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Birds of the Gilbert and Ellice Islands Colony

by

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CONTENTS

	Page
Introduction	1
Part A: Resident Birds	4
I. Sternidae (Terns and Noddies)	4
II. Sulidae (Gannets or Boobies)	12
III. Fregatidae (Frigate-birds)	14
IV. Phaethontidae (Tropic-birds or Bo'sun birds)	16
V. Procellariidae (Shearwaters and Petrels)	18
VI. Ardeidae (Hérons)	21
VII. Columbidae (Pigeons and Doves)	22
VIII. Phasianidae (Quails and Pheasants)	23
IX. Sylviidae (Warblers)	24
X. Psittacidae (Parrots)	24
Part B: Migratory Birds	25
I. Charadriidae (Turnstones and Plovers)	26
II. Scolopacidae (Tattlers, Curlews, Godwits)	28
III. Cuculidae (Cuckoos)	33
IV. Anatidae (Ducks)	33
Appendix A: Protected birds	35
Appendix B: Some common trees associated with birds	35
Bibliography	36

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by

Peter Child, B.Sc., Dip. Ed. (N.Z.)

INTRODUCTION

The following notes and observations by an amateur bird-watcher are the result of additions and amendments to a booklet which I wrote while Education Officer at Tarawa, Gilbert Islands, and originally published in January, 1956, as a guide for native schoolteachers of the Colony.

I had lived from August 1943 to December 1944 in the Ellice Islands as a radio operator in the Coastwatching Organisation during the Second World War. No systematic notes on the birds were made during this period although many details were later recollected, especially when these islands were again revisited during the second tour of duty for the three years February 1953 to February 1956. This recent post was a travelling one and I was fortunate in being able to visit nearly all the islands in the Colony with the exception of the Northern Line Islands and the uninhabited islands of the Phoenix group. (For information concerning these exceptions acknowledgement is made to the authors of relevant publications quoted in the bibliography accompanying this paper, and to acquaintances who had visited these places and supplied me with verbal reports.) The nature of my work generally necessitated living on each island for periods of several days and thus allowed opportunity for studying the bird-life and visiting (usually by canoe) many remote islets and breeding places which were not inhabited by the native people and which the casual visitor never reaches. These are, of course, the real undisturbed bird sanctuaries of the Colony, where the avifauna is at its best and least afraid of man.

It should be mentioned that no comprehensive survey of the whole Colony has been carried out by a competent ornithologist, and thus there is a noticeable gap in the available literature of the Pacific birds. For the same reason the subspecific names of birds in the western parts of the Colony (i.e. the Gilbert and Ellice groups and Ocean Island) are somewhat in doubt, but the most likely one I have obtained is given in the following notes.

The scientific nomenclature follows that given in Peters' "Checklist of the Birds of the World."

Geography: The Colony comprises 37 coral atolls and islands spanning the central Pacific Ocean. While the land area is very small, approximately 369 square miles, the distances between islands and groups of islands are vast. From Ocean Island in the west at longitude $169^{\circ} 35'$ E. it is some 2200 miles to Christmas Island at longitude $157^{\circ} 28'$ W. in the east; and from Washington in the north at latitude $4^{\circ} 7'$ N. it is some 1000 miles to Niulakita at latitude $10^{\circ} 45'$ S. in the south. Such a rectangle of

* 41 Brandon St., Alexandra, Central Otago, New Zealand.

sea, though not exclusive to the Colony, covers an area of more than two million square miles.

These islands form four groups: there are 16 Gilbert Islands, 9 Ellice Islands, 8 Phoenix Islands and 3 Line Islands; with Ocean Island as an outlier from the Gilbert Islands. The 8 Phoenix Islands include the British-American Condominium of Canton and Enderbury (1939); also, three of the British islands of the Phoenix group, Birnie, McKean, and Phoenix, are uninhabited. The Gilbert and Ellice Islands form a chain lying in a N.W. - S.E. direction astride the equator between longitudes 172° E. and 180° E. The Phoenix Islands are scattered south of the equator between longitudes 171° W. and 175° W. and the three Line Islands, Washington, Fanning and Christmas, lie in a N.W. - S.E. line north of the equator between 157° W. and 160° W.

Geologically Ocean Island stands apart, being an island of the elevated type, its highest point being 280 feet above sea-level. This island is approximately 1500 acres in extent and contains rich deposits of almost pure phosphate of lime on top of the coral base. All the other islands belong to the Central Pacific "area of subsidence," having been formed by the upgrowth of coral around the flanks of mountains long since submerged. Most are atolls, with a ring of reefs and islets enclosing lagoons, the land surface rarely rising more than 15 feet above sea level. A few of the islands are not typical atolls but consist of solid masses of limestone surrounded by fringing reef, one or two having small land-locked lagoons. One (Washington), has a land-locked lagoon which has become a freshwater lake with peat bogs surrounding it.

Bird-life in general: To one who has spent nearly all his life in inland New Zealand, the experience of living so close to the sea (in fact, with the sea) on tropical atolls and observing the very different kinds of birds from those one has been accustomed to, has been a source of great enjoyment and surprise. Prominent among the novelties were

- (1) the absence of "singing" birds;
- (2) the uncommonness of true land birds, by far the majority being oceanic birds and migratory shore birds;
- (3) the large number of migratory species which make these atolls their winter quarters, or a 'halfway house' on their long flights north and south;
- (4) the noisiness of some species during the night;
- (5) the absence of any very small birds (except the Christmas Island "canary" which I have not seen).

Perhaps the food-gathering of sea-birds, demanding as it does much time and prolonged journeys on the wing, is the factor which determines their sizes and wing-spans. In any case, it makes observations and identifications easier for the bird-watcher, and the uncomplicated backgrounds of sea and sand make the task beautifully simple in comparison with the inland and forest habitats of New Zealand.

It seems almost certain that there has been a general decrease in the resident bird population of the Colony over the past two or three human generations, particularly among the more timid and ground-nesting species. Old men who can remember back before the turn of the century have often told me of birds which used to nest on their islands but which

are now rarely, if ever, seen. There also exist some Gilbertese bird-names which the present generation are unable to associate with any particular species now known to them. There appear to be four reasons for this trend: (1), a rapidly increasing human population since the cessation of activities of the "black-birders" about 1880, with subsequent expansion to previously uninhabited islets, increase in killing for food, and general disturbance of colonies; (the black-birders were slave traders who took natives to work in plantations in Mexico and guano mines in Peru.); (2), considerable shooting for food and feathers by the early traders, which may have wiped out small breeding colonies; (3), the increasing numbers of dogs, cats, and rats (the last-names especially since the Second World War), with consequent destruction of eggs and young; and (4), the disturbance caused by military occupation and the construction of airstrips on some islands during 1942-46. Ground-nesting species also suffer from the predations of crabs, especially hermit crabs.

The Gilbertese as a race have apparently never been great bird-eaters, whilst the Ellice people have (and still are). In spite of legal protection, it is not an uncommon sight to see a party of Ellice youth who have been working in the bush return with a "bag" of plucked noddies for roasting over a coconut-husk fire. (In the Gilberts it is mainly in the southern 'drought' islands where any birds are eaten.) Other birds occasionally eaten are frigates and boobies (caught while asleep on coconut palms), pigeons (trapped in special snares or taken as nestlings), and curlews and herons (which are sometimes shot). The eggs of the Grey-backed Tern which breeds in thousands in the Phoenix group, and the Sooty Tern on Christmas Island, are eaten in times of food shortage.

Seabirds have always been reliable guides to interisland voyagers and fishermen, particularly in this Colony where the low-lying atolls are invisible from a few miles out, and where fish form a large proportion of the native diet. The activities of noddies, terns, and others often betray the presence of good shoals of bonito, trevally, and other useful food fish; their regular excursions from islets to fishing-grounds, especially in the early morning and evening, provide a valuable guide for canoe-captains as to the whereabouts of land. Probably much of the old Gilbertese navigation was based upon the regular flying-routes of seabirds. In the Ellice the "tautai" (fishing-captains) have many omens and beliefs associated with the calls, movements and other mannerisms of sea and shore birds.

The scattered islands of the Colony are situated on or near the equator and, although there are occasional stormy westerly periods from November to February, the daily weather and temperatures remain remarkably constant, with prevailing winds from easterly quarters, throughout the year. Because of this great uniformity of seasons the nesting periods of birds are often prolonged affairs, and there is nothing like the same urgency and definiteness one is accustomed to in temperate lands. The Brown Noddy, for example, has been observed nesting at every month of the year! It has also been established that the Sooty Tern, and possibly the Grey-backed Tern, have breeding intervals of less than twelve months.

The commonest and most widely distributed species is probably the Black Noddy, while one of the rarest is the Brown-winged Tern. It is most likely that other species, especially migratory waders, will be reported

from the Colony from time to time. The names are shown as follows:

<u>Scientific Name</u> (Peter's Checklist)	English Name
<u>Ellice Name</u>	Gilbertese Name

Some alternatives are given in brackets.

PART A: RESIDENT BIRDS

I. STERNIDAE (TERNs AND NODDIES)

TERNs or "sea swallows" are the most conspicuous group of birds of this region. The tern family consists of birds of smallish body size having long narrow and pointed wings and long forked tails. The legs are very short and feet small and webbed. The bills are straight, tapered and quite long. When in flight over lagoons or the ocean searching for food the bill is characteristically pointed downwards more or less at right angles to the line of the body. They dive with folded wings from a considerable height into the water and quickly emerge again with their prey, which consists of small live fish, crustaceans, cuttlefish and other small creatures from near the surface of the sea. They prefer live food, and are not scavengers like gulls.

Terns are sociable birds, living and breeding together in huge colonies or "terneries", the noise of which is sometimes deafening, even throughout the night. Males and females are alike in all species. All except the White Tern lay their eggs in hollows on sandy or shingly beaches. Most tropical terns lay only one egg but the black-naped Tern, and very occasionally the Grey-backed Tern, often lays two. Even among terns of one species eggs vary considerably in size, shape and colouring, and hardly any two specimens are exactly alike. The eggs and chicks are usually protectively coloured and difficult to spot among the stones and sand.

1. Sterna sumatrana sumatrana. Black-naped Tern.

Akiaki.

Kiakia.

This small tern is easily distinguished by the black band around the head above the eyes and extending down the nape. Except for the mantle and upper wings, which are a very pale grey, most of the bird is white. The primary wing feathers often have dark grey or blackish tips; the bill and feet are black, and the webs also black. The crown is white. Young birds in immature plumage have somewhat darker mottled colouring.

This bird is common to most western lagoon islands, especially where there are small uninhabited islets of sandbanks such as Bikeman (Tarawa), Abanekeneke (Onotoa), Pukasavilivili (Funafuti), and Teafuave (Nukufetau), which are the favourite breeding places. It does not appear to be present in the Line Islands and is relatively uncommon in the Phoenix.

Nesting extends from January to September. The nest is just a shallow depression in the sand or among small coral shingle or among high tide

debris, sometimes sheltered by a tuft of grass or a low saltbush or other shrub. Two eggs are frequently laid. They are smaller than the White Tern's and are pale greenish-blue in background colour with pale mauve spots and blotches all over, and dark brown blotches and markings superimposed. On shingly beaches the eggs are very difficult to see. The average size of 11 eggs measured was 37 x 26 mm.

Sterna fuscata oahuensis.

Sooty Tern.
(Wideawake Tern)

Talaliki.

Keeu.
(Kereekere)

The Sooty Tern is a rare bird in the Gilbert and Ellice groups, there being small colonies only at Teafualiku (Funafuti), Numatong (Nonouti), and Oneke (Kuria). They are very common in the Phoenix and Line Islands, where they sometimes nest among their cousins the Grey-backed Terns. The adult bird has a broad white band on the forehead extending above the eyes; the crown, nape and upperparts are dull sooty black, while the underparts are white, with some greyish feathers under the tail, the bill and feet are black.

According to observations made by Dr. J.P. Chapin, an American ornithologist, and verbal reports to me by the British District Officers who have been stationed on Christmas Island, the Sooty Tern has a breeding interval of only six months there, nesting taking place regularly every June and December.

King quotes a Gilbertese living there as stating the nesting seasons to be December-March and June-August. I have not been able to determine whether a similar cycle occurs in the Gilbert and Ellice colonies; nesting was in full swing with fresh eggs at Nonouti in May, the colony being about 120 birds. One older egg, two flying young and three adults were seen at Funafuti in September, and according to locals the nesting was nearing its end there at that time, the normal population being in "hundreds"; between nesting periods the birds migrate elsewhere - the locals say to the Phoenix group.

A large single egg is laid in a shallow hollow in the sand; it is pale bluish or buff in ground colour, with purplish brown spots and blotches. The eggs vary considerably in size, shape and colourings. The average of 13 eggs measured at the Nonouti colony was 49 x 34 mm. Fishermen, ships' crews and islanders often collect the eggs for food where they are common.

The high-pitched screech of the Sooty Tern is imitated in the common Gilbertese name of "keeu".

3. Sterna anaethetus anaethetus. Brown-winged Tern.

?

?

I have not found anyone in the Colony able to name this bird from a description. Blackman states that it breeds in the 'Phoenix and Ellice Islands'. They were recorded at McKean Island, Phoenix group, by Graffe in 1863 (Finsch and Hartlaub 1867). Sharpe and Whitmee (1878) listed it without giving any details in a collection from the Ellice Islands. Buddle observed several pairs among a large colony of Grey-backed Terns at Canton in June, 1937, but no sign of nesting was discovered.

3 birds seen by the writer at Teafualiku islet, Funafuti (Ellice Is.), seemed to be of this species; they were flying but appeared to be an adult pair and an immature. The natives said these birds nest there but could not be distinguished from the more common Sooty Tern, and there was no separate vernacular name for them. (The adult is similar to the Sooty Tern but is smaller and slightly lighter in colour, and has a narrower white band on the head which extends back beyond the eye. The bill is black, the legs and feet dark grey or black with brownish webs.) The nesting habits were said to be similar to those of the Sooty Tern. During the same month (September, 1955) a young bird brought from Funafuti was examined at Nukufetau, and answered the description given by Alexander for the Brown-winged Tern, and its measurements indicated a smaller bird than the Sooty Tern. (Bill: 1.4; tarsus: 0.9; length: 14.0; wingspan: 28 inches.) However as the colouring of the two species is almost identical, and as it was only the immature which was handled, the identification remains in some doubt. It seems possible that a small colony of this species mingles with the Sooty Terns during the breeding season at Funafuti.

4. Sterna lunata.

Grey-backed Tern.
(Bridled Tern; Spectacled Tern)

Talaalofi.

Tarangongo.
(Maningongo)

These birds are no longer breeding in the Gilbert and Ellice groups, although it seems that they did so on a few islands in days gone by. They still breed in immense colonies in the Phoenix Islands. There is a very large colony on the southeastern end of Canton.

The adult is similar in build to the Sooty Tern but slightly smaller, and the upperparts are soft grey instead of sooty black; the underparts are white and the feet and bill black. The head is black except for a white forehead and a white band extending back above each eye.

The birds nest on the ground, laying their eggs in hollows among stones and creepers; sometimes the hollow is lined with small bits of coral and rock (Bailey once recorded two nests with two eggs in each, at Canton.) Undoubtedly May-June is the height of the nesting season as recorded by observers on Canton, but, according to one boy informant of mine, a native from Hull Island, the species has two nesting seasons per year, the second being in December.

The eggs of this species are sometimes eaten at Manra (Sydney) and Orona (Hull), especially during times of drought when food is scarce.

5. Thalasseus bergii. Crested Tern.
(Swift Tern)
- Tala Karakara.
(Talaalofi) (Kabiniwa)

The eastern subspecies is T. b. cristatus while that in the west is more likely to be T. b. pelecanoides, according to Baker.

With a wingspan of about 40 inches, this is easily the largest tern in the Colony. It is unknown at Nui, Niutao and Vaitupu, but otherwise appears to be present in small numbers on most islands.

The crown and nape are black with elongated feathers from the nape forming a crest from which the bird is named. The upperparts are light and dark greys while the neck and underparts are white. The feet are blackish with dark webs. A conspicuous feature which helps identify this bird is the large yellow bill. It dives for fish from a considerable height, and is often seen hovering over the lagoon shallows uttering the harsh cries from which the Gilbertese name 'karakara' is obtained. The other name, 'kabiniwa' means 'canoe-hull' and probably refers to the shapely body of this fine bird.

Crested Terns are said to nest in small colonies on sand or gravel bars similar to those occupied by the Black-naped Terns. However, no one was ever able to show me an actual nest or egg, and in none of the literature is there a report of finding them. It is said that one egg is laid between December and February. I saw several immatures in July at Onotoa, and Moul records one from there on August 19. In May an immature bird was being fed small fish by a parent on the lagoon reef at Betio, Tarawa.

NODDIES belong to the same family as terns, and in appearance and habits they are similar to terns; the two most widely distributed noddies found in the Colony are, however, much darker in colour than any of the terns and so are easily distinguished from them. The fork of the tail is not so deep on noddies as on terns, and in flight noddies often have the tail closed so that the fork is not noticeable at all.

Their food is similar to that of terns but, unlike terns, they do not dive below water for it from a height but skim around fairly close to the surface and plunge in briefly when the prey is sighted. Although their feet are webbed noddies spend very little time on the surface of the water as their feathers soon become waterlogged; occasionally flocks of birds are seen during fishing operations resting on the ocean or lagoon.

6. Anous stolidus pileatus. Brown Noddy.
(Common Noddy)

Ngongo.
(Uii)

Io.

This is the largest of the noddies and is readily identified by its dark brown colour. The crown and nape are pale grey, almost white on the forehead, and there is a black band from the bill to the eye. There is a prominent white semicircle under each eye. The rest of the body is dark brown with lighter brown shades on the underparts. The bill is black and the feet brownish-black with yellowish webs.

They are fairly common on all islands of the Colony. In some places, such as Canton and Christmas Island, they have been known to nest on the ground among coral blocks, but the favourite nesting place is the butt of a coconut frond, in the axil between the butt and the main trunk; this site distinguishes them from the Black Noddy which nests further out on the petiole where the small leaflets begin. At Onotoa two nests were found in the whorls of leaves of the pandanus.

A rough nest is made of twigs, dead leaves, roots, and coconut fibre. One large egg is laid, pale buff in ground colour with large purplish-brown spots and blotches, more dense towards the wider end. Average size of eggs measured at Nonouti was 52 x 34 mm. Nesting seems to be most common between March and September, but eggs may be found in different localities during any month of the year.

The adults utter a very harsh cry, "krrrrr", from the tree-tops, especially when their nests are disturbed. They are sometimes nicknamed 'the angry birds' by the natives because of this habit.

7. Anous minutus minutus. Black Noddy.
(White-capped Noddy)

Taketake.
(Lakia)

Mangkiri.
(Kunei; Takiri)

This is a smaller dark-coloured noddy, and probably the commonest bird in the Colony, being listed in large numbers on all islands visited by the writer. Its general colour is very black with a noticeable contrasting white crown and forehead and a white semicircle under the eye. The bill is black and the feet dark brown, almost black.

The birds congregate in large colonies, especially during nesting time, and their continual chatter can be heard from afar. As mentioned above, one of their favourite nesting places is on palm fronds where the small leaflets begin to grow out from the rib, and on some trees one may find a nest on almost every near-horizontal frond. On some islands Tournefortia and Pisonia are the favourite nesting trees, while on others with dense colonies where trees are limited nests may be found on the ground. Several nests may occur on one branch, and even on coconut palms two and three on one frond are not uncommon. The nests are roughly

9. Gygis alba.

White Tern.
(Love Tern; Fairy Tern;
Angel Tern)

Matapula.

Matawa.
(Matawanaba; Bairuti)

Baker (p. 179) states that the systematic position is in doubt. In the eastern region it is probably G.a.candida as listed by Bailey and others, and by my measurements from live birds caught at Tarawa the subspecies in the west is probably G.a.pacifica, which is a slightly larger bird.

The beautiful little White Tern is fairly common on all islands except Arorae, where surprisingly it is not present at all; pairs of birds will usually be seen hovering near pandanus trees or playing on the branches. They are easily distinguished by their pure white colour and arboreal habits. The shafts of the primaries are dusky brown and of the tail feathers almost black. Mayr describes the bill and feet as black; however all specimens examined by me in this Colony have a bill which is deep navy blue at the tip to a paler blue or royal blue at the base, while the legs and feet are light blue or greyish-blue with white, yellowish or flesh-coloured webs. The prominent dark eyes have a narrow black ring around them.

These birds are not easily frightened and show much curiosity by fluttering close over one's head and uttering shrill nervous calls, especially when one approaches a nesting-site. No nest is built and only one egg is laid; favourite places are the tops of old coconut stumps, forks of pandanus and tree-heliotrope, or simply the rough bark of a horizontal branch of these trees, and sometimes nothing more secure than the top (slightly concave) surface of bare palm frond petioles; needless to say these are precarious places for eggs, yet few are ever seen dislodged. At Ocean Island eggs may be found in hollows and ledges on the large coral blocks and pinnacles which remain after phosphate mining, or occur naturally around the coast.

The eggs are pale bluish-green marked with brownish and purplish blotches and scrawly lines; average size for five eggs measured was 38 x 30 mm. I have seen eggs every month of the year, but the main nesting season is probably about May to January. The young cling to the branch with their small sharp claws and are not easily dislodged. An adult may often be observed arriving at the youngster with a bill full of tiny silvery fish from the lagoon or ocean; it is remarkable how it manages to catch the last few with its bill already half full, for up to a dozen have been seen in a bill at one time. These are fed to the fledgling one at a time directly from the bill. The rather dusty grey down of the chick compares unfavourably with the brilliant snowy whiteness of the parents, but is of considerable value as camouflage on the branch. During feeding operations over the lagoon young flying immatures are often harassed by the noddies who give chase until the tern drops a fish, which is then smartly retrieved by the noddy before it reaches the water.

(Terns and Noddies
(A simple identification chart)

<u>Plumage:</u>	<u>Size</u>		
	<u>Large</u>	<u>Medium</u>	<u>Small</u>
Mainly dark, light crowns.	_____	Brown Noddy	Black Noddy
Dark upperparts, white underparts.	_____	Sooty Tern	Brown-winged Tern
Greyish upperparts, white underparts.	Crested Tern	Grey-backed T.	Black-naped Tern
Nearly all pale grey	_____	_____	Blue-grey Noddy
All white	_____	_____	White Tern

II. SULIDAE (GANNETS OR BOOBIES)

Three members of this family occur in the Colony although only one of them, the Brown Booby, is commonly known in the Gilbert and Ellice Groups, the other two being but occasional visitors.

The birds are similar to the species in New Zealand, large and heavily built, with stout thick necks and very stout powerful beaks, short legs with large webs between all four toes. There is an area of naked skin on the face and throat, the colour of which helps identify the species. The flight is steady and deliberate, usually fairly close to the surface of the water.

The name booby (from the Spanish "bobo" - a fool) appears to have arisen from their apparent stupidity in allowing people to approach them so easily, and because they permit themselves to be continually robbed of food by the frigate-birds. A frigate will sometimes grab the booby by the tail in flight to make it disgorge some fish which the frigate then usually manages to retrieve before it hits the water.

- | | |
|-------------------------------------|--------------------------------|
| 10. <u>Sula leucogaster plotus.</u> | Brown Booby.
(Common Booby) |
| Kanapu.
(Kanopatua) | Kibui.
(Tairo ?) |

Single birds or small groups are often seen flying around lagoons or resting on beacons or buoys. The adult is dark chocolate-brown on the upper-parts and breast, white on the abdomen, underwing and under-tail coverts. The bill is pale bluish or yellowish, with greenish-yellow on the skin of the face. The legs, feet and webs are also greenish-yellow.

The Brown Booby eats a variety of herring-like fish, or fish that are similar in habits to the herring. To get its food it dives from a considerable height and often pursues its prey under the water; it has been caught in fishermen's nets at a depth of as much as 90 feet.

It is a ground-nesting bird and builds a rough structure of twigs and seaweed. Two eggs are usually laid but only one chick is raised. The eggs are large and pale blue, covered with a white chalky layer which can be scratched off. The young bird is fed on partly digested fish by thrusting its bill and head into the throat of the parent. The nesting season is about March to August. No breeding places are known in the Gilbert and Ellice groups. Fanning, Christmas Island, Canton and other Phoenix Islands are known to have nesting colonies.

About thirty birds were roosting on the tops of coconut palms at Numatong (Nonouti) in June but there was no evidence that they nest there. One of my native companions climbed a palm at night and caught one of

these, which we measured. While roosting or breeding these birds, which are usually silent, utter loud quacks and honking noises. Mr. G. B. Gallagher, a British District Officer who died at Gardner Island in 1941, had a tame booby he called "Honk".

11. Sula dactylatra personata. Blue-Faced Booby.
(Masked Gannet)
- Kena. Mouakena.
(Loka)

The Blue-faced Booby is seldom seen in the Gilbert and Ellice groups; an occasional one is picked up by parties out bonito-fishing in the ocean; Kennedy saw only one in five years at Vaitupu. They are fairly common on Christmas Island, rare on Fanning and Washington, and present in small numbers on Canton, McKean, Gardner, Phoenix and Sydney of the Phoenix group.

The adult is a large white bird with contrasting dark brown primaries and tail feathers. The bill has a horn-coloured tip, the base being orange-yellow in males and pinkish in females; the feet are olive-drab in males and lead-grey in females. There is a conspicuous patch of dark blue skin on the face and throat. Although the colouring is similar to that of some individuals of the Red-footed species it may be distinguished from the latter by the fact that the feet are never red; also a smaller area of the wings is brown, and it never nests in trees.

The Blue-faced Booby nests on the ground, a shallow depression in the sand, without other materials, forming the nest; two eggs are laid but only one chick is raised. The nesting season lasts from about April to December in different localities.

Its feeding habits are different from those of other boobies, for it lives almost entirely on flying-fish, which it seizes at the surface of the water or even in the air.

12. Sula sula (rubripes?): Red-footed Booby.
- Tapuku. Keta.
(Talanga?) (Makitaba)

The Red-footed Booby differs from the other two species in its nesting and feeding habits. It lives mainly on squid which it catches in the twilight of early morning and evening when squids and other creatures from the ocean depths come to the surface.

It is one of the few tree-nesting boobies of the world, and builds a rough nest of dry twigs; at Canton these are mainly on Scaevola bushes; at Christmas Island on Tournefortia, and at Gardner on Pisonia. Large nesting colonies have been reported at Fanning and Washington, and smaller colonies on most of the Phoenix Islands. There is a possible nesting site at Bakatorotoro (Abaiang) in the Gilberts. A young nestling in white down shown to me at Tabuarorae (Onotoa) in August, 1955, was found on the broken

trunk of a Pisonia, and appeared to be of this species. No other nests were found and it was probably an isolated case. These birds are also said to roost but not nest on Pisonia trees on the islets of Tenon and Namauri at Tabiteuea. There was no sign of them there in January, 1956.

Only one egg is laid and the young birds, like those of other boobies, are covered with a coat of thick white down for several months. The nesting season is from April to December in different localities; the eggs are similar in appearance to those of the Brown Booby.

Measurements, colourings and classification are discussed at some length by Murphy et al. in the booklet "Canton Island"; it appears that the birds in this region are smaller than those elsewhere, possibly warranting a new subspecific name to distinguish them from S. s. rubripes. Further measurements are needed on birds from these islands other than Canton.

III. FREGATIDAE (FRIGATE-BIRDS).

These pirates of the Pacific skies are well-known throughout the Colony; nearly every island has a few birds soaring over the land or surrounding ocean during the day, and resting on the palm-tops or other tall trees at night. When one comes to find where they nest, however, it is a different story, and many wild rumours are told. I was not able to find for certain a single nesting-site in the Gilbert and Ellice groups; also no males with the characteristic red inflated gular pouches were observed in that region, although I was told that occasionally one such is seen. There are, however, plenty of birds of various ages - all flying of course. Immature males are common.

Frigates are the largest birds seen in the Colony, fully grown ones having wing-spans of six to seven feet. Of the five species in the world, two occur here, and their identification is difficult except in mature adults. They inhabit windy situations for if grounded in a sheltered position they are helpless and unable to rise into the air. During violent westerly storms in the Ellice Islands an occasional frigate would reach us on the beach on the sheltered lagoon side and was unable to do anything more elegant than flap clumsily along the beach with its wingtips hitting the sand. Also for this reason, nesting and roosting sites are in exposed places, and tame birds are usually kept on elevated perches on the windward side of the atolls.

The long forked tails of these birds are sometimes not apparent when in flight. If angered or disturbed the birds snap their tails in a scissor-like fashion. The legs are very short and, although the feet are partly webbed, they seldom rest on the water. Personally I have never seen one do so but then I have not lived for any length of time among a large colony. According to the report by Degener and Gillaspay one of them saw "a small flock of frigates playfully land, float and rise again from the placid waters of the lagoon". From my own experiences, the word 'placid' used here is puzzling - surely the incessant trade wind of Canton was necessary for the birds to take off. The bill is long and slender with a sharp hook at the tip; when annoyed the birds have a curious habit of rattling the

bill. On the throat there is a patch of skin which, in mature males, can be inflated with air to form a large red balloon (gular pouch) in the breeding season.

Their food consists of flying-fish, other small fish, jellyfish, molluscs and other creatures picked up from the surface with a swift movement of the bill when they are in flight; more often, however, they pursue noddies, boobies and terns and force them to give up some of the food they have swallowed, which is then usually caught by the frigate-bird before it reaches the water. It is this habit which has earned them the nickname of 'man-o'-war hawk'. When other species are returning home in the evening the frigates descend from their lofty soarings and pester the smaller birds until a meal is consumed. In the Gilbert and Ellice groups the noddies are the commonest victims, while at Canton and some other islands boobies are the ones most attacked.

Their nests are clumsy structures of twigs, placed on low bushes or trees, or sometimes on the ground in windy situations. Although a single large egg is usual, Lister observed a few nests containing two on Phoenix Island. Both parents share the incubation; if the nest is neglected other frigates will rob the sticks, or egg, or kill the youngster. Immatures can always be distinguished by their white or rusty-coloured heads, and it is probably at least two years before adult plumage is attained. Females are larger than males.

In some Pacific territories frigates have been used as message-carriers from one island to another, and there is one genuine story of a strange frigate which was caught by an Arorae man who attached a note to its wing and released it; the bird returned to its owner who was at Ocean Island, about 450 miles away; the Arorae man later received a letter of thanks for returning the bird. Since there appear to be no breeding colonies in the Gilbert and Ellice groups the frigates seen there must all cover at least several hundred miles in their flights from the Phoenix colonies.

The long primary feathers are used in the Gilbertese game of "Kabane", in which a model 'bird' is catapulted vertically into the air while, from twenty yards or so away, the 'hunter' attempts to bring down the bird with a slingstone weighing 7 oz. attached to 25-30 fathoms of line. Now used only as a game, the pastime was formerly a practice for the actual attempts on the soaring birds. Also in the old days canoe crests of certain clans were made of the primary feathers of frigates. In order to tame the birds some natives use special diets, such as a particular species of small fish, or boiled abdomens of hermit crabs. Others, when feeding the bird, add some of their personal hair-oil to the food and rub some oil on its bill; in this way they claim the bird can recognise its own master.

13. Fregata minor palmerstoni.

Greater Frigate-Bird
(Pacific Frigate-Bird)

Katafa.
(Manulasi)

Eitei.

Males are called Marenaiti or Bairakau; or, when the red gular pouch is showing, Koko or Tarakura (Ellice: Talakula or Katokula); females are

called Ubamara or Ubaimoa, and young birds Ubaitoi or Ubamei (Ellice: Upaitoi).

The adult male is dark brown to black all over, with a bluish-grey bill and black, brown or pink feet. It is the darkest bird of either species and is thus easily identified. The female has a dark brown or blackish head, neck, upperparts and abdomen, but the throat and breast are white. Immatures have white or rusty coloured heads and patches of white on the breast and abdomen; by the shape of these patches it is usually possible to tell whether the bird is male or female.

Canton and other Phoenix Islands, and the Line Islands, are known breeding places. The nesting season is an extended one and lasts at least from March to September. A large flock of an estimated 200 birds rested on Pisonia trees at Tabuarorae (Onotoa) but there was no sign of nesting there; these were observed coming in to roost in the evening twilight only, and could have been of the species F. ariel.

14. Fregata ariel ariel.

Lesser Frigate-Bird.

Katafa.

Eitei.

Not many islanders can distinguish this bird from its near relative described above, and it is difficult to identify females and young birds, which are similar in markings to those of F. minor. However the male is easy to distinguish from below as it has a white ventral side patch under each wing, the remainder being dark brown to black. The white on the breast of the female extends back under each wing corresponding roughly to the side patches of the male; this is about the only easy way of distinguishing it from a distance from F. minor female. All are smaller birds than F. minor.

It is not so common as the Greater, but I have seen a few at Nonouti, Funafuti and Nukufetau, and possibly the flock mentioned above at Onotoa. Moul reported them from Onotoa. The only nesting place reported in the Colony is the large one observed by Lister in 1889 on Phoenix Island.* Thousands of nests on the ground with eggs but no young were observed in June. Although they have been seen at Canton Buddle concluded that they do not breed there.

IV. PHAETHONTIDAE (TROPIC-BIRDS OR BO'SUN BIRDS)

This family is represented by only three species in the world, of which two occur in this Colony. With their delicate plumage colouring and unusual median tail-streamers, they are among the most beautiful of sea-birds. The plumage is mainly white, with a roseate tinge ventrally, and a few black markings; the black bar through the eye is a prominent feature. They have long wings, thick straight bills, and short legs with all four toes webbed. They are diving birds, feeding chiefly upon fish and squids.

* Bird listed as F. minor but Lister's detailed description (1891) fits F. ariel.-Ed.

A single bird or a pair is often encountered at sea, when they will circle around the ship for lengthy periods, occasionally uttering a shrill rasping cry. The flight is somewhat undulating with the wings beating constantly and steadily something after the manner of pigeons. I have not seen them settle on the water although it is said they occasionally do so.

15. Phaethon rubricauda melanorhynchos. Red-tailed Tropic-bird.

Tavaketoto.

Taake.

There now seem to be no definite nesting places for these birds in the Gilbert and Ellice groups; there was once a considerable colony at Nui on an islet called Bikentaake (= "Island of the Tropic-bird"), but the birds have not returned there for many years. The chief breeding places are now in the Phoenix and Line Islands; known colonies occur on Gardner, Hull, Phoenix, McKean, Sydney, Canton and Christmas, and rarely on Fanning. Nests are situated on the ground under saltbushes (Scaevola) or other small shrubs, or between rocks or under overhanging rocks; a few dead leaves are all that go to make the nest. Only one egg is laid, it being reddish-brown in ground colour and beautifully marked with larger blotches and streaks of purplish-black. Nesting lasts from May to November. Both young and adult birds protest loudly if the nest is approached, and will often strike with their stout bills.

The newly hatched young are thickly covered with white down; later some black markings and bars appear on the back and wings; in adults these have disappeared except for a small patch on the wings and flanks, so that the plumage is chiefly white, often tinged with rosy pink or salmon shades. There is a characteristic black streak curling through each eye, and the shafts of the primary and tail feathers are black. There are 14 white tail feathers and the two median red streamers from which the bird is named. The bill is usually an orange or vermilion shade, with a black streak through the nostrils; the legs and bases of the toes are pale blue, and the rest of the feet black.

The red tail feathers are obtained merely by pulling them out; they were much sought after in the last century by milliners, and in earlier times were worn in some islands of Polynesia as a sign of chieftainship. Of three red tail-streamers which I was given from Christmas Island the longest measures 18.2 inches. For some of the village prophets in the Gilberts the appearance of this bird signified good luck, but for others approaching death in the clan; it is thus apparent that the species has never been common there.

16. Phaethon lepturus dorotheae. White-tailed Tropic-bird.

Tavake.

Ngutu.

(Tavakepuka; Tavakelau)

(Koroangutungutu; Tarangotu)

This bird may easily be distinguished from the Red-tailed species by its two long central tail-streamers, which are pure white and not as narrow as the red ones. The next adjacent feathers are also fairly long.

and there are 8 shorter tail feathers, making 12 in all. There is more black on the wings and flanks, with the rest of the plumage mainly white, with or without the roseate tinge; the black eyestreaks are not so heavy. The bill is yellowish, base greyish; the legs and bases of the toes are yellowish or flesh-colour and the rest of the feet black.

These birds nest high up on Pisonia trees (called 'puka' in the Ellice), or on the clumps of epiphytic ferns which often occur well up on the trunks of coconut palms in the relatively high rainfall belt in the Ellice. On Fanning and Washington the favourite nesting site is said to be the top of a tall coconut stump. (According to Kirby the former owner of Christmas Is., Father Rougier, accounted for its absence there by the lack of crownless coconut trunks.) Other known nesting places are at Vaitupu, Meang (Nui), Lafanga (Nukufetau), and Gardner Island. Two eggs are laid and the nesting season extends from about November to April. The eggs and young are similar to those of the Red-tailed, and immatures of the two species are difficult to distinguish until the long tail feathers develop.

V. PROCELLARIIDAE (SHEARWATERS AND PETRELS)

The shearwaters earned the name from their habit of skimming low over the waves, with one wingtip almost touching the water, in search of food, which consists of fish, squids, crustaceans and other pelagic marine creatures; they often follow the ship in search of scraps of food, either thrown overboard or disturbed by the turbulence of the propellers. In the region of the trade winds they glide effortlessly over the wave-crests with hardly a wingbeat, and one is constantly amazed at their ability to stay airborne. Equally amazing is their sudden appearance and disappearance from the vicinity of the ship; they never approach very close, and their identification at sea is notoriously difficult. They are all rather dull-coloured birds of some scheme of blacks, browns, greys and whites. The bills are strong and sharply hooked at the tip, those of the petrels being relatively shorter and stouter than those of shearwaters. The feet are webbed, and they sometimes settle on the water and swim about while feeding or resting.

Only five members of the family are resident in the Colony, and none of these is well-known in the Gilbert and Ellice groups, being but occasional visitors encountered at sea. Their breeding places are found in the Phoenix and Line Islands, especially at Canton and Christmas Island. They spend nearly all their time at sea, and on land their legs are hardly strong enough to support them, so that they often shuffle along on their breasts with the help of their wings.

17. Puffinus pacificus chlororhynchus. Wedge-tailed Shearwater.

Kumala.

Korobaro.

This is a large dark bird with upperparts dark chocolate-brown, blackish on the primaries and tail. The tail is rather long and wedge-shaped. The underparts undergo colour phases during the year so that

sometimes they are greyish-brown, and sometimes white. The bill is pinkish with a darker tip, and the feet are yellowish flesh colour or whitish.

Breeding places have been reported at Canton, McKean, and Christmas; the nesting season lasts from May to August. The nests are in burrows beneath soft soil or sand, often five feet or more in length, the nest proper being a mere hollow at the end and sometimes lined with a few bits of grass or feathers. One white egg forms the clutch. There is much flying about and activity over nesting places at night and both male and female parents take turns at incubation. The young are fed on an oily food which is regurgitated by the parent, and they become very fat and often larger than the parents. The parents leave the young before they can fly properly, and this store of fat keeps them alive until they are able to leave the burrow and head off to sea. At night low wails and moans rend the air over the breeding grounds as the sitting parents welcome their mates returning from the ocean.

18. Puffinus nativitatis. Christmas Island Shearwater
? Tinebu.

The colouring is similar to the dark phase of P. pacificus, but the bird is smaller and has a black bill and feet. The calls are said to be more of a barking or "humphing" nature than the mournful wailing of the Wedge-tailed. Breeding places are known at Christmas Island, Canton and Phoenix Island. Nesting occurs from May to December on the surface of the ground, under bushes or in a crevice among rocks.

19. Puffinus lherminieri dichrous. Dusky Shearwater.
(Audubon's Shearwater)
Tapuku. Nna.

This is the smallest of the local shearwaters; it is dark sooty brownish-black above, with white underparts. The under tail-coverts are black and the sides of the breast grey. The bill is short and black, with the feet flesh or yellowish.

They nest in burrows excavated in the sand, from about July to September. P. dichrous was described from McKean by Finsch and Hartlaub (1867) from a specimen collected by Gräffe. Alexander records them from Christmas Island but King does not include them in his list from there. Bailey and others observed burrows on Canton in May and June.

20. Pterodroma alba. Phoenix Petrel.
Lulu. Tanguoua.
(Ruru; kuma)

Comparable in size or a little smaller than Christmas I. Shearwater (14 inches according to Mayr).

Called the "kuma" at Nui, this bird is more commonly known as the "tangioua", meaning "two cries", because of the two different kinds of sounds which it makes: one is a high-pitched warbling cry and the other a low bubbling or gurgling sound. There is a belief among some Gilbertese that if the cry of this bird is heard above someone's house during the night there will be a death in that family in the near future.

It is probable that the species was more well-known in the Gilbert and Ellice groups many years ago than it is today, and there now appear to be no nesting places in those groups, and not many of the younger people have seen the bird. The nesting season seems to be a prolonged one; eggs have been found at Christmas Island from June to February. Other breeding colonies are at Canton, Phoenix Island, and possibly Gardner. One white egg is laid, usually on the surface of the ground under clumps of vegetation, or occasionally in shallow burrows.

The adults are most active at night, and in the late afternoon and evening. They are sooty black above with a dark band across the upper breast, and dark underwings. The throat, lower breast and abdomen are white; the bill is black, and the feet yellow with the ends of the webs black.

21. Nesofregatta albigularis. White-throated Storm-petrel.
? Bwebwe-ni-marawa.

Storm-petrels are the smallest of the seabirds, the above species being only about 8 inches in length. It has long legs and webbed feet, the legs (tarsi) and toes being remarkably flattened laterally, and the legs so long that they extend beyond the tail in flight. Except during the breeding season and when blown ashore by storms, all their time is spent at sea, and on land they are unable to walk and have to use their wings to help them shuffle along on their breasts. At sea they sometimes seem to pat the surface with their feet to assist the skipping movements in search of food, so that they seem to be walking on the water. Occasionally they rest at sea. The food consists of shrimplike creatures and other tiny animals from the surface of the ocean. They often fly in groups across the waves, with a jerky, erratic flight which has led some people to believe they are large butterflies - the Gilbertese name means "butterflies of the ocean".

The adult is sooty-black to greyish-black above with a noticeable white patch across the rump, and a sooty band across the breast; the throat, lower breast and abdomen are white, and the underwings smoky-white; the tail is long and deeply forked, and the bill black.

In the breeding season they make burrows in the soft soil or under bushes or among rocks; a single egg is laid, creamy-white in colour, with small reddish-brown and faint purplish spots, more dense at the wider end. Both male and female take turns at incubation. Breeding colonies are quiet during the day but very noisy at night when the birds from the sea return to relieve their mates. The young bird is fed disgorged oily food from the parent and, like the young of Shearwaters, grows bigger than the parents, who desert it before it can fly.

Eggs have been found in July on Phoenix Island (Lister), and in December on Christmas Island (King). No other breeding places in the Colony have been reported. Two birds seen near the ship between Tarawa and Ocean Island in January, 1956, were certainly of this species, the long legs and white rump-patch being prominent. This suggests a very wide feeding-range if the Phoenix Islands, nearly 1000 miles East, are the nearest nesting places.

VI. ARDEIDAE (HERONS)

22. Demigretta sacra: Reef Heron.
Matuku. Kaai.

The Reef Heron is the only wading bird which is permanently resident in the Colony. Often mistakenly called a crane or stork, it is one of the most conspicuous birds of the beaches and reefs; hunting small fish in the shallows and tide pools, or flying with great slow beats of its broad wings over the lagoon it is a graceful and attractive bird. There are three colour phases: pure white, greyish-blue, and a third chiefly white but mottled in varying degrees with the blue-grey feathers; local names for the three types are:

White Heron:	Matuku kena.	Kaaimatang.
Blue Heron:	Matuku uli.	Kaaibruaraku.
Spotted Heron:	Matuku pulepule.	Kaaimakin.

In each kind the legs and feet are yellowish-green, or dull olive green, and the bill is dull orange, often marked with blackish or purple on the upper mandible. It was more difficult than it at first appeared to count the relative numbers of the three phases along a stretch of ocean reef at low tide, not only because of the movements of the birds, but also because the Blue Herons were so much better camouflaged against the dead reef coral-heads; my estimates were that the ratio of Blues to Whites was about 2:1, with the mottled variety present to the extent of about one in every 10 birds. (These observations were for Tarawa, the ratios on other islands not necessarily being the same.)

The long neck and legs are used to good advantage when wading in the shallow waters on the reef or lagoon in search of food, which consists chiefly of small fish and crustaceans of many varieties, often brightly-coloured; quite often a bird will be seen chasing a lizard (Emoia cyanurum) along the land vegetation, or hunting worms, insects and small fish in the babai pits; another habit is that of drinking the 'toddy' (flower sap from the bound spathe of a coconut palm) from a hanging cup or coconut shell high up on the palms. Usually a single bird or a pair is seen in one territory, but at high tide there may be a gathering of ten or more in some quiet spot among bushes along the shore, or on the low branches of a mangrove thicket.

In the Colony the bird is a familiar sight on all islands of the Gilbert and Ellice groups, but surprisingly is not seen in the Phoenix and

Line Islands. The nesting season lasts from November to June. A rough platform of sticks and dry twigs or rootlets comprises the nest, which is normally situated on high coconut or pandanus trees; one nest at Onotoa was, however, only four feet from the ground, in an 'uri' tree (Guettarda speciosa). Two or three pale greenish-blue eggs form the clutch, and the nestlings are very ugly and awkward for many weeks. Immatures which have just left the nest have weak legs, rather untidy feathers, and are not able to fly more than a few yards at a stretch; their natural ability as fishermen is, however, well developed. The feathers, particularly of the white phase, are often used for decorative purposes in fans and other handicrafts. A guttural call is heard, mainly from nesting adults.

VII. COLUMBIDAE (PIGEONS AND DOVES)

23. Ducula pacifica pacifica. Pacific Pigeon.
Lupe. Rube.

Although common throughout most of the Pacific, this large pigeon is found in the Colony only in the Ellice group. (A few semi-tame birds have been taken as pets to some islands in the Gilberts.) In the Ellice they are uncommon at Niutao and Funafuti, fairly plentiful at Nui and Vaitupu, and present in small numbers on all the other islands. According to Whitmee this is a smaller bird than the Samoan race; total length is about 15 inches.

The upper wings and back are grey with a greenish sheen and some brownish tints; the head, neck and underparts are light pearly grey, with pinkish tints on the underparts; the under tail-coverts are deep reddish-brown, and the underwings grey. The bill is dark grey to black, and there is a characteristic large soft operculum or cere at the base. The feet are bright coral red.

Berries of various trees are the favourite food, common ones eaten being 'uri' (Guettarda speciosa), 'bero' (Ficus), and 'mao' (Scaevola). They are also known to eat ripe breadfruit from the tree, and, like the herons, will be seen drinking the toddy from a hanging shell. The call is a deep cooing, something like "pr-rrr-ooo-oo".

Nests are usually built high on coconut palms at the bases of the petioles; at Nanumanga in the Ellice they are said to nest on mangrove shrubs. Two oval white eggs are laid, and the season lasts from about June to September.

24. Gallucolumba erythroptera: Ground Dove.
Lupe palangi. Bitin.
(Taobe)

While Ducula is a native in the Ellice, being referred to in many old songs and legends, the ground doves are undoubtedly recent introductions of the present century, probably mainly from Fiji. At Abemama they are

reported to have been introduced from Nauru about 20 years ago, and have multiplied considerably so that there is now a fair number in a wild state. A few pairs have also been taken from Abemama to some other Gilbert Islands as pets, but in most of the Colony they are unknown. A pair taken to Nonouti had four offspring, and in June two females had nests about ten feet off the ground in an old deserted house; the nests were of grass and straw and built inside old boxes; each contained two eggs, oval in shape and creamy-white in colour. At Abemama they are said to nest in coconut crowns, often high above the ground. They feed mainly on the ground; when disturbed they fly up into the palms and their call, a soft "coo", may then be heard.

The colouring is typically darkish greys and white; the head, neck, back and upper breast are grey with a purplish and greenish sheen or irridescence; the secondary wing feathers are mainly dark grey and the primaries and tail feathers mainly white; the abdomen is white, often speckled with grey, and the under tail-coverts white. The short bill is dark grey with a small whitish operculum at the base; the legs and feet are coral red, or purplish red. Some birds have less white than others, and hardly any two are exactly alike.

25. Gallicolumba stairii. Friendly Ground Dove.

There are a few individuals in a semi-wild state at Abemama, probably of this species, and probably introduced from Fiji where it is common. The habits are similar to those of G. erythroptera, and there is no distinction in vernacular names of the two species.

The colouring is mainly brown with a little white on the wings and lower breast; the upperparts have a greenish sheen in some lights. The bill is dark and the feet deep red or purplish red.

VIII. PHASIANIDAE (QUAILS AND PHEASANTS)

26. Gallus gallus: Jungle Fowl.
(Domestic Fowl)

Moa. Moa.

These semi-domesticated chickens are common on all islands where there are native villages, although the people themselves seldom eat them or their eggs; they are however freely offered to visitors and Europeans during feasts, and for barter. Both the birds and the eggs are smaller than common domestic fowl of European countries, being much inbred with various imported strains. Exceptionally wild ones are sometimes encountered in thick undergrowth of neglected coconut plantations, and these can fly considerable distances. There is no one characteristic colouring, although the roosters tend to be more uniform in colour than the hens. They are fed in the open on scraps of any food, particularly fish and grated coconut; normally no enclosure is kept especially for them by native families, but local European families invariably maintain a well-stocked 'chicken-run'. It is also locally held that they do not lay well without regular supplies of fish or crab. In most cases a whole dressed chicken is not too large

for one person's meal. Once during an inspection tour of village schools at Onotoa I was given whole chickens roasted in the native earth ovens three times in the one day! When children brought in large numbers of eggs from the nests of feral chickens in the 'bush' we tested them before bartering, as a goodly proportion would always be addled. As with other birds, the feathers are used for handicraft decorations.

IX. SYLVIIDAE (WARBLERS)

27. Conopoderas aequinoctialis. Warbler.
? Bokikokiko.

This is the bird commonly referred to as the 'Christmas Island canary'. It is probably the smallest bird in the Colony, the subspecies at Christmas being only about 5 inches in length; this is C.a. aequinoctialis. At Fanning there is a similarly coloured but definitely larger race called C.a. pistor, while at Washington Island further northwest still, there is a record of a similar bird which seems to be of a race intermediate in size to these two.

The upper parts are greyish with whitish tips to the feathers; the underparts are mostly whitish, tinged with pale grey on the sides and with pale yellow on the breast; the legs and feet are grey, and the bill blackish above, flesh colour below.

On Christmas they live chiefly among 'ren' bushes (Tournefortia); the food consists chiefly of flies and beetles caught on the branches and leaves, on the ground and in the air. Nests are made in forks of the 'ren' bushes; the nest often consists of strands of the parasitic creeper called 'te ntanini' (Cassytha) coiled around the outside and lined with leaves and grasses. It is said that two or three small eggs are laid about June; the colouring is whitish with reddish-brown spots.

Although both Kirby and King list the Gilbertese name as 'kokikokiko' I have not spoken to any Gilbertese native worker from Christmas Island who has referred to it other than 'bokikokiko'.

X. PSITTACIDAE (PARROTS)

28. Vini Kuhlui. Parakeet.
? Kura.

This very pretty bird is common on Fanning and Washington, but has not been reported from Christmas. It is about 7 inches long; the forehead

and crown are green; back of head and neck dark blue; back olive-green to yellowish-green at the tail; underparts red, with purple on the abdomen, and yellowish-green under the tail; wings greenish above, blackish below; bill and feet red.

It is said to lay two eggs in hollow places such as the tops of old coconut stumps, and, according to one oral report, it will sometimes carry its eggs away to another site if disturbed.

PART B: MIGRATORY BIRDS.

With the exception of the Long-tailed Cuckoo, all the migratory birds which visit these islands normally nest in the northern hemisphere; of these the Arctic waders of Alaska and Siberia easily form the most important group. Most of these birds leave the Colony for their northern breeding grounds about March or April and return south again, after the short Arctic summer, in September and October. Allowing for travelling time each way across some six thousand miles of ocean it is obvious that their nesting season is a comparatively short one - about June to August - and yet during this brief period they manage to prepare nests, lay and hatch the eggs, and feed the young until they are strong enough to accompany their parents on the southern migration.

Most of the migrants seen here also occur in other island territories of the north-central Pacific - Hawaii, the Marshalls and the Carolines - and some birds, such as the Turnstone and Godwit, even reach as far south as New Zealand every year, another three thousand miles on each leg of the journey. How fast do they travel? No accurate figures are available but, from records of migratory birds in Europe, the average speed for waders is 150 to 200 miles a day; here in the Pacific across certain routes in the central ocean (what Baker calls the "Nearctic-Hawaiian Flyway") there are few resting places, and probably greater average speeds are achieved. Do they ever rest on the ocean? Bailey, in "Birds of Midway and Laysan", quotes an observer who watched Golden Plovers alight on the water several times (in 1891). What percentage survives the migration? There are many unsolved

problems which can only be answered by banding and careful observations over long periods. The birds are noticeably thin on arrival in the Colony, but are correspondingly plump and often showing the brighter hues of breeding plumage before leaving for north again.

I have on occasion observed what appeared to be the arrival or departure of some of these species. The Godwits were particularly thin and pale and arrived on the lagoon mudflats in flocks of 30 to 50 birds, which immediately sat down without any preliminary strutting about! (Normally waders hardly ever sit, although they often rest on one leg.) On other occasions during the 'locally-resident' phase, this apparent state of exhaustion was never witnessed. A flock of about 200 Golden Plovers was seen to depart north from one of the old wartime airfields at Tarawa on April 4th, 1955. Many of these birds were in the darker breeding plumage and they had been observed congregating here for several days. There was much restlessness and chattering and wheeling-about for a few yards every day before they finally disappeared into the northern sky. The flying height seemed to be not much above the coconut trees, i.e. say, 100 to 200 feet.

An interesting point about the Godwits, which distinguishes their movements from those of other Arctic waders, is that they certainly pass through these islands in large numbers but only a few actually stay for the summer here. There is thus a pronounced increase in numbers on both the southern and northern journeys; their comparative scarcity between migrations probably accounts for the fact that many Gilbertese to whom I described the birds could not recollect having seen it at all! I have, however, recorded it on all islands visited in the Gilbert group. As with other species listed below, a few non-breeding birds may be seen in the Colony during the northern summer.

With the Plovers it was noticeable how a single bird or a pair seemed to occupy the same territory each season; one sensed that they were the same birds returned each year but, of course, there could be no proof of this without marking in some way. However, Gilbertese who have caught Turnstones for some of their games, and have identified their own birds by tying a piece of coloured cloth to a wing, have had the same birds return to them after an absence on migration, presumably to the Arctic and back.

I. CHARADRIIDAE (TURNSTONES AND PLOVERS)

29. Arenaria interpres interpres. Turnstone.
(Sea Dotterel)
- Kolili. Kitiba.

Seen in all islands of the Colony, the Turnstone is the commonest of the Arctic visitors, and is so named because of its habit of busily overturning stones, seaweeds and tidal debris on the reef and beach in search of small crabs, shrimps, sandhoppers, and other marine creatures. Occasionally larger organisms such as the grey sand-crabs or ghost-crabs (Ocypode sp.) with carapaces up to two inches across were observed being caught and eaten. Bailey states that on Midway they feed heavily on saltbush (Scaevola)

berries. In olden days the Gilbertese used to trap Turnstones for games and bird-fighting; one of their traps consisted of an unhusked half coconut with food inside the kernel and slip-nooses of fine coconut fibre fixed vertically in the husk. Another had similar nooses set into a ring of coconut midrib which was laid on the beach with bait inside. Quite heavy stones can be lifted with their strong bills. The body is plump with a short neck and short orange legs. They are very sociable birds, usually being seen in groups of ten to 100 or more, moving about with quick short runs in a very businesslike manner. When in flight broad white bands across the upper wings and down the back are visible.

In summer plumage some of the upperparts turn reddish-brown, but the winter coat is a scheme of greys and whites. They fly north in late April and return about October. Their nests (in Arctic regions) are mere holes between tufts of moss, sometimes lined with grass or reindeer hair. Four eggs are laid in June and the young birds are ready to fly south by the end of August. The breeding range is circumpolar.

30. Pluvialis dominica fulva. Pacific Golden Plover.
 Tuli. Kun.

The Golden Plover is also a common bird; although a few may be seen all the year round the greatest numbers are present from October to April. There is a marked difference between summer and winter plumages; in October and November when the birds arrive from the north they are noticeably thin after the long journey, and pale in colour, the underparts being almost white; by April, however, they are plump and show conspicuous black breasts with a very pale stripe over the eye and down the sides of the neck and body. The upper wings, back and tail are darkish brown mottled and edged with fawn and golden yellow. The bill is dark grey, about 1 inch long; the legs are long and slender, light bluish-grey in colour; there are only three toes.

Winter plumage: Ellice: tuli. Gilbertese: kun au meang.
 Summer plumage: tuli alo malala. kun au maiaki.

Note: au meang: (literally: northern season) is the Gilbertese 'winter' or stormy season, about October to March, which starts when Nei Auti (the cluster of the Pleiades in the constellation Taurus) begins to show above the northern horizon at 6 o'clock in the evening, and the sun moves south of the celestial equator. Irregular storms and winds, often from the west, more frequent rain, and strong ocean currents flowing westerly characterize this season, which is the period when Arctic waders are common.

au maiaki: (lit: southern season) is the Gilbertese 'summer' or settled season, about April to September, which starts when Rimwimata (the big red star Antares in the constellation of the Scorpion) begins to show above the southern horizon at 6 o'clock in the evening, and the sun moves north of the celestial equator. Steady easterly trade winds, blue skies, little rain, and weaker ocean currents flowing easterly are typical of this season, which is also the period when Arctic waders are scarce.

The Plover is a friendly little bird, not easily frightened, and one can approach to within a few yards; on the wing it is seen to have a surprisingly long wing-span, about 18-20 inches, and is a strong flyer. Sometimes when approached it displays the curious habit of stretching its head up every now and then. Some Gilbertese have a game of asking the Plover whether it's going to rain soon, or whether the ship is near - if it stretches its head up in answer, that means 'yes'. Several different calls may be heard, common ones being like "whee-oo-wit", and "tu-li".

The food consists chiefly of small crustaceans and other tidbits found on the tidal flats or near the water's edge on the beach; often, however, birds will be found in open grassy areas or among the coconut clearings, where they can be observed eating insects and sometimes small skinks. During the heat of the day they are often more common among the coconut trees than on the beaches. There were usually twenty or more scattered over the school football field at Bikenibeu, Tarawa, always singly or in pairs. They are not at all sociable until near the departure times for migration, and one bird or a pair will defend the feeding territory, and savagely attack any intruders, even to the extent of pulling out a few feathers. They occur on all islands, including the Phoenix and Line Islands.

II. SCOLOPACIDAE (TATTLERS, CURLEWS, GODWITS)

31. Heteroscelus incanus incanus. Wandering Tattler.

Litai. Kiriri.
(Kapo; Kilikilitai;
Vivitai; Tulitainamo)

Variously named in different Ellice Islands, this bird has but one Gilbertese name which is adapted from its common cry when alarmed, a rippling 'ki-ree-ree', sometimes repeated once or twice. It is a very inconspicuous bird when sheltering among the rocks and dead coral along the coasts at high tide, the greys of its plumage harmonising exceedingly well with its surroundings. However, as its English name "Tattler" suggests, it is easily frightened and takes to flight uttering the characteristic warning cry at a shrill pitch and thereby setting other birds on the alert.

The bird is dark grey above and has soft bluish-grey wavy lines on a pale grey or whitish background on the underparts; the bill is fairly long, straight and dark grey, while the legs are dull yellow. There is a conspicuous light superciliary streak and a dark grey eye streak from the base of the bill.

It generally feeds alone on the edge of the tide or on mud flats but often wades out into shallow water in search of food; at high tide larger groups rest together among the rocks or in the shade of mangrove bushes. On one occasion a Tattler was observed perching on a high coconut frond, and when frightened off it flew back to another coconut tree.

In the Ellice the cry of the Tattler in the evening is regarded by the tautai (fishing-captains) as a good omen for the catching of bonito (Euthynnus yaito) the next day. Tattlers are well-known on all islands; they leave about April for the northern breeding grounds, where they nest on gravel bars in Alaska; the eggs are so well camouflaged that only two nests have been found, one in 1923 and another in 1939.

32. Heteroscelus incanus brevipes. Grey-tailed Tattler.
(Asiatic Tattler)

No distinct vernacular names exist for this closely related race, which appears to be but an occasional visitor to these islands. The two are barely distinguishable in winter plumage in the field. The upperparts tend to be slightly lighter grey, and not so uniform in colour; also the nasal groove is somewhat shorter, and the wingspan slightly smaller. In breeding plumage the barring on the underparts is less pronounced and does not cover the lower belly and under tail-coverts. They appear to have similar habits to H.i. incanus, except that the call is different, being a kind of "ki-leep", very shrilly and repeated several times, the second note being higher in pitch. These were closely observed only at Tarawa, but may occur elsewhere.

33. Numenius tahitiensis. Bristle-thighed Curlew.
Founga. Kewe.
(Kove)

Largest of the migratory waders, this handsome bird is easily recognised not only by its size but also by the very long curved bill and haunting cry from which its Gilbertese name is derived. (The listing of the Whimbrel, N. phaeopus variegatus by Moul at Onotoa appears to be a mis-identification; it is possible that an occasional Whimbrel will be seen in the Colony, although not recorded by the present writer as no birds were shot for specimens; they are somewhat similar to Curlews in the field; the Curlew, however, may be distinguished by its characteristic cry, much longer bill, bolder colouring with more rufous tinges, darker axillaries and slightly larger size - I have confirmed all these features from observations as close as 15 yards, with careful stalking as the birds are wary and easily frightened.)

Occasional birds may be seen on all islands at any time of the year but are most common from about late August to April or May when they leave again for their breeding grounds in Western Alaska; the first nests were not discovered till 1948 - they are mere hollows in the tundra moss; four eggs are usually laid, dull greenish-buff in ground colour with grey and brown markings.

Adults have the upperparts speckled with light and dark browns; the underparts are pale buff, almost white under the tail; the plumage has a distinct rufous tinge, and in summer breeding dress the males have stronger reddish-brown on the neck and breast. There is a pale line along the mid-crown and another above each eye, and a dark brown line through each eye,

so that the head has a very striped appearance; the bill is pinkish at the base fading to grey towards the tip, curved strongly downwards and 4-5 inches long; the legs are long, steely blue-grey in colour, and there is a short hind toe.

Curlews hunt for food singly or in pairs on tidal mudflats or on the reef at low tide, poking their long bills into crevices for crustaceans and worms; they also have a curious habit of breaking open shellfish and hermit crabs by swinging them around (always clockwise viewed from behind) and dashing them open on a rock. Solitary birds are occasionally seen inland where they feed on insects and Scaevola berries, and also on the skinks of which the Plovers are so fond. On some Pacific islands Curlews have been observed stealing and eating freshly laid eggs of terns and other seabirds. For drinking seawater the bill was placed sideways in a pool, lifted out and held above the head for a few seconds, the operation being repeated several times. On the other hand Godwits lower the head and bill directly down horizontally into the water and lift up again with a slight scooping action. No doubt these two actions are governed by the characteristic shapes of the bills.

The haunting cry, something like "kiu-vee", carries far across the mudflats, and is frequently heard during flight. At high tide the birds are quiet and wary, and take shelter in small groups of six or so on a dry rocky or gravelly spit, often under the cover of shrubs, and never in the edge of the tide like some other species. They roost occasionally on the lowest branches of mangroves.

34. Limosa lapponica baueri.

Pacific Godwit.
(Eastern Bar-tailed Godwit)

Kaka.
(Kotau)

Kaka.

Slightly smaller in size than the Curlew, the Godwit is more greyish in plumage colour and may be easily distinguished by its long, almost straight (slightly upcurved) bill, which is longer in males. When birds arrive in the Colony about mid-October they are thin and pale-coloured in their winter plumage; after a few months' plentiful supply of food, however, they are plump birds by March or April when they leave again for the north; some males have by this time a handsome breast of reddish-brown for the breeding season.

The Godwit is seen chiefly on tidal mudflats, singly or in small groups; at high tide larger flocks of up to 50 birds may be found gathered on a dry spit or islet. Its food consists of tiny shellfish, other crustaceans and marine worms; it is amusing to watch a Godwit poke its bill down a hole in the mud and then run around its bill trying to locate the direction of the prey in the hole. On one occasion a Godwit passed along the ocean beach within five yards of where I was sitting; it was feeding on the small ghost-crabs which it dug out of their burrows in the sand, with the tide ebbing, and at intervals running down to the edge of the sea to wash its bill and have a short drink. On another similar occasion a Godwit was attended closely by two Turnstones which tripped in smartly under the

Godwit's head and stole the prey when opportunity offered. By the end of November and until about the end of February they are comparatively uncommon, having presumably gone further south, and many local inhabitants have not realized their presence at all, although thousands must pass through the Colony on migration.

Godwits are fairly common in the Gilbert and Ellice groups but have not been reported from the Phoenix or Line Islands, although several observers have been in those places when Godwits would be seen if present. The writer visited the inhabited islands (Canton, Sydney, Hull and Gardner) of the Phoenix group in October, 1953, but did not record any Godwits. It seems likely, however, that a few stragglers may touch on the Phoenix group, but probably not the Line Islands which are 700 miles farther east. Stickney's map showing the probable eastern limits of the wintering range includes the Phoenix group without, however, any observational evidence. Baker records that the Godwit reaches Australasia by migrating to a great extent along the edge of the Asiatic continent, and that it probably reaches eastern Micronesia as an uncommon visitor, since it is occasionally recorded in the Hawaiian Islands. However, evidence assembled in 1954 by Stidolph indicates that the main migration route to and from New Zealand is further to the east than has hitherto been supposed ("well to the eastward of the Solomons"); my own observations in the Gilbert and Ellice Islands would add support to this view.

Their nests have been found in Eastern Siberia and Alaska; they are shallow depressions in the marshy ground, lined with reindeer moss and grass. Four mottled eggs are laid about June, and by August or earlier the young birds are ready to make the long journey south, some the nine thousand miles to New Zealand.

35. Erolia ruficollis ruficollis. Red-necked Stint.
(Eastern Little Stint)
- Manu ote afa. Nikunikun.
(Raurau; Buatua)

This is the smallest wader recorded by the writer in the Colony, being only 6 inches or less in length and of correspondingly slight build. Its neck is very short and, during the quick darting feeding movements characteristic of the species, the head seems to be bobbing continuously in search of prey. Groups of up to 22 were observed on reefs or mudflats at low tide, often mingled with and partly concealed by larger groups of Turnstones. The rufous shades of the breeding plumages are often more noticeable than the greys of the winter dress.

One or two birds which were otherwise indistinguishable from the above at a distance but which had yellowish (instead of grey or black) legs may have been the Least Sandpiper, Erolia minuta.

36. Erolia acuminata.

Sharp-tailed Sandpiper.
(Siberian Pectoral Sandpiper)

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As with many other species of uncommon visitors, there appear to be no distinct vernacular names for this Sandpiper. Somewhat less common than the Stint, but not exactly rare (on Tarawa at least), this bird is fairly easy to approach within five yards or so. The slender body, rufous-brown crown, buff margins on brownish upperparts, greyish-fawn breast, white belly, dull olive-green legs and slender black bill were field characteristics easily distinguished through binoculars at this range. In flight whitish underwings with greyish edges and white axillaries were visible; there is also a pale inconspicuous upper wing-bar. On flying off the call was a quick "twee-twee-twee" or "chwee-chwee-chwee".

On several occasions groups of up to 34 in number were watched feeding on the soft red algal mud bordering brackish pools; another frequented habitat was the dry sparsely-grassed area of the school sports field at Bikenibeu, Tarawa, from which the birds appeared to be obtaining small insects. The Golden Plovers which considered this area their private territory often chased the Sandpipers off, even to the extent of pecking out a few feathers.

The only other record in the Colony is of 4 specimens collected by the Whitney Expedition at Canton on March 14th, 1924.

37. Crocethia alba.

Sanderling.

The observed rarity of this attractive little wader in these islands is in agreement with Stickney's earlier report (1943) based on collections from the Whitney Expedition. Only two individual birds were observed by the present writer in three years. Both of these were at Tarawa, on November 8 and December 17. King observed one at Christmas Island on November 7; the Whitney Expedition included one male from Canton on March 12 and one female from Sydney Island on March 21.

One of the birds I observed was feeding on the reef at low tide among Turnstones while the other was alone on a sandy lagoon beach feeding at the edge of the tide and running busily back and forth with each wave; no calls were heard.

The Sanderling is slightly larger (about 8 inches) and more plump than the Stint. In winter plumage its very pale greyish upperparts, white face and white underparts, shortish black legs and black bill make it fairly easy to identify; it is the palest overall of the waders seen. A rather prominent broad pale median wing-stripe is visible in flight.

It appears that the Sanderling is an uncommon visitor over the whole Colony from October to March. Since its wintering range is world-wide it is puzzling that it is not seen in greater numbers.

III. CUCULIDAE (CUCKOOS)

38. Urodynamis taitensis. Long-tailed New Zealand Cuckoo.
Kaleva. Kabanei.
(Suvii)

About the time (August-September) when the first Arctic visitors are beginning to arrive the Cuckoo sets off on a long southern journey to spend the late spring and summer in New Zealand where it breeds. The earliest date of its return which the writer noted at Tarawa was March 20th. According to a Gilbertese legend this bird lays not on the ground or in trees but flies so high into the sky and the egg takes so long to fall that the youngster has hatched and is able to fly on reaching the ground again. A similar belief was held about the nesting of some other migratory birds such as the Curlew. The Marshallese have similar legends to account for reproduction among their bird migrants.

Another saying of the Gilbertese, especially in the southern islands of the drought belt, is that when the harsh cry of the cuckoo is heard in the bush, rain is not far off. In the Phoenix the bird is more rare and there is a belief that if the cuckoo's cry is heard above a house one of the occupants will be stricken with severe stomach pains.

The Cuckoo is a bird of the forest and only brief glimpses of it are obtained during its straight and swift flight from one palm-top to another, or perhaps for longer periods during feeding. One of its favourite habitats is among the open flower-spikes of the coconut palm or near the sap-collecting gourds' ("toddy-shells") around which there are plenty of flies, ants, and other insects which form its main diet. The bird is easily recognised by its hawk-like appearance, long tail, and by the characteristic harsh repeated whistle. This cry is heard at night as well as during the day but the exact location of the originator is often difficult to pinpoint.

According to Baker the northern limit of its migratory range is in the Carolines and Marshalls, being more common in the latter group. This distribution seems to be in agreement with observations for this Colony, where it is more common in the Ellice than in the Gilberts, rather uncommon in the plantation islands of the Phoenix (Sydney, Hull, Gardner), and appears to be unknown on the other (almost treeless) islands of the Phoenix, including Canton. There have been no authentic reports from the Line Islands; one Gilbertese native informant told me a few visited Christmas and Fanning. Its greater numbers in the Ellice, which lie within a heavier rain belt, may be partly due to the more dense bush there, affording more cover and probably greater food supplies. Its main winter range is eastern and central Polynesia, and Fiji.

IV ANATIDAE (DUCKS)

It appears that at least three species of migratory ducks from the New World visit islands as far south as the Ellice group quite regularly,

though not in large numbers at any one time. Unidentified ducks visiting Fanning (Kirby, 1925 and King, 1954) during the northern autumn were probably of one or more of these three species. Since the places they frequent on the atolls are usually rather secluded it is difficult to assess their numbers, distribution and seasons (if any). They are seen on freshwater ponds, brackish inland pools and on the stagnant water or in the vicinity of the sunken garden pits in which "babai" (Cyrtosperma chamissonis) is cultivated. Apparently they have not been hunted for food by the native peoples and, although they seem to be known on all islands, no distinction is given in vernacular names to the two species which I have seen. Since ducks are very adaptable in feeding and breeding habits there is the possibility of nesting occurring in the Colony. Sharpe and Whitmee (1878) obtained 3 eggs of a duck in the Ellice but no other details were given. Bailey quotes a man at Canton who reported seeing a nest with eggs of the Mallard in June, 1953.

39. Anas acuta tzitzihoa. Pintail.

?

?

Tristram reported a species of Pintail (Dafila modesta) from Sydney Island in 1886. This appears to be the same species as the present Anas acuta. King sighted one or two of these occasionally on ponds near the airfield at Christmas Island (1954), and a flock of 20 thought to be Pintails flying in off the ocean from the northeast on November 18.

It has not been reported from the Gilbert and Ellice groups, and was not sighted there by the present writer.

40. Anas platyrhynchos platyrhynchos. Mallard.

Toloa.

Tiriwenei.

A female of this species was brought in to me from a babai pit at Tarawa on 16th October. It appeared to be rather weak and in poor condition but not injured in any way. Other single birds and pairs were seen at various islands in both the Gilbert and Ellice groups from September to December. From the few observations made and from the reports of other writers this seems to be the main arrival period, and April to June the departure time, although some may remain in this area the whole year round.

41. Spatula clypeata. Shoveler.

Toloa.

Tiriwenei.

These ducks also seem to be regular but not common visitors to all islands. Two drakes in full colour were seen on 2nd April on freshwater ponds near the old airstrip at Bonriki, Tarawa. They were not easily approached but, after taking to the air several times, always returned to the same stretch of water. Ducks of this species have been observed at Canton and other islands of the Phoenix group.

APPENDIX A: PROTECTED BIRDS:

The following birds are protected under the Wild Birds Protection Ordinance of 13th October, 1921.

- (i) Birds protected the whole year:
 White Tern, Black-naped Tern, Crested Tern, Brown-winged Tern.
 Brown Noddy, Black Noddy, Blue-grey Noddy.
 Blue-faced Booby.
 Greater Frigate-Bird.
 Red-tailed Tropic-Bird, White-tailed Tropic-Bird.
 Dusky Shearwater.
 Reef Heron.
- (ii) Birds protected part of the year:
- | | |
|-------------------------|------------------------|
| Brown Booby: | December to April. |
| Turnstone: | September to February |
| Pacific Golden Plover: | September to February. |
| Bristle-thighed Curlew: | November to August. |
| Pacific Godwit: | September to February. |

APPENDIX B: SOME COMMON TREES ASSOCIATED WITH BIRDS:

		<u>Gilbertese:</u>	<u>Ellice:</u>
Cocos nucifera	Coconut palm	Ni	Niu
Pandanus tectorius	Pandanus	Kaina	Fala
Scaevola sericea	Salthush	Mao	Ngasu
Tournefortia argentea	Umbrella-tree	Ren	Tausunu
Cordia subcordata	---	Kanawa	Kanava
Pisonia grandis	---	Buka	Puka
Guettarda speciosa	---	Uri	Pua
Pemphis acifula	Ironwood	Ngea	Ngie
Calophyllum inophyllum	Tamanu-tree	Itai	Fetau
Artocarpus spp.	Breadfruit	Mai	Matalafi (?)
Rhizophora mucronata	Mangrove	Tongo	?
Morinda citrifolia	Malay Custard-apple	Non	Nonu
Ficus tinctoria	Fig	Bero	Felo

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