Cash at Bank	1092 2 4	
Printing Blocks	40 0 0	
	1132 2 4	
Less what we owe to others	15 0 0	
Net Equity	£1117 2 4	

This has been accumulated as follows:

Profit up to 1964	928 8 0
Current year's profit	188 14 4
	£1117 2 4

TREASURER'S REPORT, 1964 - 65

Income and Expenditure. Heavy expenses for the year have resulted in a loss but the financial position is still very good and a deficit is not expected in the next year.

Legacy from the Estate of the late Mrs. I. I. Lenz, of Dunedin. A further £253/5/5 was received this year, making a total of £3503/5/5.

Investments. Public Company shares were purchased for £1505 in December and a bonus issue to the extent of £69 market value was received in March for one parcel.

We again thank Messrs. Chambers, Worth & Chambers for generously auditing the books.

Mr. D. F. Booth is heartily thanked for his very good work.

H. R. McKENZIE,
Hon. Treasurer, O.S.N.Z.



REPORT BY THE CONVENOR OF THE CARD COMMITTEE

Ladies and Gentlemen,

Results for the current year showed an improvement over the past year. There is no doubt that members of the Society appreciate the service and the Committee proposes to continue it for another year. New designs are proposed for the coming festive season and the Committee plans to have them on sale in August, so that they will be in ample time for the overseas mail.

They thank the valuable assistance given by the various members of the Society to this scheme.

They are thankful for the valuable assistance given by the various members of the Society to this scheme.

B. S. CHAMBERS, Convenor



RECORDING SCHEME Report for 1964/65

Collection of information for the Checklist Committee continued during the year and a number of interesting records were received, the Westland contribution being particularly useful. The number of contributors was up 30% on 1963/64 and I am grateful to those who provided material. Much useful information has been collected but much more still remains unrecorded except in the field notebooks of individual observers. Please let me have your notes, either directly or through your Regional Representative. Inevitably, there is a time-lag between the collection of information and the labour of recording it, and again between recording and preparation of results for publication. I hope that during 1965 and thereafter members may be rewarded for their help and their patience by the start of a series of summarised extracts of collected material. Species files of Spurwing Plover and North Island Kokako have already been sent to individual members for study.

I remind members of the request for Kingfisher observations (*Notornis* XI, page 136). Some have already come in and it is hoped that additional notes from all regions may follow, so that we may learn more about seasonal movements of this species and also get a clearer picture of its abundance and scarcity in different parts of New Zealand.

A letter from a member suggesting that in many parts of New Zealand some of our introduced birds have become much less numerous than was the case 5-10 years ago, and that a national survey is desirable, was considered by Council. It was agreed that preliminary investigation of this matter might be started through the Recording Scheme; details will be worked out and announced later.

The following is a list of contributors:—

Northland: Mrs. Barron, D. E. and T. R. Calvert, C. W. Devonshire, A. T. Edgar, P. M. Gross, J. A. Lees, Miss G. Poulton, Miss G. Reeve, Mrs. Reynolds, M. Ross.

Auckland: R. H. Blanshard, D. R. Burke, F. P. Hudson, Miss McIntyre, D. V. Merton, B. Richards, R. B. Sibson, P. D. G. Skegg, D. Walter.

South Auckland: B. and V. M. Adams, R. T. Adams, Mrs. M. J. Blundell, Mrs. B. Brown, J. E. Coulthard, Miss A. J. Goodwin, H. R. McKenzie, Mrs. Urquhart.

Waikato: C. R. Buckeridge, M. P. Daniel, D. B. Jenner, J. Lambert, Mrs. Templer.

Volcanic Plateau: A. E. Beveridge, M. J. Danial, R. W. Jackson, H. Lyall, F. Morseby.

Bay of Plenty: N. Bowyer, B. Burchett, Mrs. Hamilton, M. Hodgkins, Mrs. McLintock, R. St. Paul, R. M. Weston.

Gisborne: A. Blackburn.

Hawke's Bay: Mrs. Drake, B. D. Hankins, N. B. Mackenzie, Miss K. Todd, Mrs. Waters.

Taranaki: G. G. Atkinson, A. M. Davis, F. Finer, M. G. Macdonald.

Manawatu: E. Dear.

Wanganui: R. W. Macdonald, W. Pengelly.

Wairarapa: K. Cairns.

Wellington: B. D. Bell, C. N. Challies, R. A. Fordham, F. C. Kinsky, A. Wright.

Marlborough: S. R. Kennington, J. A. Cowie.

Nelson: R. Brockie, M. F. Soper.

West Coast: G. P. Allen, G. S. Cook, E. W. Crack, W. R. Forsyth, P. Grant, D. Greaney, T. R. Hartly-Smith, R. W. Washbourn, R. A. Webber.

Canterbury: D. Brathwaite, Dr. M. Buchler, G. Cawley, W. Chapple, M. Criglington, Miss M. M. Davis, D. G. Dawson, D. Graham, J. Hilton, J. R. Jackson, K. Jackson, B. R. Keeley, W. Mawson, R. Scarlett.

Otago: J. H. Allan, P. Child, Mrs. Hamel, H. W. M. Hogg, M. Keillor, Mrs. Kelly, A. Nuttall, W. T. Poppelwell, E. Sheat.

Southland: Mrs. Barlow, P. Dorizac, L. E. Henderson, R. R. Sutton.

Stewart Island: Mrs. O. Sansom, R. H. Traill.

NEST RECORD SCHEME

Annual Report for Year Ended 31st March, 1965

Support for the scheme was well maintained during the year. The number of cards completed was 801, some 70 more than last year's record number. This total includes many colonial-type cards each covering a number of nests. Participation in the scheme also showed an increase, there being more than 50 contributors as against 34 last year. All contributors are thanked for their care and enthusiasm. The grand total of records in the collection now stands at 4470. Names of contributors and details of all cards held for each species are appended to this report.

Records for Kermadec Petrel, Pycroft's Petrel, Chukor, Grey Ternlet and North Island Saddleback were received for the first time and cards were received for the following species poorly represented in the collection: Little Blue Penguin (30), Pied Shag (6), King Shag (9), Californian Quail (5), Northern Oystercatcher (12), Black Oystercatcher (7), New Zealand Dotterel (15), Caspian Tern (5), New Zealand Pigeon (10), Kingfisher (12), South Island Rifleman (8), Welcome Swallow (43) and Yellow-breasted Tit (8).

Cards for nests seen only once are required but whenever possible members are urged to follow up their nests. Even by making two or three visits, a more precise indication can often be obtained of date of laying, success or failure, and other factors. The great majority of members most probably find some nests each year, but comparatively few contribute to the scheme. It would therefore seem that much information is being buried in field notebooks or not recorded at all. I would once more like to emphasise that records for the common species are especially welcome. Experience overseas has shown that very large numbers of cards are required before significant annual or regional variations in breeding patterns can be detected. Therefore the value of the scheme is directly proportional to the number of contributions received from members spread over the country. Contributions are particularly required from Waikato, Taranaki, Hawkes Bay, Wairarapa, Buller and Westland, Southland and Stewart Island. Full details of the scheme were published in *Notornis* X, p. 251, and cards can be obtained from the Organiser, whose address is given on page 57 of this issue.

The best contribution from a junior member (up to 18 years of age) was received from Jim Hilton (Christchurch). I have therefore recommended Mr. Hilton for an award in accordance with the announcement in *Notornis* XI, p. 196.

This is my last report as organiser of the scheme and I have now handed over to Miss M. Neill. I confidently expect that Miss Neill will receive the same support that has been afforded to me over the past four years.

LIST OF CONTRIBUTORS

Over 100: J. Hilton.

Over 50: A. Blackburn, Miss M. M. Davis, D. G. Dawson.

Over 25: J. H. Allan, P. Crosier, Miss A. J. Goodwin, P. M. Gross, J. R. Jackson, A. Wright.

Other contributors:

Mrs. M. L. Barlow, G. G. Baskett, B. D. Bell, R. Bos, D. E. Calvert, T. R. Calvert, C. N. Challies, P. Child, J. A. Cowie, W. Douglas, A. T. Edgar, R. Ellis, Miss S. Fogarty, Mrs. C. Graham, G. Grant, Mr. and Mrs. G. Hamel, M. J. Hogg, M. P. Jackson, J. Kearns, Mrs. M. Kearns, F. C. Kinsky, D. Kwell, J. Lambert, Mr. and Mrs. J. W. Lane, N. J. Ledgard, Miss M. C. R. McIntyre, H. R. McKenzie, Mrs. R. V. McLintock, D. V. Merton, J. Middleditch, G. Moon, L. R. Morris, G. B. Munro, Misses R. and I. Munro, J. F. O'Brien, W. T. Popplewell, P. J. Reese, C. D. Roderick, H. L. Secker, L. Shailer, J. B. Trollope, G. A. Tunnicliffe, Mrs. L. E. Walker, D. M. Walter.

— J. C. R. CLARIDGE, Organiser

SPECIES LIST

<i>Species</i>	<i>Cards</i>	<i>Species</i>	<i>Cards</i>
North Island Kiwi	1	Brown Teal	2
Stewart Island Kiwi	1	Grey Duck	53
Great Spotted Kiwi	1	Mallard	33
Yellow-eyed Penguin	10	Shoveller	11
Little Blue Penguin	57	Black Teal	6
White-flipped Penguin	11	Harrier	48
N.Z. Crested Penguin	2	N.Z. Falcon	4
Southern Crested Grebe	2	Pheasant	8
N.Z. Dabchick	1	Californian Quail	13
Wandering Albatross	11	Chukor	1
Light-mantled Sooty Albatross	4	Banded Rail	2
Fairy Prion	16	North Island Weka	4
Flesh-footed Shearwater	1	South Island Weka	2
Sooty Shearwater	3	Pukeko	69
Fluttering Shearwater	7	Australian Coot	4
Allied Shearwater	3	South Is. Pied Oystercatcher	94
Black Petrel	1	Northern Oystercatcher	17
Grey-faced Petrel	13	Black Oystercatcher	28
Kermadec Petrel	1	Spur-winged Plover	26
Pycroft's Petrel	1	Banded Dotterel	140
White-faced Storm Petrel	5	New Zealand Dotterel	41
Diving Petrel	51	Wrybill	8
Gannet	4	Pied Stilt	161
Black Shag	45	Black Stilt	2
Pied Shag	18	Southern Skua	1
Little Black Shag	1	Black-backed Gull	199
White-throated Shag	11	Red-billed Gull	35
King Shag	18	Black-billed Gull	89
Spotted Shag	5	Black-fronted Tern	159
Blue Heron	21	Caspian Tern	19
White-faced Heron	8	Antarctic Tern	3
Bittern	2	Fairy Tern	7
Canada Goose	20	White-fronted Tern	75
Mute Swan	9	Grey Ternlet	5
Black Swan	37	N.Z. Pigeon	15
Paradise Duck	6	Rock Pigeon	57
Grey Teal	9	Kaka	4

ANNUAL GENERAL MEETING

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<i>Species</i>	<i>Cards</i>	<i>Species</i>	<i>Cards</i>
Kea	45	Yellowhead	11
N.Z. Parakeet	3	Grey Warbler	52
Yellow-crowned Parakeet	2	Song Thrush	586
Shining Cuckoo	3	Blackbird	517
Morepork	4	Hedge Sparrow	90
Little Owl	13	N.Z. Pipit	22
Kingfisher	35	Bellbird	12
South Island Rifleman	40	Tui	8
Rock Wren	7	White-eye	77
Skylark	82	Greenfinch	59
Welcome Swallow	59	Goldfinch	205
Fantail	78	Lesser Redpoll	38
Pied Tit	12	Chaffinch	76
Yellow-breasted Tit	17	Yellow Hammer	23
North Island Robin	7	House Sparrow	245
South Island Robin	14	Starling	126
South Island Fernbird	7	Myna	12
Brown Creeper	2	White-backed Magpie	10
Whitehead	6	North Island Saddleback	3
			Total
			4470



LIST OF REGIONAL REPRESENTATIVES, O.S.N.Z.

1965/66

- FAR NORTH: A. T. Edgar, Inlet Road, Kerikeri (Acting)
 NORTHLAND: A. T. Edgar, Inlet Road, Kerikeri (Acting)
 AUCKLAND: M. J. Hogg, 27 Woodside Crescent, St. Heliers,
 Auckland E. 1
 SOUTH AUCKLAND: H. R. McKenzie, P.O. Box 45, Clevedon
 WAIKATO: Mrs. M. L. Templer, 14 Bond Street, Claudlands, Hamilton
 BAY OF PLENTY: R. M. Weston, 250 River Road, Kawerau
 VOLCANIC PLATEAU: R. W. Jackson, 9 Kenrick Road, Rotorua
 GISBORNE-WAIROA: A. Blackburn, 10 Score Road, Gisborne
 TARANAKI: M. G. Macdonald, 21 Wills Road, R.D. 3, New Plymouth
 WANGANUI: R. W. Macdonald, 127 Ikitara Road, Wanganui East
 MANAWATU: E. Dear, Kopane, R.D. 6, Palmerston North
 HAWKE'S BAY: N. B. Mackenzie, Pakowhai, R.D. 3, Napier
 WAIRARAPA: K. Cairns, 177 Colombo Road, Masterton
 WELLINGTON: P. C. Harper, 4 Barber Grove, Moera, Lower Hutt
 NELSON: Vacant
 MARLBOROUGH: S. R. Kennington, Box 40, Seddon
 CANTERBURY: J. R. Jackson, 153 Sparks Road, Christchurch S.W. 2
 WESTLAND: P. Grant, 10 Hinton Road, Karoro, Greymouth
 OTAGO: Mrs. J. B. Hamel, 42 Ann Street, Roslyn, Dunedin
 SOUTHLAND: Mrs. M. Barlow, 152 Lewis Street, Invercargill
 STEWART ISLAND: R. H. Trail, Halfmoon Bay, Stewart Island

SHORT NOTE

WHITE-CAPPED NODDY AT WHANGAREI HEADS

On the morning of 13/2/65 we were watching a flock of about 60 White-fronted Tern (*S. striata*) loafing on the shore at Ocean Beach, Whangarei Heads. They (like us) were probably sheltering from the effects of the Fijian hurricane, and seemed rather exhausted. The morning was bright and sunny but a very strong south-westerly wind was blowing and the sea was very rough. The birds were fairly tightly bunched at first, but as we approached they moved apart a little and M.J.R. suddenly spotted a stranger amongst them. This was a small black tern with a white forehead and crown; a most distinctive little bird, obviously a White-capped Noddy (*A. minutus*) blown south from more tropical regions by the strong north-westerly which had earlier been associated with the hurricane. We obtained two or three reasonably clear 35 mm. colour transparencies of the noddy taken from about 30 feet, using a 135mm. lens, and so have a permanent record of this rare visitor.

— J. ROBB

— M. J. ROBB



NOTICES

DONATIONS FOR YEAR ENDING 31/3/65

CASH: Jackson, J. R. (Minor Exped. Reserve), £5; Davis, Miss M. M., 1963 L.D.W., £3/12/-; Merton, D., 1964 L.D.W., £3/2/6; McIntyre, Miss M. C. R., 1964 L.D.W., £2/10/-; McDougall, Miss B., £2/2/-; Parsonson, C. F., £1/2/6; Beatson, R. G. S., Key-Jones, Miss J., Petersen, O., St. Paul, E., £1; Fagan, J. A., McLaren, I. G., Pick, Dr. M., Todd, A., Wightman, G., 10/-; smaller amount totalling £1/7/2.

PHOTOGRAPHS: Burland, J. C.; Chapman, G.; Fordham, R. A.; Grant, P.; Hogg, M. J.; Jackson, R. W.; Kinsky, F. C.; Merton, D. V.; Petersen, O.; Skegg, P. D. G.; Sorensen, J. H.

TARANAKI LABOUR DAY WEEK-END 1964 and KAIPARA FIELD STUDY COURSE 1965: McGrath, D., sundry items donated, £4/5/-; Car Expenses donated: McKenzie, G. K., £7; Brown, J. A., £3/3/-. Some refunds to members were returned late as donations and appear in Cash Donations above or will appear next year.

GENERAL: Boeson, B., Beach Patrol Exs. donated, 1962, 1963, 1964, £6/6/11; Blackburn, A., Asst. Ed. Exs. donated, £2; Claridge, J. C. R., Nest Record Exs. donated, £1/0/6; Sibson, R. B., Subs. to "British Birds" donated 1962, 1963, 1964, £6/16/-.

BACK NUMBERS OF "NOTORNIS," etc.: Blundell, Mrs. M. J., 31; Boulton, A. A., 9; Maning, M., 7.

WAITAKI SURVEY

A survey of the Waitaki Basin is to be carried out by officers of the Wildlife Branch, Department of Internal Affairs, in the latter half of October. They would appreciate some assistance from amateurs; and although this is not an official Society activity, the survey can be used to replace the lack of a study week-end in the South Island this year. Members interested in participating, over that week-end or longer, are asked to contact their local regional representative who will be able to supply details. Application must be made before September 1.

— BRIAN D. BELL, Wildlife Branch