

BIRD LIFE

ON ISLAND
AND SHORE

H. GUTHRIE-SMITH



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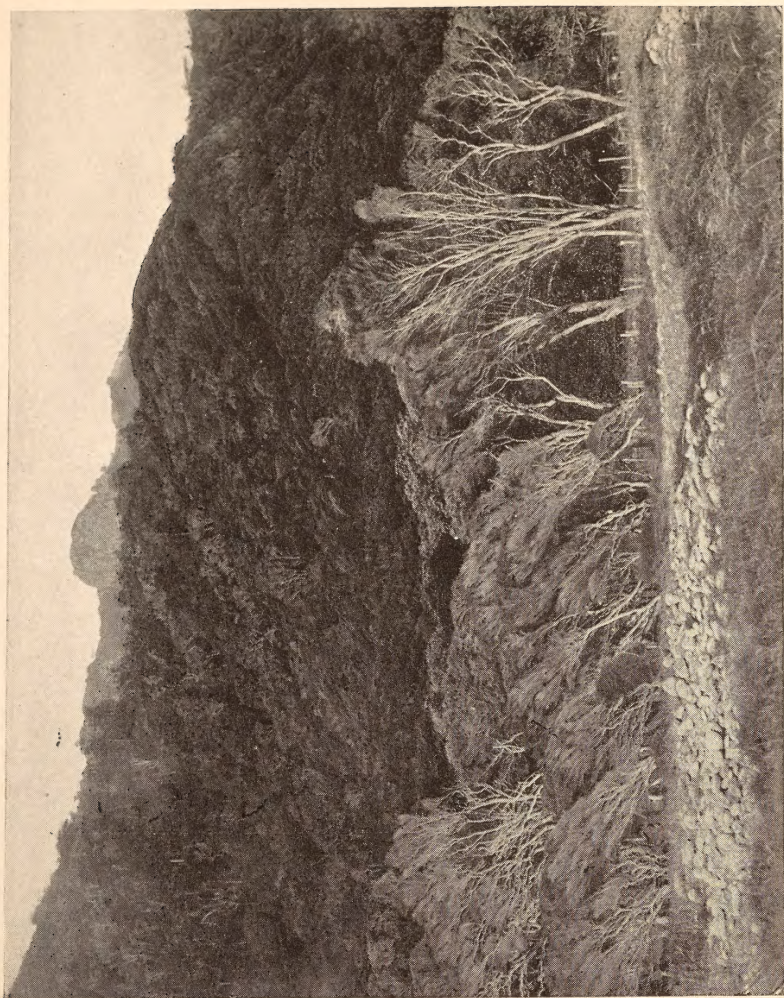
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Bird life on island and
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AND SHORE



EFFECT OF GALES ON KANUKA SCRUB.

BIRD LIFE ON ISLAND AND SHORE

BY

H. GUTHRIE-SMITH

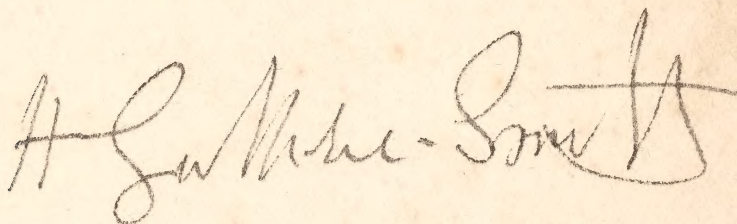
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AUTHOR OF

'TUTIRA: THE STORY OF A NEW ZEALAND SHEEP STATION'

'BIRDS OF THE WATER, WOOD, AND WASTE'

'MUTTON BIRDS AND OTHER BIRDS'

A handwritten signature in dark ink, reading "H. Guthrie-Smith". The signature is written in a cursive style with a long horizontal stroke at the end.

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DEDICATED
TO
MY WIFE AND DAUGHTER.

PREFACE.

IF half a loaf is better not only than no bread at all, it is also better than overmuch bread. Readers become surfeited with topics not of everyday interest; books such as 'Bird Life on Island and Shore' should be swallowed at a single gulp. Unless read in one effort, they are never finished—hence an attenuated volume, hence a brief preface.

A few words, nevertheless, on the general subject of ornithology in New Zealand during the first quarter of the twentieth century may not come amiss, the more so as carelessness in regard to the avifauna of the Dominion and its intimately allied subject, forestry, seems to have spent itself.

Heretofore on behalf of our native birds and our native trees there have been heard only the voices of one or two crying in the wilderness. Now these eccentrics are about to have the backing of the staff of a great Government department, the Forest Service.

Excellent as is in itself the maintenance of such forests as remain, such conservation has an additional value in that the rescue of woodlands cannot but mean rescue of their inhabitants; it cannot but mean intelligent appreciation of both—nature watched close is nature cared for.

Like all labour such as gardening, bee-keeping, fruit-growing, agriculture—work dealing at first-hand with the soil,—it calls forth the faculty of observation, the faculty which was, I suppose, the primal assistant sense to ancestral man in his struggle for life: our forbears, who reasoned on the evolution of the sabre-toothed tiger, stood but a meagre chance in comparison with those who noted the depredations of the monster, the disappearance of their offspring, and removed themselves from the precarious locality. Few, in fact, of us are reasoning animals, but every man surely on one subject or another can note and learn.

With wiser views as to the indispensability of trees and birds, it may now be expected that our ruined forests will be encouraged to re-establish themselves, this time not valued only by the few for æsthetic or biological reasons but wholeheartedly and open-facedly by all for commercial purposes; for certain it is that until humanity can be content to care for objects lovely in themselves, for themselves, and to enjoy beauty without

thought of ulterior profit, only the fortunate plants, animals, and birds to which financial interests have attached themselves are out of danger.

In view, indeed, of the general indifference and apathy towards keeping the world's minor interests in birds and beasts alive, I have often wished that such important groups as, say, the Humming Birds of South America or the Birds of Paradise of New Guinea were leased to great plumage firms in Paris, London, and New York. They would then be bred for profit like ostriches, and killed in reason and season. They would be as secure to the coming race as the merino in Australia or the Romney Marsh in our own Dominion; in truth, a Society to breed wild animals and sell them as pets or for their pelts or plumage, ivory or horns, would do more for the perpetuation of species than all the Protection Societies in the world.

We do, in fact, begin to see examples of such enlightened selfishness at work in the case of foxes and other fur-bearing species. We have the grouse and partridge bred for sport, and therefore preserved. Why not extend the principle?

I don't say, be it here remarked, that this is the ideal plan, but folk who live in the world as it is must adapt themselves to its imperfections.

As Mrs Gamp has pointed out, we are born into a "wale of tears," and must take the consequences of being "found in sich a sitivation." It remains for us to make it less of a "wale of tears" by conserving for the future everything precious and picturesque. Why should we paint life drab for the unfortunates who have yet to come? Why should man and the rat possess the face of the habitable globe? Why should the sparrow be the only bird? I don't say we shall quite come to that, but certain it is that with every species eliminated, by so much is the world robbed of light and colour.

In that fatal annihilation of irreplaceable forms of life, the equivalents of Scott and Shakespeare or Burns and Keats and Wordsworth are sacrificed. Heaven help us poor mortals if an abominable utilitarianism is to chill the world like an eclipse, if what we call civilisation is to mean only the survival of man, if Bread and the Circus is to be the aspiration of all mankind. We collect and treasure lovely plants from every range and valley the world over. Why not at least in their own localities ensure the birds and animals of the world?

We have then in 1925 reached a point when quite a considerable minority are realising the evils of the past—sins of wanton forest fires, insensibility in regard to diminution of bird life.

This, though merely negative, a mere halt in spoliation, a mere enactment of the elder Testamental canon "Thou shalt not kill," is at any rate a first step in the right direction.

The next must be a positive forward move. "Thou shalt love thy neighbour as thyself." Thou shalt plant and replant the forests. Thou shalt protect the avifauna so vital to these forests' health and growth.

I believe that even now by trapping—for the killing of undesirable aliens in our woods can no longer be postponed,—as also by judicious encouragement of natural food supplies, native birds could be quickly increased. Easily might indigenous berries, drupes, and nectariferous shrubs be fostered and multiplied, but why proceed to emphasise the obvious? All these good things shall be added unto us once the forests come to be respected as national assets, and managed by an experienced and observant Forest Service.

Harking back to actual present conditions, of species existent in 1880, when I reached New Zealand, but three have disappeared—the Huia (*Heteralocha acutirostris*), the North Island Thrush (*Turnagra tanagra*), and the South Island Thrush (*Turnagra crassirostris*). Moreover, excepting of the first, even that cannot be said with certainty. The numbers doubtless of many other species have woefully decreased, yet at any rate the

breed survives, and that to my mind is the vital matter. With care and knowledge of breeding and feeding habits, the numbers of a species can be multiplied at will.

On the whole, therefore, the future of the New Zealand avifauna can be viewed with less of despondency than at any date since the arrival of the white settler. Since the coming of Cook, it has been the whole duty of man to destroy the indigenous vegetation of New Zealand. Now at last he has learned that much land that will grow forest will not profitably grow grass. He is discovering, too, that timber is a crop that carries at least as large a population to the acre as clover or rye-grass—and timber cannot grow without birds. Happy New Zealand, then, if with the re-establishment of her glorious woods a huge increase of land workers can be anticipated, each after the manner of the Dominion master of his own house, his own garden, his own cows, his own bees, his own freehold ; intelligent because in direct touch with nature ; a population not composed of automatons as in great cities, who press buttons for their daily needs, and hardly know of trees and grass but on the arid cinema. In forests yet to be, coming generations of New Zealanders will listen to the song of the woods as it was heard and recorded a century ago by Cook.

LIST OF PLANTS AND BIRDS.

Auriceps Parakeet	
(Yellow-fronted Parakeet)	<i>Platycercus auriceps.</i>
Brown Creeper	<i>Certhiparus novæ-zealandæ.</i>
Fern-bird	<i>Sphenæacus punctatus (sp.).</i>
Giant Nettle	<i>Urtica ferax.</i>
Grey Warbler	<i>Gerygone flaviventris.</i>
Harrier	<i>Circus gouldi.</i>
Ironwood	<i>Metrosidero (sp.).</i>
Island Grass	<i>Poa folissa.</i>
Kaka	<i>Nestor meridionalis.</i>
Kanuka	<i>Leptospermum ericoides.</i>
Kingfisher	<i>Halcyon vagans.</i>
Kohekohe	<i>Dysoxyhim spectabile.</i>
Kuaka (Diving Petrel)	<i>Pelecanoides urinatrix.</i>
Manuka	<i>Leptospermum scoparium.</i>
Maugemange	<i>Lygodium articulatum.</i>
Mutton Bird	<i>Puffinus griseus.</i>
Mutton Bird Scrub	
(Puheritaiko)	<i>Senecio rotundifolius.</i>
Pied Fantail	<i>Rhipidura flabellifera.</i>
Pied Tit	<i>Petræca toitoi.</i>
Polypod	<i>Polipodium serpens.</i>
Pukeko	<i>Porphyrio melanotus.</i>
Puriri	<i>Vitex lucens.</i>
Rangiora	<i>Brachyglottis rangiora.</i>

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Raupo	<i>Typha angustifolia.</i>
Red-fronted Parakeet	<i>Platycercus novæ-zealandæ.</i>
Rifleman	<i>Acanthisitta (sp.).</i>
Taraire	<i>Beilschmiedia tarairi.</i>
Tawa	<i>Beilschmiedia tawa</i>
Yellow-breasted Tit	<i>Petroeca macrocephala.</i>
Yellow-eyed Penguin	<i>Megadyptes antipodum.</i>

THE SPECIES ILLUSTRATED IN THIS VOLUME ARE :—

Caspian Tern	<i>Hydroprogne caspia.</i>
Kittywake	<i>Larus scopulinus.</i>
Sea Swallow	<i>Sterna frontalis.</i>
Pied Stilt	<i>Himantopus picatus.</i>
Stitchbird	<i>Pogonornis cincta.</i>
North Island Robin	<i>Miro australis.</i>
Whitehead	<i>Certhiparus albicapillus.</i>
Banded Rail	<i>Hypotaenidia philippensis.</i>
Bittern	<i>Botaurus pœciloptilus.</i>
Nelly	<i>Ossifraga gigantea.</i>
Bush Wren	<i>Xenicus longipes.</i>
Morepork	<i>Ninox novæ-zealandæ.</i>
Saddleback	<i>Creedion carunculatus.</i>
Sea Hawk	<i>Megalestris antarctica.</i>

The nomenclature of Hutton and Drummond's 'Animals of New Zealand' has been followed. This is the volume most accessible to those interested in our avifauna.

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Caspian Tern. Male Feeding Female.

BIRD LIFE ON ISLAND AND SHORE.

I.

PORANGAHAU—THE CASPIAN TERN.

ALTHOUGH the winter movements of littoral and lacustrine species are largely dependent on weather conditions, yet probably during the whole dead season there may in varying numbers be found on the Porangahau dunes, lagoons, beaches, and river-bed, Caspian Tern, Pied Stilt, Wrybill, Godwit, Pied Oyster Catcher, Redbill, Kittywake, Black Shag, Grey Duck, Black-backed Gull, Banded Dottrel, Sea Swallow, and perhaps Little Tern. Three times during 1910 these beaches were visited by J. C. M'Lean and myself, or by myself alone. In October we found 1 pair of Caspian Tern, 5 or 6 pair of Pied Stilt, 12 or 14 pair of Wrybill in several small parties, 3 pair of Godwit, 7 or 8 pair of Pied Oyster Catcher, a

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couple of pair of Redbill, a few Kittywakes, and a few Black-backed Gulls. On snags embedded in mud, Black Shag were conspicuous ; about the open sands rested armies of Grey Duck, well out of reach of marauders.

At that date the pair of Caspian Tern were the only two birds out of the lot definitely purposing to build. Probably they had just settled down ; probably, too, the additional pairs noticed later were due to arrive within a few days. The Black-backed Gulls were doubtless residents ; the remaining species were in all likelihood made up of wandering parties, one of them, the Godwit, rarely, if indeed ever, breeding in New Zealand ; another, the Wrybill—not believed to nest in the North Island. Watching the last-named feeding in the gleaming sands freshly uncovered by the retreating tide, it was interesting to speculate as to whether the sweeping scythe-like action in feeding, a skimming of the surface of the wet sand, had helped to modify the remarkable crooked bill of the species, or had been adopted in consequence of it.

A month later in the year during a second visit to these delightful beaches we found Wrybill and Godwit gone, Caspian Tern sitting, and Redbills courting.¹

¹ No more striking example perhaps could be cited of the dangerous adaptability of the feeding habits of birds than that of the



CASPIAN TERN.

The Black-backed Gulls had selected their breeding sites. The Kittywake colony, though not intending immediately to lay, were yet annoyed at approach to their future nesting quarters, and in clouds swooped upon us with angry cries.

Ability "to look before and after" has been claimed as the special prerogative of man, proud man; but I can find no sharp line of demarcation. Doubtless he can recollect further back and foresee more clearly, that is all. We and our fellow-mortals, the beasts of the field, are digged alike from the same pit. There is no sudden break in nature. When it may seem so to our purblind eyes, we are no wiser than the child who marvels at the change from shell to chick. The Kittywakes of Porangahau foresaw the use to which that particular bit of beach was shortly to be put, as clearly as the architect when selecting the site of his future edifice.

Before proceeding further with remarks on the Terns, Gulls, and Kittywake haunting these dunes and shores, a few sentences may be devoted to the topography of the locality. The Porangahau River flows throughout its last reaches betwixt steep banks cut out of soft marl rock. Attempting

Redbill—*Hæmatopus unicolor*. Our three tame specimens of this breed, free, of course, and with the run of Tutira Lake, its shores and marshes, would habitually share with tame Pukeko fragments of hard biscuit and wheat as fed to poultry.

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to reach the sea, it is often forced, like many another New Zealand river, for some considerable distance to flow parallel to a banked beach, through whose loose shingle it percolates and filters. Not infrequently during heavy storms from the east, with even this escape blocked by high seas, the river waters are dammed back, and stored in a sort of reservoir or lagoon created by sand bar in front and dry land behind, such lagoon, however, always in the end breaking out, and the river again opening a fairly straight temporary gap. Normally the lagoon is daily filled and emptied by tides that pass up and down the tortuous, indefinite, ever-shifting, shallow course of the stream. On either side of the river mouth extend for miles narrow coast lines of sand and shingle.

Southwards there is no possibility of danger from floods and heavy seas, southwards there is no paucity of stony steppes, southwards there are no drifting dunes to harm the sitting birds. The southern side of the river is, however—and this outweighs all these beatitudes,—easy of access from the village and native pah. On the northern side, contrarywise, conditions are dangerous to avian life from occasional floodings of the lagoon, and from occasional over-toppings of the beach by heavy seas. It is nevertheless the north side of the river that has been chosen for nidification,



CASPIAN TERN, MALE AND FEMALE.

because it is the better shielded from human trespass, because it stands guarded by treacherous mud flats and extensive areas of private property. Perilous as may be waves and winds, it is the opinion of the local sea-fowl that the presence of man is more dangerous still. It has come about therefore that Terns, Gulls, and Kittywake chiefly build immediately below the crest of the northern beach and on the edges of the lagoon.

Thus although on the southern shore natural conditions favour the birds, yet the northern is chosen. Sea-birds breeding about this river estuary have been driven by settlement from the naturally safer to the naturally less secure locality ; it is but an example of one of the many factors that throughout modern New Zealand lessen, season by season, the numbers of shore birds. The Caspian Tern, Sea Swallow, and Kittywake of this beach thus have the restricted choice of building beneath the crest of the beach, thereby risking the overwhelming of their colonies by specially heavy seas, or of planting their nests on the lagoon's edge, thereby hazarding its rise by the inrush of the ocean. Some of the birds elect the one danger, some the other. One great Ternery extends beneath the crest of the beach, another along the edge of the lagoon. The opinions of the three pair of Caspian Tern also appeared to differ as to which spot was the less perilous, one pair

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nesting near the lagoon, the other two pair beneath the crest of the beach. The Kittywake plumped for the lagoon edge, and, as we shall see, suffered the fate of those who carry their eggs in the one basket.

The nest of the Caspian Tern is a rough-and-ready structure, built sparingly of such sea wrack and flood débris as may lie handy. The eggs, three in a clutch, are laid in November, their ground colour stone-grey, with deep umber markings set chiefly on the thicker end; over the whole surface there are markings also of a fainter hue of brown.

Besides the breeding pairs, there were also in November six unmated birds. In one of the three nests the full number of three eggs remained as they had been laid; in each of the others the third egg had been blown out or otherwise dislodged, and lay a foot or two distant half buried in the sand. Both sexes sit; usually, perhaps always, the female quits her nest to be fed. The ceremony of changing places on the eggs is of a stately and decorous character, the incoming bird standing some feet away, bowing repeatedly, then again standing motionless, until, extending great wings, its partner rises directly off the nest. As in the case of many other species, the bird carrying in food, if unable to deliver its store at once, will swallow it and go off in search of fresh



CASPIAN TERN AND CHICK.

fare. Unlike their more plentiful kinsfolk of the beach, Caspian Tern seem careless as to what airt they face; plates were again and again marred because of deranged plumage. The best pictures were obtained shortly after dawn, before the gale that persisted almost without cessation during each of our visits revived with stronger light. The Caspian Tern is able to emit the most harsh of screams whilst carrying fish in its bill. Often I have heard one of these splendid birds, enraged at some movement on our part, screeching in full flight, head and neck raised skywards. Little is required to excite solicitude. When the distant pairs were disturbed, their uneasiness was at once communicated to the couple immediately beneath the lens. Even on her nest the female of that pair would then often bark like a chained dog—like a dog, too, throwing up her head to do so more conveniently.

During our third or fourth day on the beach an egg hatched in the nest opposite the screen. This youngster enjoyed the terrific never-ceasing blast no more than we did ourselves. Whenever by the exigencies of plate removal or shifting of camera the hen was temporarily put off her nest, the chick would utter a sorrowful little wailing bark. Instantly on the return of her parent, like a rabbit skurrying to burrow, it would scramble again beneath its mother's breast for warmth

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and comfort. During the feeding of this chick by the male, it was the hen's custom to retire a yard or so distant, as if taking pleasure in seeing her offspring fed. There was an indescribable air of sober benevolence in the act very pleasant to contemplate. The chick becoming clamorous and no food forthcoming, I have seen the hen, as if to deprecate its annoyance, put the extreme tip of her bill into its little gaping throat.

Although on a shore-line nearly clear of drift-wood it was impossible to erect any natural-looking hiding-place, we were nevertheless allowed gradually to approach, gradually to attain our ends. Upon our first discovery of the nests, I was relieved to see one of the incubating birds return even at eighty yards' distance. As a further test of the approachability of this pair, a kenspeckle log was rolled towards their nest, and as the birds again returned after a brief vociferous consultation, a preliminary screen built of manuka poles, which we had carried on our horses, was erected thirty yards from the nest. After an hour or so, to accustom the birds to new conditions, this screen was pulled up and replaced within twenty yards of our objective. By the evening of the following day we had got within seven yards; eventually at the distance of only a few feet, for many hours a day for many days,



CASPIAN TERN ABOUT TO ALIGHT ON NEST.

we were able to note details of the housekeeping of the Caspian Tern.

Many breeds learn to tolerate the stranger within their gates; the Caspian Tern is not amongst the number. I may say at once that we were never in doubt as to the big Tern's feelings towards us. Frankly, they were those of implacable spleen. Throughout our acquaintance there was no movement that did not call forth shrieks and screams; almost every picture taken reveals the species scolding open-mouthed. The sight of us was an abiding exasperation to the fierce birds, our connection one long enduring duel. Certainly they failed to drive us off the beach by their remonstrances, but then, on the other hand, they did not themselves budge a foot; more than once they distinctly worsted us.

Man to man, the male, from whom many of the pictures are taken, twice succeeded in putting me into positions unworthy of my nobler self. The earlier of these humiliations was inflicted only a few days after we had met, whilst I was still desirous of getting a picture of him sitting on the eggs. It was blowing as usual, and by a bit of ill luck the pressure of the gale had pinned and flattened a flap of the screen material across my conning-hole. This obstruction I found impossible to rectify from the interior of the frail topee. The focussing I knew was correct, but

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I had to discover if my Tern was sitting in the position required. In order to gain sight of him, it was necessary to peep round the screen. This—after a proper interval of prayer and supplication—I attempted, moving as gently and gradually as a lizard can move its head. Alas! it was ordained that one eye of his should meet with one of mine. For the briefest fraction of a second he held me, guilty, taken in the very act, beneath his malevolent ken. Then in one long roar his feelings were vented. He had foreseen his triumph, and, waiting for the psychological moment, had been storing up suitable imprecations for persons who haunt lonely beaches and spy on the privacies of incubation. When as I leaned slowly out of the fluttering bellying tent and the tip of my ear first appeared, the bird must have foreknown my coming demolition. As my cheekbone became visible he must have been whetting his beak, so that the first syllables should come trippingly. When our eyes met—one of his and one of mine—he had still, brooding in fierce silence, controlled himself long enough to let the disgrace of detected espial of his unborn chicks—of course I knew as a gentleman I should not have been there—soak and steep into my soul. He had not been content, as a shallower nature might have been, at the earliest chance to shame me. The tip of my ear, my whole ear, part of my



CASPIAN TERN SITTING.

cheek, my half cheek had not been sufficient for this remarkable bird. He had waited for the eye and a full triumph. On another occasion, when during another gale the thin blinding of my screen had been fairly blown out in fold on fold of galloping cloth, again I stood worsted before this implacable Tern. Had I been caught in any human upright attitude, standing erect, man-like, god-like, this mishap might have been passed over as a mere bit of bad luck, I should have suffered frustration, not abasement. Owing, however, to the lowness of the tent, the blast revealed me to the Tern's malignant gaze in a ludicrous undignified stooping position—like that of Thwackum behind the curtains of poor Mollie Seagrim, or the habitual attitude of Baillie Macqueeble in the presence of his superiors. Thus standing exposed for the second time, I heard the great bird roar forth a torrent of malediction.

As pointed out, indeed, nearly every photograph portrays the Caspian Tern in belligerent mood, yet not a nest was deserted. It is satisfactory to be able to state that all the eggs known to us hatched safely. On the Porangahau beach that season there were added to the sum total of New Zealand shore birds six young Caspian Terns.

II.

THE KITTYWAKE.

IN its habits this elegant Gull is something of a scavenger. Representatives of the breed may be found about the nesting quarters of certain species of Shag, devouring the half-digested fish fragments disgorged by overfed nestlings. Perhaps with a similar undignified object in view, the Kittywake builds in the immediate vicinity of, or actually amongst, Terns.

The Kittywake also comprehends the benefits of fishing operations, great and small. Preparations for angling off rocks will, anywhere and at once, attract stragglers. At sea, whilst the catch is being cleaned, hosts of these Gulls hover in the wake of returning craft, screaming and quarrelling for liver, roe, and other tit-bits; although, however, they have learned to catch biscuit and bread tossed in the air, they have in no degree acquired the diving habit, and thus lose much of



KITTIWAKE ON NEST.

the offal thrown overboard. At a depth of three or four inches quantities of good food sink before their very eyes. On the remote beaches where I have most often lived on familiar terms with Kittywake, they retain habits picked up about harbour, wharf, and the busy haunts of men. However far temporarily retired into the wilds for breeding purposes, they still are ready to accept doles; there is eager competition still for bread and meat.

On Porangahau beach, cheek by jowl with a large Tern colony, several score of Kittywake had built their nests in December, the eggs hatching out a few days later than those of their companions, perhaps, in some degree, their hosts. Nests were built of such material as was provided by the waves and winds, and were more often than not placed on the higher humps and hummocks available. There, in numbers varying from scores to dozens and twos and threes, the Kittywake nested and nourished their broods amongst the Tern. The two species were in the happy position of having no conflicting interests, no hostile points of contact. In amity they flew together and fed together. Always on the turn of the tide a cloud of wheeling, hovering, pouncing, and diving birds followed the flow of water over the flats of the lagoon, the Kittywake select-

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ing what appeared to be shrimps and crabs, the Tern, fish—fish probably themselves in pursuit of these small crustaceans. As we shall see, the two breeds shared the good and evil fortunes of the beach in other ways also.

III.

THE SEA SWALLOW, OR WHITE-
FRONTED TERN.

THE Terns of the northern Porangahau beach during the season of 1910 were congregated in two great separate establishments—about two or three thousand in the larger, in the lesser rather fewer than quarter of that number. There was a third narrow line of a few score incubating birds on the southern beach. A bird colony has a twofold interest: each member has its own idiosyncrasy, and may be studied as an individual citizen; there is also the opportunity of watching its habits and customs as one of a gregarious multitude.

The contours of these Porangahau Terneries were approximately deltoid or lanceolate or oblong, dependent, I suppose, on shelter provided either directly, or indirectly and invisibly, by eddies consequent on conflicting currents of air. Unlike the Caspian Tern, the Sea Swallow is particular

in regard to the ruffling of its plumage by wind. Each individual in the Ternery sits facing the breeze. Throughout my visits the hope was constant in my mind that even whilst I watched, the wind might change, and that I might witness the company rise as one bird and face about as in some measure of a stately dance. The larger colonies breeding on the northern beach appeared at first impression to be sitting in two great homogeneous companies. Closer inspection, however, showed that each of them was composed of many smaller companies, and that the effect of uniformity was produced by the sitting members of each sept dovetailing into that of another. Each nest is a shallow pit containing a single egg.¹ Upon it sits the Tern, its breast a bulwark to the racing grit.

Few sights are more elegant than such a colony in repose, the beautiful birds in hundreds facing one direction, settled into the sand as if floating on water, each with the same pure greys below, the same black cap above, the same dark bill, the same long pinions crossed above the back like the forked tails of a great Brazilian butterfly, each bird sheltering the same long tapering delta of bright, clean, shining sand. To and from the fishing ground during incubation there is a con-

¹ In some Sea Swallow Terneries on Stewart Island two eggs are laid.



KITTIWAKE AND SEA SWALLOW.

tinuous stream of movement, two separate currents flowing, the "clk, clk, clk" of the busy birds continuing hour after hour. Few bird calls can be translated with any exactitude or accuracy, but the call of the flying Tern, I think, does closely resemble the "clk, clk" given in encouragement to a lazy horse. When approached too suddenly the whole vast congregation will rise, the "clk, clk, clk" momentarily ceasing altogether in sudden consternation, then the sudden silence changing immediately into a loud universal chorus of disapprobation, "kek, kek, kek." On such occasions only a very few of the most steadfast—among the faithless, faithful only they to their eggs—continue to sit. These panics are, however, easily allayed. Almost as fast as they have arisen the reassured birds will again cuddle into their sand-pits. Male and female, I believe, sit alternately. It is the latter who sits the more assiduously, and who takes an especial care of the eggs just before chipping. During this critical time she is fed by her partner with a small shining silver-scaled fish.

Even during the rare intervals of calm weather, when not a grain of sand stirs, the first care of a Tern reoccupying its nest is the ejection of imaginary grit. On these occasions the bird will also breast the sand forward, gently pressing it out. Often, too, after settling on the egg a bird

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will, as a final touch, gather little billfuls of sand, and with jerking movements cast them to right and left. In watching the busy life of a great Ternery I have often wondered if even under normal conditions each pair of birds always succeeds in rearing its own chick. It is at any rate no infrequent sight to witness a Tern settle on a nest apparently its own, driven off that nest by another Tern, the first bird therefore really an interloper, or else a genuine owner dispossessed by force. Sometimes I have been inclined to favour the former supposition on account of the small amount of resistance made—anger at the disturbance of a comfortable position rather than rage at dispossession of a treasured egg. On the other hand, I may have been but judging by appearances, for had the sitting bird been, let us say, of a particularly fierce disposition, its resistance would have been successful, and I should then have believed it to be the original owner. Often the judgment of Solomon in regard to the babe claimed by the rival mothers seems to be the principle that decides ownership. The Tern that most dearly loves the egg, imagined rightly or wrongly to be its property, gets it.

Under conditions of storm and stress there are yet stronger reasons for doubting whether each pair of Sea Swallows rear to maturity their own



KITTIWAKE AND SEA SWALLOW FLYING.

chick. During rough weather confusion worse confounded reigns. It becomes chaos in the wake of such gales as have been witnessed by me on two occasions on the Porangahau beach. The first was one of those violent dry southerly winds that rush up after sultry weather. In a few moments the whole Ternery—the whole beach indeed—was grey with wagging wisps of drift pouring over shore-line hummocks, racing over wet sea sand like dry thin star snow on keen ice.

At any time there is much vociferation amongst a multitude of birds breeding together; at any time there is difficulty when nests lie close together for the returning birds to alight without disturbance to their neighbours. Now every individual was doubly noisy and more fiercely on the defensive. Each to its utmost was using voice and bill to fend off neighbours attempting to alight, whilst now and again sudden stronger blasts would dash hovering birds against others, compelling those attempting to stand sentinel, again to use their wings, and thus further to increase the confusion. A Tern in the air is as much at home as a fish in water, but under the stress of the varying gusts of the gale, manoeuvring into a desired berth becomes to a returning bird as delicate and particular an operation as is the docking of a liner. Exactitude was in fact no longer possible. The ground, erstwhile

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in sunshine, dappled with the shade of sentinel stationary birds, erstwhile in calm, dimpled with nest-cups, had become almost at once a shadowless smooth slope. Most of the chicks had hatched, but were tiny creatures who lay as minute hummocks, the sand grit uninterruptedly racing over their small bodies. More, slightly older, missing the hollow of their nests, were hustled before the gale. Too desperate for discrimination, they rushed to the shelter of every Tern that alighted in their vicinity. In the babel of sound and confusion of skirmishing, all personal interest was lost in special parents. Even amongst old birds only the smallest minority seemed to attempt to particularise. I have seen chicks compelled to quit a stance, sometimes even castigated with the old bird's bill. I remember one youngster, particularly obdurate and determined not to vacate its coign of vantage, fairly picked up, lifted a couple of feet above the din, and dropped a yard away. The largest crouching chicks could sometimes and in some degree breast the storm; rising to seek shelter they were at once rolled over. The actual site indeed of the Ternery must have been moved some feet or yards northward, and noting the confusion and turmoil, listening to the ceaseless screeching and screaming, and witnessing the indiscriminate celerity with which the homeless chicks sought shelter, it was impossible to believe



SEA SWALLOW.

that many parents remained in possession of their proper offspring.

There are other occasions, too, greater catastrophes by far, which must entail amongst the old birds the keenest of competition for surviving nestlings. In these disasters, too, parentage is probably settled by Solomon's law. They are consequent on conditions to which littoral species are increasingly subject. Almost everywhere sea-fowl breeding about river estuaries have been ousted by progress of settlement from naturally secure sites. In the one particular instance about which I write, the harm was done in little more than an hour. Although calm and fine locally, a gale evidently had been blowing outside. A heavy sea began late one afternoon to thunder and pound on the beach, and to force an immense weight of water into the lagoon. With the flow of the tide it was a miserable sight to watch the Ternery. With the advancing flood the lowest nests were soon engulfed. As the water still continued to rise, first dozens of sitting birds and then hundreds were flooded off their nests, the egg-pits filled, and the eggs rolled about and floated away. In some cases the birds sat until actually raised by the water, whilst eggs and drowning chicks were everywhere adrift. It was a bit of mere good fortune, a sudden lucky lull that, together with the turn of the tide, saved

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the majority of the nests; the sea happened to go down as rapidly as it had risen. Five hundred eggs or tiny chicks had nevertheless perished. Another hour would have seen the last of at least fifteen hundred more, two thousand that is, out of twenty-five hundred eggs and chicks in the particular Ternery affected.

The Sea Swallow tribe well exemplify the general truth that amongst creatures below man in the scale of creation there is that lack of adaptability, that powerlessness to deal with any sudden new situation, which marks the limit of instinctive action. The simplest of experiments with a sitting Tern showed the bird nonplussed by conditions outside the range of experience, outside that hard-set knowledge of the ages, primarily in the bird's frame, but reinforced and corroborated in each successive generation. I found that the removal of the egg three inches away from the egg-pit left the poor owner helpless before a vast insoluble other-world conundrum, a conundrum as of Mars or the moon. As it lay smooth and alluring on the warm sand she did not attempt to sit on it, to touch it, to scoop the sand from beneath it and thus create a new nest, or to roll it into its proper hollow. Watching it always as if fascinated, she merely ran up and down, circling about its vicinity in an agitated manner. I then replaced the egg, its owner being allowed to incubate the



SEA SWALLOW.

miraculously restored treasure until it was thoroughly warmed again. My next experiment was similar to the first, except in this, that the egg was placed on the sand surface within one inch only of the nest. As before, the Tern displayed anxiety, but made no attempt to deal with the problem, only as before running in perturbation about the neighbourhood of the bewitched be-devilled egg. It was then again replaced, and the bird once more allowed to proceed with its incubation. Upon the third removal of the egg it was balanced on the very rim of the nest-pit, poised so delicately that by the least touch the sand upon which it lay would begin to run and presently bear it into the nest. For the third time my Sea Swallow ran round its egg in puzzlement and perplexity, until, as I had foreseen, its fortuitous perambulations stirred the sand about the rim of the nest, and the grit continuing to flow like the sand of an hour-glass, the egg slid on to the side of the pit. In this attitude, unfamiliar as it may have been, the Sea Swallow became for the first time able to deal with the situation. Three inches from the nest on hard sand, no line of action had suggested itself; one inch from the nest, no line of action had suggested itself, but the bird was not so totally devoid of ability to deal with a foreign experience as to be unable to cope with an egg now actually in the nest,

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albeit in a strange unwonted position. She moved into the sandpit nest, and once within it the act of scraping was suggested by the feel of loose sand about her belly and legs. She scraped, the egg slid more and more into proper position, and her mental perturbations were over. In their very narrow but very perfect plane the beasts and birds of the earth live simply wise and simply happy, with the happiness that comes of the unopened mind.

IV.

PIED STILT.

THE Pied Stilt nests in sparse vegetation on the edges of lagoons, tarns, and lakes; river-beds, too, are favourite breeding grounds. From the former type of site the species has of late not infrequently been driven by settlement; the latter is still available, though exposed to dangers not known in former times. Nowadays, with the destruction of ancient vegetation and the hardening of ground, the surface of New Zealand has changed from sponge to slate; comparatively small precipitations produce spates; river-beds are swept by sudden heavier floods. To these disabilities of modern date the Pied Stilt opposes a prolific ovary, a breeding season spread over several months of the year, and a world-wide experience of weather conditions. Thus colonies are easily induced to alter their breeding grounds, and many instances are known to me of Stilt leaving a locality in a body, after disaster to early

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clutches. This habit of mind, primarily induced no doubt by climatic vicissitudes, has apparently been extended to include any disaster such as spoliation by man. It is certainly of assistance to the breed.

The structure of nests varies with environment. I have found them among the wiry seaside grasses of dunes and links really well built. On the other hand, the eggs sometimes lie bare or almost bare in a depression among naked stones. They are not symmetrically arranged as are the eggs of many species; the pointed ends do not elegantly meet in the centre of the nest. They lie as they are reproduced in the illustrations, untidily, with no attempt at neat stowage. They vary from three to four—oftenest four; their ground colour is a deep brown, with dark spots chiefly on the thick ends.

Amongst species cunning to beguile intruders, there are none whose methods of simulated injury and death are more strange and bizarre than those of the Pied Stilt. Dancing, prancing, galumphing over one spot of ground, the stricken bird seems simultaneously to jerk both legs and wings, as strange toy beasts can be agitated by elastic wires, the extreme length of the bird's legs producing extraordinary effects. It gradually becomes less and less able to maintain an upright attitude. Lassitude, fatigue, weariness, faintings—lackadai-



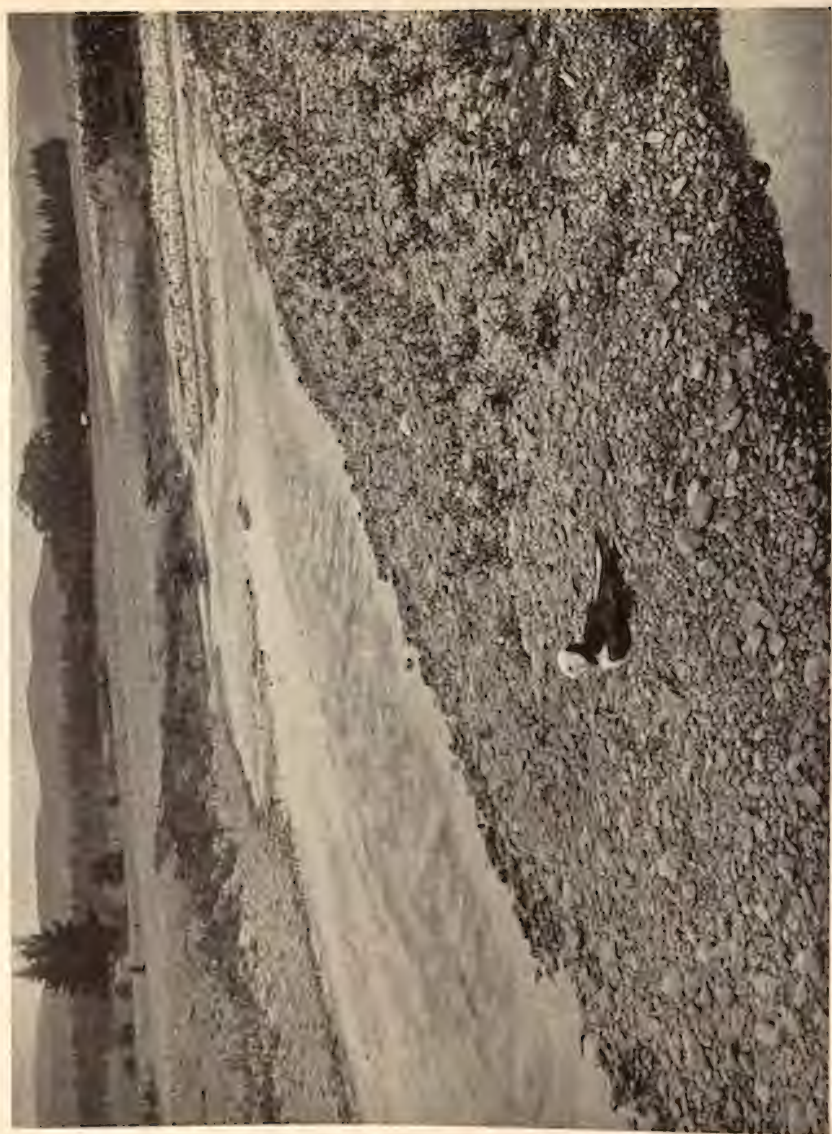
Pied Stilt arranging Nest.

sical and fine ladyish—supervene. The end comes slowly, surely, a miserable flurry and scraping, the dying Stilt, however, even in *articulo mortis*, contriving to avoid inconvenient stones and to select a pleasant sandy spot upon which decently to expire. When on some shingle bank well removed from eggs and nests half a dozen Stilts—for they often die in companies—go through these performances, agonising and fainting, the sight is quaint indeed.

During the course of their long-drawn-out breeding season, it is always possible to get a nest with eggs at the most favourable period for photography—that is to say, within a few days of hatching. On my first afternoon such a nest was discovered, the hen Stilt sitting, the male standing sentinel on the bank above. It contained the usual quartette of eggs, but was remarkable in its strange parsimonious dearth of lining. The eggs rested on a single bit of yellow bent. This sere short grass stalk was the bird's first care upon each of her home-comings. With shanks too long to work it comfortably otherwise, standing with one of her thin stilt-like legs angled like a half-opened pocket rule, it was marshalled, it was set out, it was rearranged. At first I regarded the straw as a mere ordinary straw, thousands of which lay strewn about the river-bed. Then I became impressed—it was impossible not to

become impressed. Her alterations of it were no mere careless touches: it was picked up and shifted bodily across the nest; it was interwoven with the eggs; it was poked about on the sand in cabalistic posturings; it was manipulated in occult tracings. Often for moments together she would stand upright on her long legs, motionless, rejoicing over the subtlety of some master-stroke. She can have envied no other Stilt its nest, its mate, or the spotting of its eggs. With them and the straw, combinations were possible—after all, Shakespeare's works are built out of twenty-five letters—that could never during one period of incubation weary or pall. To watch her was to wonder if indeed she was not by some strange inversion or warp of instinct really brooding on the straw, and using the eggs as mere letter-weights to safeguard it from the gusts that issued from the rocky gorge. On no single occasion, at any rate whilst there yet remained eggs in the nest, did she fail on return to weigh it down, to readjust it to her fancy. Like Mr Pecksniff's insistence after the banquet at Mrs Todgers on a little drop to drink, it seemed a mania.

As had been anticipated, three or four days after the erection of the screen two of the eggs hatched. There lay one morning some yards distant from her nest a couple of tiny chicks still as death, and stretched out flat like the grey



PIED STILT SITTING.

scum of sun-dried river-weed. Thinking that the hen bird would the sooner return with a light heart, I replaced these chicks in the nest still containing the two unhatched eggs. To my surprise, however, she would not sit at all. Unable to fathom her reasons, I wondered at what seemed a sudden perverse mistrust of the screen. Each of us consequently endured a morning of anguish, she fearing to return to her eggs lest my evil eye should fall on her tender offspring—of course she believed them undiscovered—and I fearing that to save the lives of the chicks and the vitality of the eggs my screen would have to be removed. I was indeed in the very act of trekking—I had given myself five minutes more—when even more desperate than myself she approached and lured the chicks from my wicked proximity. Her uneasiness and anxiety, as I afterwards understood, were consequent on the knowledge that the chicks should not have been in the nest at all—where in my ignorance I had placed them—that they should have been running with the cock bird. Having got them away and delivered to her mate, who, like little Peterkin, “stood expectant by,” she returned with perfect composure and confidence to her straw and two remaining eggs, and settled down under my very nose.

Chicks of Pied Stilt, immediately after emerging from the shell, leave their nest, and at once begin

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to feed among the shingle, sand, and smooth boulders. They obtain their food easily, I should imagine, for insect life on a river-bed is plentiful. The male, as we have seen, looks after the newly hatched nestlings, the hen continuing to incubate the remaining eggs. When the whole family are out of the shell the duties of supervision are shared. Male and female Stilt have in fact departments of work, duties as distinct as those of English servants. Thus although in the neighbourhood during the whole morning, the male did not seem to consider himself in any way bound actively to assist his wife; the chicks were in her nest, and whilst there were under her charge. It wasn't the work he had been engaged to do. Directly, however, the youngsters were out on the river-bed they were within his sphere of influence. It was he who led them, fed with them, and when the tiny creatures grew tired, hid them amongst the friendly stones. As yet, however, the parental customs of the breed continued to be misinterpreted by me. I still believed the hen's refusal to sit during the morning was due to some freakish distrust of the screen or camera. Again, therefore, in the afternoon when returning from lunch beneath the neighbouring willows, I searched for, discovered, and replaced the chicks on their nest. Once more the same line of action was followed by the hen, except

that her hesitation to withdraw the chicks was less prolonged. The weather had changed; a chill sou'wester was blowing out of a grey sky. Her eggs, the Stilt knew, could not, as in the morning, for any length of time safely remain uncovered. Once more it was wonderful to see the enticement used to withdraw the chicks, the agony of supplication put into her attitudes. Crouching, courtesying close to them, with her long legs half folded up, she made of herself a parallel plane to the earth, her body close to the ground inviting to cover, her wings and tail uplifted and outstretched. Thus were the chicks again coaxed from the neighbourhood of the camera and screen. Then, as before, the male took them into his care, whilst the hen, after due inspection and rearrangement of her straw, settled happily on her eggs.

Watching these Stilt nestlings and their parents, I got a glimpse of that austere affection with which chicks are reared, and which forces the little ones, however frail and however young, to work out their own salvation. To be severely stern is but to be wisely kind. From the earliest dawn of life, direct assistance, direct interference, would prove at best but a procrastination of catastrophe. Mankind, especially the wealthier section of mankind, may be able to play with the question of education; the schools of the brutes must really

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fit them for the struggle of life. Their senses must be sharpened from birth; they must be bred to mastery of their environment. I believe myself no compassion need be wasted over these free creatures of an underworld to ours. Within a narrower pale their lives are probably happier than those of men. Man has not yet stepped into his kingdom to come; he is still imperfectly adapted to his surroundings.

In front of my screen, extending far up the river-bed, lay a narrow stretch of shallow water, a backwater of the main stream. Warm, safe, and calm, it was a favourite playground of the little Stilts. There, about the size of walnuts and buoyant as corks, they loved to disport themselves. This water, usually so calm, had now a big ripple on it; clouds had come up from the south; a dry gale was blowing grit and sand in clouds along the whole river-bed. In some way or other one of the chicks had got into this water space, and was being blown towards the junction of backwater with main stream. The male, now for the first time entirely regardless of my presence, began to show his anxiety in agitated flight and yapping cries; the hen, catching his alarm and leaving her straw and two eggs, presently joined him. Quite evidently they realised that the chick was being carried towards the river, big and dangerous. The passage from

the backwater once reached, the chick would have been rapidly carried down-stream, the parents or one of them following on wing for some considerable distance. At last the little creature would have been lost in some raging rapid, and the old bird would have returned to the remaining chick and eggs. Even, however, in the chick's present desperate strait and with this catastrophe foreseen, encouragement only was given, not direct assistance. By perpetual calling and piping, by wading knee-deep into the water, though not actually breaking the wind and the ripple, as could have been done, and by spreading themselves again and again on the bank in all sorts of alluring shelter attitudes, the chick was encouraged himself to redouble his efforts. By a few yards he escaped, with at least one lesson thoroughly learned, and with moral fibre unimpaired by enervating aid.

Rescue accomplished, the yapping of the anxious parents ceased. Silence again fell on the riverbed, the male reuniting the parted chicks, the hen returning to her yellow bent and eggs. Because it was the last evening of my trip I scattered the scant material of my screen in case it should attract attention. Disturbed at the devastation, and of course unaware of my beneficent motive, the hen temporarily left her nest. It was no long vacation. I saw her presently

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return, and knew from her long bill pointed to the ground, from her disjointed, angled, broken-legged attitudes, that the old happy infatuation persisted to the last. With the enduring joy of the creative mind, she was once again at work upon her solitary straw.

V.

THE STITCHBIRD OF LITTLE
BARRIER ISLAND.

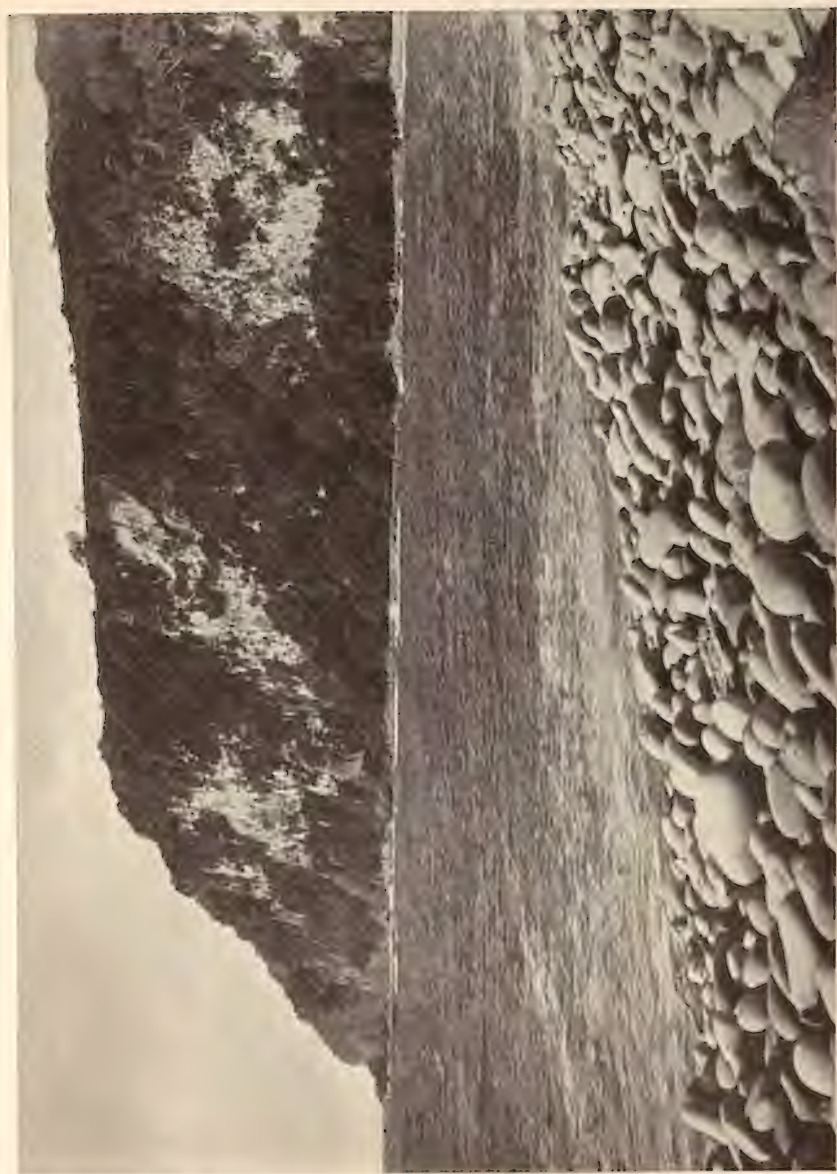
ARMED with permission to land and with hands further strengthened by introductions to Mr Nelson, the best of all possible caretakers, I and my companion, John Leask, reached Little Barrier Island at daybreak one fine morning in early October. This sanctuary is, I believe, the stump of an old volcanic pile still, after years of quietude, so split and rifted that water a hundred or two feet above sea-level is unobtainable after a few days of drought; its streams, too, flow only during flood.

Where in early times the aboriginal kauri forest has been cleared, manuka and kanuka clothe the hillsides. There are considerable tracts of low-growing woods tangled and roped with lawyer, clematis, and, most delayingly, with twisted growth of maugemange—climbing fern. It, as also the elegant slender tree-fern and others, were

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strangers viewed for the first time, but many species well-known elsewhere were undergoing such modification in the warmth of this semi-tropical island that I feel sure another hundred miles northward projection would have necessitated a new nomenclature. Midway between the manuka belts and the damp densely massed dripping thickets of the high tops, lay shaded waterways and winding irregular valleys supporting most noble tarairi and puriri. About the caretaker's house extend a few acres of mixed alien and native grasses. There are a few yards—not more—of naked rock on the very peaks, for even the cliffs of these mist-visited tops are green with moss, filmy ferns, and delicate shrubbery. The unindented, harbourless, repellent shores of the island are piled high with huge smooth boulders. Ship timber and wreckage of small craft strew the beaches. Little Barrier Island is, in fact, an ideal sanctuary, sea and shore alike combining to protect the woods and their inhabitants.

One or two paths leading to the more prominent peaks and following their steepest ridges are barely kept open by the use of an occasional slasher or axe. There are yet vestiges of haulage tracks, along which timber has been dragged by bullocks before the setting apart of the island as a sanctuary. The natural bird roads, however,



WEST LANDING AT L.B.I.

of the island are its creek beds. Though blocked and barred, these lines of light—of ingress and egress—afford flight paths rather less barricaded with boles, rather less dim with leafage than the surrounding tree-clad, tree-cumbered lands. It is on this precipitous island, wooded from top to bottom, that the Stitchbird survives, a little fellow eight inches long, velvety black, canary yellow, and with a tuft of white feathers on either side of his head.

The first nest of a species, about which no field naturalist facts are available, is always difficult to locate. In our search for the Stitchbird's nest we were ignorant whether perchance it was to be discovered on the ground or high in the air; amongst bunched green twigs of kanuka, often favoured by the Whitehead; in thicker scrub, such as is preferred by the Tui and Bellbird; in deep holes in timber like the Parrakeet; in rifts and chinks like the Rifleman; in hollowed knees and elbows of trees like the Tit; on shaded shelves like the Robin; or—where I have never yet found nests—amongst the *astelia* clumps perched high on the great limbs of giant trees. Then again in what part of the island did the bird breed: on the tops or near the coast, in the gorges or on the saddles and ridges? Was a particular aspect favoured, as the Stewart Island Kiwi favours the west and north? What

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type of forest did the species prefer for building: open puriri and tarairi, mixed scrub, dense groves of tree-ferns, or the woods of the heights fleeced in filmy fern and furred with moss? Did they prefer gloom, or where the sunlight was able to filter through the boles?

We were ignorant even of the date of the breeding season. We could not tell—always a discouraging factor—that we might not be searching for a nest not yet built, or—equally disheartening—for one from which the season's nestlings had already flown. We thus were unable to eliminate any locality, any portion of the forest, any kind of tree; we were unable to concentrate our search. In our wanderings through the woods we could not tell where it was waste of time to wait. Then, again, knowledge of the habits of other species might be worse than useless. When the male Stitchbird was seen for a flash and not again, was the sight of him a mere chance glimpse as of the forest Hawk high overhead, or was it the wisdom of the Kaka, who vacates for hours even the vicinity of its nest? Was the bird's absence, in fact, the best or the worst of signs? When the male was alone, was he still unmated, was the hen sitting, or had he hidden her in some neighbouring thicket? Then in later days, when again and again the bird was seen about the same spot, was his presence indicative of a nest,



BUSH ON L.B.I.

or did he show himself as do the New Zealand Dottrel to beguile us from the true site? Why, for instance, was that mass of high astelia visited? If with such eagerness, why but once? Was the female really sitting there, and did he fear to visit her again? Yet if sitting and he anxious about our presence, why should he call on her at all? She can't be sitting, we argued, or else we should see him carrying food to her. She must be sitting, we argued, and when he disappears it is to call her off and feed her unseen; but if he is feeding her, why is nothing carried in his beak? Why does he fly between two localities? Lastly arises the doubt, but does he really do so—is it not another male?

There were endless contradictions to be reconciled, likelihoods to be interpreted, improbabilities to be solved. There were opportunities of error in every foot of every yard of the ten thousand acres contained in the island. In the earlier weeks of our search before we had localised mated cock and hen, every Stitchbird movement was a flash amongst solid steadfast boles or a dive into seas of greenery. As lovers revolve a glance or word, such clues as we possessed could by constant cogitation be made luminous as we inclined or darkly dim. For my part I anticipated we should eventually discover the nests in clumps of astelia, my companion that we should obtain

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them in situations not very different from those affected by the Robin or Pied Tit. Both of us were wrong; nor in truth did the habits and customs of the Stitchbird quickly enlighten us, for to the species in general the lines might fitly be applied—"everything by turns and nothing long"—"not one but all bird-kind's epitome."

We were fortunate in locating the species. We began well, for Mr Nelson was able to show us birds the first day. Then for several weeks we learnt almost nothing more; no new discovery was made. We could find not the sign of an old nest; we failed to note the building of a new one. Even when at last, after nearly a month's search, a hen bird was seen with a bulky pinch of tree-fern hair in her bill, that single fatal fact—the one and only nest-building episode I have to chronicle—misled us into waste of days, or rather, since that is impossible in a New Zealand forest, busied us with nine days' fruitless search. She never reappeared; the problem to the end remained unsolved. Every bit of ground was inspected, every tree explored. Either some accident had occurred to the bird, or, since the material carried is everywhere plentiful, this hen for some unaccountable reason was unnecessarily carrying it from a considerable distance to her nest.

Later in the year, especially in the vicinity of nests, we noticed a curious duality running through



Female



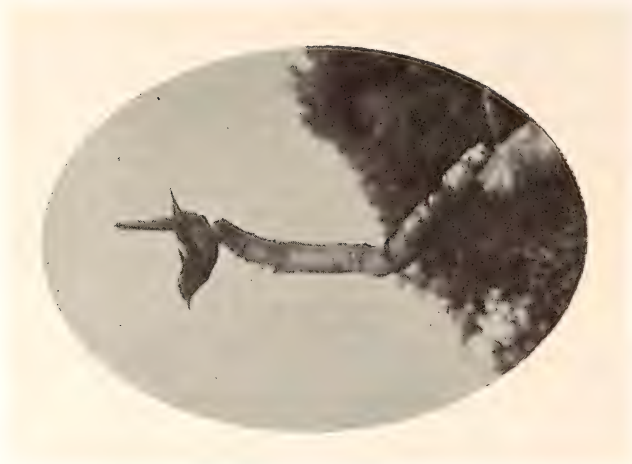
Male

STITCHBIRD.

the actions of the Stitchbird. It was never possible, for instance, to predict the posture to be assumed. In attempting photography it was never possible to foretell an attitude. Without apparent rhyme or reason for the change, I have seen the male during one visit glide into the nest as if fulfilling a guilty assignation; at the next, scale the twisted lianes with simian activity, emitting with the last upward leap just such a "sptt"—just such a triumphant shout as an athlete might utter in performance of a strenuous feat of strength. The birds, both cock and hen, will sometimes leave the nest with speed the eye can hardly follow, as if shot forth from the dark like shells. I have seen them equally often wait without haste on the lip of the hole, with plumage compressed and smooth. Sometimes they will dive with extraordinary celerity from a height straight into the dark interior of the tree, and sometimes leisurely perch and inspect the passage inwards to the nest. In approach, as the mood takes them, the birds will hesitate and loiter on the way, or proceed with business-like despatch. Sometimes the nest is reached in perfect silence; at other times approach is heralded with the usual "p-s-tt" from time to time repeated. In the forest, too, and far from nest, the Stitchbird will one day appear to hide and shun observance; on another be indifferent; on a

third, perch and watch within a few feet. By modulations of his call the hen will be ordered into covert, yet within an hour, perhaps on the same spot, will be brought forward for fullest exhibition. Sometimes, if happened on suddenly—if indeed it is possible for such a clumsy stumbling brute as man ever to surprise a forest creature,—he will ruffle his feathers to thrice his size, appearing the very picture of sullen sulkiness. At other times the birds will remain smooth, unconscious, careless. Sometimes the male will loiter through the woodland ways; at others pass like an arrow up the boulder-blocked burns that largely serve as avian thoroughfares. Sometimes he will travel by the tree-tops high in air; at other times by the forest floor. Although one of the most active and mercurial of birds, he can and does—though not often—remain for seconds motionless like a statue, deeply meditative, glowering into space as Fantails sometimes glower.

Owing to the wealth of greenery on this warm island, it was a hard task to keep our eyes on particular birds for any length of time. That was the prime difficulty, for the Stitchbird, though not indeed so friendly and curious as the Robin, is not in any degree a furtive, far less a timid breed. Different individuals of the species and different pairs, male and female, have again and again during our three months on the island

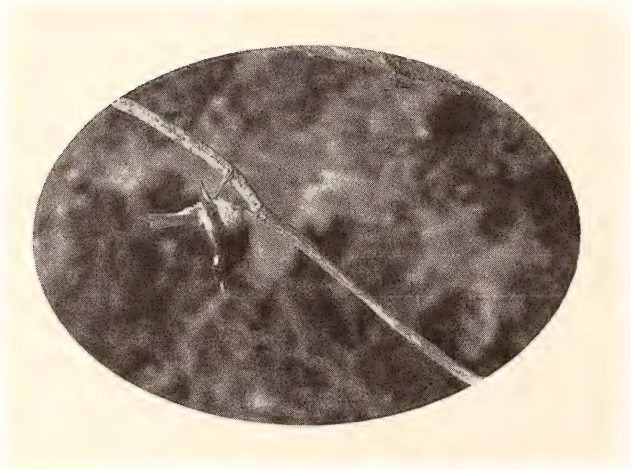
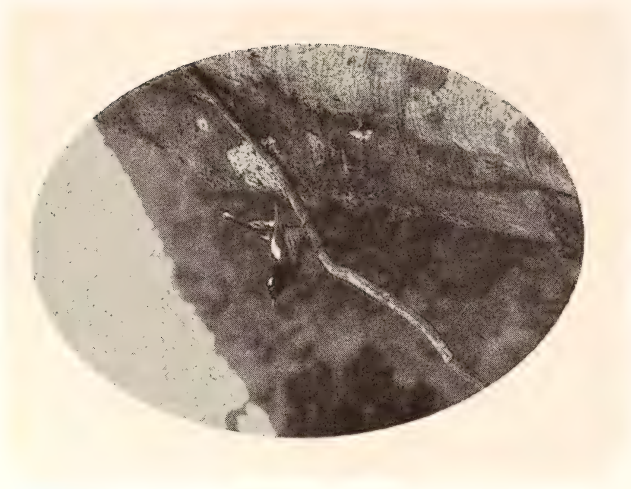


STITCHBIRD.

perched and watched us within a few feet. Often a Bellbird and sometimes a Tui will indulge in a fit of wondering and peering—an active curiosity at close quarters,—but not for a longer period or with more dispassionate detachment than a Stitchbird. Whilst, however, there was no difficulty in seeing the birds on the not very frequent occasions when they chose to allow themselves to be viewed, there was great difficulty in following their journeys for more than a few feet. Day by day passed with mere momentary appearances, disconcerting glimpses intercepted instantly by boles and boughs and shifting greenery. The flutter to earth of the hen direct from a high tree-top is a marvel to watch, a flutter as rapid as the fall of a stone—really doubtless a series of zigzags performed at so prodigious a speed that the human eye cannot detect more than a blur of rapid movement. The birds can mount lianes like monkeys scaling a rope. They can move through open scrub quick as light with the hopping run of the Crow or Saddleback. They can hover like great bees or humming-birds in front of blossoms. With sunlight falling full on the splendid rich gold of the outspread wings, on the deep blacks and pure whites of head and neck, the male then appears not a bird but a huge brilliant tropical butterfly—a magnificent creature indeed. It was curious to note the indifference of the

birds, when collecting nectar in October from the long waxy bells of the *alseuosmia macrophylla*, as to whether they stood on head or heels. Landing always on the frail outermost tips of the favoured shrub, bird, blossom, and green leaves seemed intermixed beyond hope of disentanglement. When feeding on this abundant scrub, the approach of the birds—never the birds themselves—could be detected far away, the sudden shaking of the still greenery showing distinct in the calm of unruffled leafage, as the rises of a single trout in a glassy pool.

A yet additional liveliness is lent to the habits of the Stitchbird by the motion—perpetual motion it may be termed—of the tail. Truly, that unruly member is never still. Only during flight is it carried in the normal position—at the trail; other times it stands erected or semi-erected, the angle of inclination reflecting pretty accurately the amount of energy put forth in the previous move. It seems to be a sort of automatic air-brake to facilitate rapid haltings and endless instantaneous changes of posture. The Stitchbird has borrowed the Tui's lightening cleavage of the air, the Bellbird's dual flight when a pair fly, one exactly equidistant above the other, through labyrinthine intricacies of bole and bough, the Fantail's advance along a level branch, at each rapid hop jerking round so that where head was is tail,



STITCHBIRD

and where tail was is head, the Robin's acrobatic stickfast stance glued at right angles to mossy trunk or swinging liane, the Rifleman's quick clinging run. Varieties of pose are to be found in every species, but not elsewhere such endless posturings, such infinite variety of attitudes as characterise the Stitchbird. Two of these are particularly remarkable: one, when the bird dancing along its bough stands momentarily steadfast, leaning forward stretched to full height, like an actress with hands and arms and body swayed forward in a superb gesture that claims the plaudits of her audience; another, comically recalling the action of a Maori orator pacing with quick little steps this way and that, gesticulating first to right and then to left. The hen is less active, I think, than her volatile mate. It is her pleasure, in her comings and goings near the nest, often for long periods to wear her wings drooped like a brooding hen.

The breed is guileless and innocent of wile in a peculiar degree; the instinct of deception even in a good cause seems not to enter into their scheme of things. At any rate, approach and besiegement of the nest by man and camera does not disturb their tranquil faith that all is for the best in the best possible world. Neither anger nor fear is evinced. They are careless, too, of stranger birds who may happen to have wan-

dered near the family abode. Indeed, the sole hint of hostility towards intruders ever noted was shown, not by the owner of the nest himself but by a friend—another male—on his behalf. Leask and myself on this occasion, whilst not quite assured of our find, were, in ten-minute spells, intently watching a certain ambiguous hole. He had just sung out, "Male flown out," when another male from whom I had never taken my eyes, and indeed whom I had suspected to be the owner of the nest, flew straight at me, passing on a level skimming flight a couple of feet only above my head, with much of the minatory mien assumed by a hen Morepork attempting to intimidate. Perhaps I should not have been so sure of the hostility of the action had not something of the same sort happened a second time, on the part once again not of the owner and the occupier himself but of an officious friend. I have no theory to offer as to what was meant, but merely state the fact that it did again occur whilst Leask and I were closely watching another nest in another part of the island. Both before and during the breeding season the males of the race appear to dwell on very friendly terms with one another; indeed, one of the many preliminary inexplicabilities of Little Barrier was their habit of visiting one another. These meetings, which would take place within feet of a



STITCHBIRD (M.).

spot which we then suspected, and which we afterwards discovered to be a nesting site, were a source of sore discouragement until we became used to them. In October and early November, whilst still engaged in the search for nests, it was disheartening work, after believing we had tracked a male to his lair, to find two males engaged in parley—long, low, chattering, very friendly palavers. It seemed then so improbable that one male would tolerate the presence of another close to his breeding quarters. Seemingly, however, they are mere friendly calls such as the Yellow-fronted Parakeet has to endure during nesting-time from members of its own race and from its Red-fronted relative. I have reason to believe, however, that although thus friendly, care is taken not to intrude on one another's domains.

In its relation to other breeds, the characteristic of the race is a certain self-centred contentment; for instance, I cannot recollect an instance of either male or female chasing Pied Tit or Whitehead or Grey Warbler or Fantail, all lesser birds than they themselves. That these small fry are already sufficiently punished in not having been born in the purple, in not having chipped the shell as Stitchbirds, seems to be the line of thought. Though units of birds differ as do individuals of the human family, a fairly accurate estimate of the qualities of a race can

nevertheless be formed after prolonged arm's-length intimate acquaintance. Nobody who has watched the details of Pukeko housekeeping can have failed to appreciate the social kindness of the breed, or at equally close quarters to admire the honest enduring hatred towards strangers evinced by the Caspian Tern, or to note the cold-heartedness of the Pied Cormorant, or the humble-minded meekness of the Saddleback, or the wickedness of the Harrier, or the cantankerousness of the Kingfisher. Although, as I say, individual birds differ like individual men, yet each species has some trait or another that may be fairly termed characteristic.

Thus it may be that a certain levity in courtship marks the male of the Stitchbird clan. After an episode I was unfortunate enough to witness—one of those revelations which hurt the observer by tarnishing his ideal,—I could not but ascribe sad insincerity to all the cocks. For a long time I had been watching one particular bird: he was such a splendid specimen, and I did so believe the metal must be worthy of the mould—I suppose I had idealised him, and then—well, he committed a shabby action, one, alas! which I could not forget. The serenity of the hour was gone. I experienced a sort of uneasiness, a sort of guiltiness in his presence—I knew something of him that he did not know I knew. I feared,

too, that at any moment he might again further compromise himself in my presence. Why, why could he not have taken a ripe berry and allowed me to nourish my enthusiasm? It was in vain I told myself that he might be a good family man, that he might perform his strict duty towards his consort. Even whilst I said it I was aware of the "little more and how much it is," of the high devotion and punctilious chivalry that were wanting. He cannot have deeply cared for his mate, or why—it was my unfortunate lot to see everything—did he select as a courting gift not the very best and ripest of berries from the coprosma branch visited? I examined it. I counted the berries—there was but one missing, the green one I had seen in his bill—not, not the ripest of the lot already of a pale pink. It may seem a small matter; he may even have foreseen the hen would reject the offering. Still it was a gift, and should have been the best his means could afford; besides—remember I saw everything—there was a cavalierly carelessness in its selection, as if any berry would do. The choice of it, too, was made in unbecoming haste, perfunctorily, not at all after the fashion a lover should choose a gift for his fair. Worst of all—and the possibility, nay, the probability (for we know what men are) could not be driven from my mind,—had he not with every appearance of tenderness,

with oaths and solemn vows, sworn it was the best in the whole forest, and imploringly apologised for its immaturity? As a matter of fact, that was the only act of courtship witnessed, whatever endearments may have passed in the thickets. Once only also did I see anything carried to a sitting hen—the solitary morsel appearing to be a small grub of some sort. Stitchbirds live, in fact, almost entirely on nectar. The hen whilst sitting is probably fed on it alone, either leaving the nest or being called off the nest at about hourly intervals for that purpose. The nestlings were reared on the same ethereal food; the male himself almost exclusively lived on it, the only solid food—if indeed it could be termed solid—that passed his bill being “cuckoo spit,” the frothy excretion concealing a small insect, thick at Tutira and elsewhere in certain seasons on the leaves of the rangiora, and on Little Barrier on the leaves of other shrubs. Both insect and spittle were devoured—the original inducement to taste this unpleasant-looking creature perhaps being lack of moisture on the heights of the riven island.

A yet unsolved problem of Little Barrier is that of certain birds seen on three occasions by me in October—on two of these occasions, moreover, watched in the open within a few feet. In the little clearing I had made they were as close to

me as if they had been caged. Whilst moving about the underwood in several small parties, sucking the nectar from the flowers of the *alsea-osmia*, they uttered at frequent intervals what appeared to me to be their travel call, "sttit," "sttit," "sttit." In November and December I heard them less frequently, and saw but one bird. I never heard them calling high on the trees. Without capture and handling, their plumage seemed to be practically that of small hen Stitchbirds with colour contrasts dull. Some of them showed a thin yellow line about the mouth. They could not have been immature Bellbirds; they did not seem quite to be Stitchbirds. If, on the other hand, an unnamed species, why in three months' watching in the woods did we never meet a mated pair? Why, in the later part of the breeding season, did such as were heard appear to be still solitary? Leask, an excellent observer, most cautious, moreover, in his judgments, never happened to come across them in parties, and was inclined to believe they must be Bellbirds. Perhaps. If, however, they were Bellbirds, their habits of flight and call were unlike any Bellbirds seen elsewhere in New Zealand—in fact, they weren't Bellbirds. To me they seemed to bear the same relationship to the Stitchbird as do the "brownies" of Kotiwhenu to the Saddleback.

Although in October almost everywhere "sphitting" and "sttiching" could be heard throughout the bush, a wider experience led us to suspect that Stitchbirds were not so plentiful as at first surmised. A comparatively small number of individuals appearing and reappearing, like an army on the stage, would make a great show. Perchance, too, the remarkable powers of ventriloquism possessed by the Stitchbird, at any rate by the male Stitchbird, might have misled us in regard to numbers. I was fortunate enough on one occasion both to see the bird call and note the mystifying result. Four times, almost at arm's-length, he uttered his resonant "Ypstt." The first time the call seemed behind me; the second directly ahead; the third to one side; and the fourth directly ahead but farther away. Prior to this experience I had believed we could gauge the male's approach pretty accurately by his calls—ever afterwards I distrusted the methods of this most accomplished polyphonist. Besides cries that might be variously rendered "stt," "ptt," and "whystt"—all of them containing a certain far-off resemblance to the English syllable "stitch,"—I have heard the male sing three times. One of these songs, a continuous low warble uttered within a few feet of me in late October, was, I believe, a courtship song. The others seemed to be soliloquies uttered to

the bird itself ; they were poured forth on both occasions perhaps for thirty seconds under the stimulus apparently of surprise or surprised anxiety, though, of course, no faintest trace was perceptible to the human ear of either emotion ; the possibility indeed of surprise and anxiety has been suggested only for the reason that I myself as a human might have been subject under like circumstances to like emotions. One of these songs was uttered when for the first time the male discovered his entrance hole temporarily blocked by a turf of matted fern fibre. After thorough inspection of this miraculous sudden dark blockade, he fluttered rapidly down to near the base of a neighbouring tree, and there gave vent to what I have surmised might be astonishment and anxiety. A like song was called forth under somewhat similar circumstances when the male, returning, found the hen not on her eggs as he had evidently anticipated. Inadvertently I had baulked her return. She had remained away not for the usual five or seven minutes, but for two hours and fifty minutes. It was after scrutiny of the empty nest for half a minute that he poured forth the low sweet song recorded. He then gave a "sptt" or two, not, however, particularly loud, nor as if under mortal apprehension as to the fate of the eggs, and flew away. I believe I often feel more anxiety as to the fate of the eggs and nests

than the birds themselves. At any rate, during that two hours and fifty minutes I was the prey of remorse, compunction, and fear in no common degree, whilst the heedless Stitchbirds were disporting themselves in the woods. This it is to have a feeling heart. At funerals I always suffer more than the nearest and dearest of the deceased ; I weep more bitterly.

As the season advanced there seemed a slightly marked movement of the species towards the ocean. Pairs, for instance, were to be met with nearer the coast in localities where they had neither been seen nor heard before. There was something of a similar movement from the ridge-caps towards the gullies. Broadly speaking, the great bulk of the birds during the height of the breeding season were to be found in the depths of the steep open valleys, the central belt of the island.

Four nests we were sure of, whilst the site of a fifth, known to myself only, was located to within a limb or so. Of these five, three were built thirty to sixty feet from the ground in huge puriri ; the fourth in an immense taraire, also about fifty feet from the ground ; the fifth—the Stitchbird is nothing if not *varium et mutabile*—was at a lower elevation, and in a smaller tree—a tawa. Four of the nest sites were in valleys, the fifth on a ridge. With these nests, as is always the case in dealing with species whose habits and



STITCHBIRD (F.).

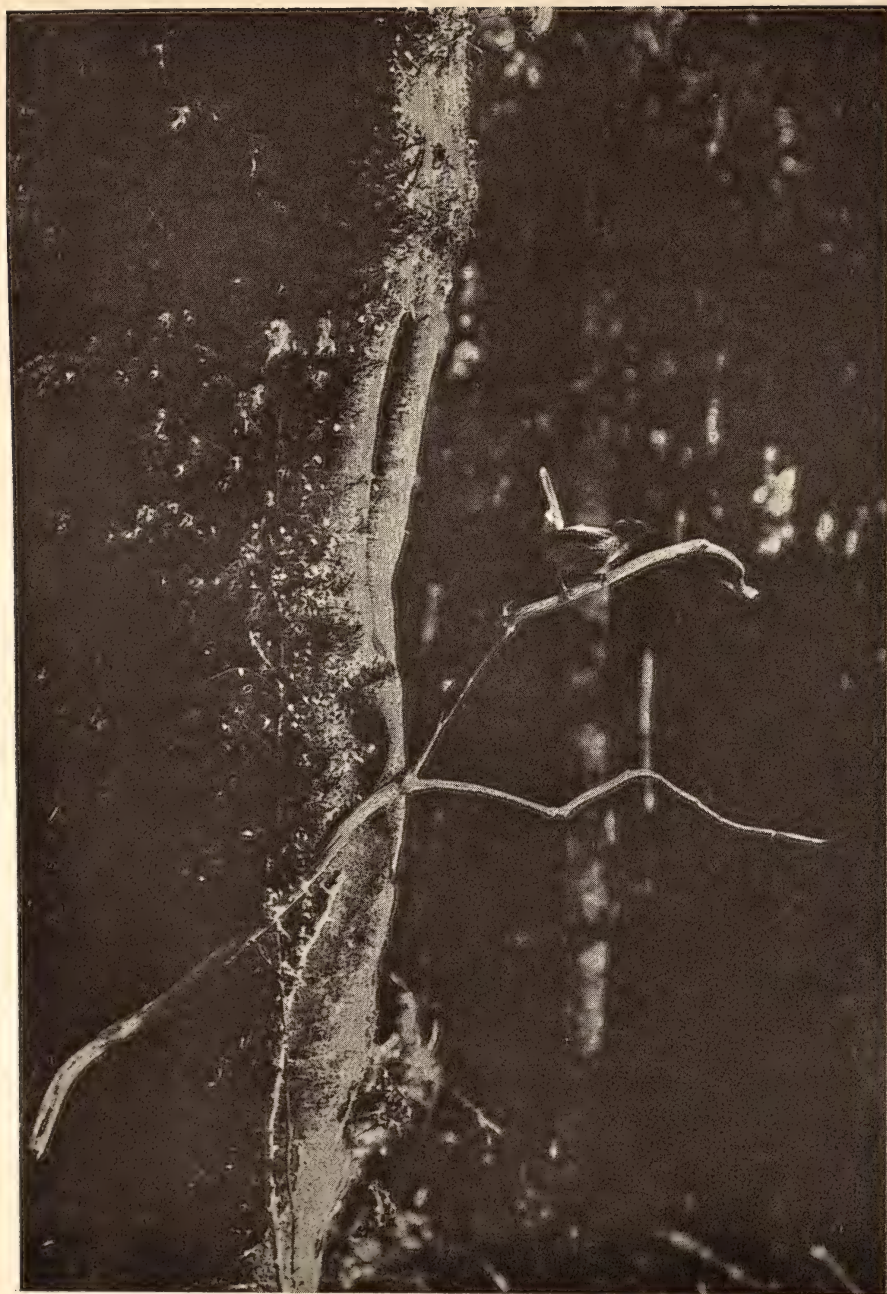
manners are still unknown, we dared not in any way take liberties. An only nest cannot be visited often or besieged long without dread of causing desertion; then again with but one in hand anxiety is never absent in regard to vermin. Personally, I never feel happy unless at least three nests of a rare breed are under observation—if one then should chance to be destroyed, others remain. Risk from rats and cats is perennial and unavoidable, but vermin seem to be further attracted by signs of human traffic. Again and again valuable nests have been lost to us in spite of scrupulous care, in spite of meals eaten far from the nest, in spite of the destruction by fire of every crumb and every scrap of paper.

Of the three nests most closely watched, two had stages built in front of them, from which we were able to note Stitchbirds' use and wont at the distance of a few feet. Our first was discovered on a Sunday afternoon late in November.¹

For some time previously we had become aware

¹ The day had been earmarked for photography of a Robin's nest; we had not, however, taken into account the scruples of Ruth, the small daughter of our kind host and hostess. After contemplating with round astonished eyes our scandalous preparations on this the first day of the week, at last she warned us plainly, "Oh, but God won't love you if you work on Sunday." The offending cameras were put away, and virtue rewarded with a promptitude that does not always occur in this vale of tears—that afternoon Leask spotted our first Stitchbird's nesting hole.

of the consistent flying of a male up and down a certain reach of one of the dry stream-beds. For nearly ten hours that day we watched this particular Stitchbird, literally tracking him to his lair, cutting at intervals narrow ridges at right angles to his route, marking him pass and repass, and then repeating the process. At length, when early gloom was beginning to darken the forest, we found to our delight we had headed his line of flight, that he had turned inward to a lesser valley. Finally, Leask marked him for an instant mount to the rim of a cavity in a puriri limb. Shortly afterwards the bird was seen by both of us actually to enter the hole. Even then, however, so long had disappointment dogged our steps, and so accustomed had we become to the vagaries of the species, that we stumbled homewards in the gathering darkness not yet altogether certain of our find. Next morning doubt was dispelled; we had discovered the nest sought for so long. It was located about twenty feet from the forest floor, an arm's-length into a puriri limb, which had in former years been smashed by the fall of a neighbouring tree. The scar had healed, leaving a raised lip—a porch—of green bark, which perfectly protected the crevice from rain and soakage. Immediately overhead on another dead but sound limb rested a mass of astelia, which served as further shelter from sun



STITCHBIRD AND NESTING HOLE.

and rain. Lianes of various sorts hung from above—convenient ladders by which the birds could drop or could mount like agile monkeys with erected tails. The orifice almost immediately narrowed, so that a man's hand and arm could not be inserted without artificial widening of the hole, yet it was into this narrow dark tube that the birds could dive from above with tight-shut wings or emerge into the open with the velocity of bullets—doubtless their long cat-like whiskers help them in these remarkable feats. Guarded thus by a bulwark of the toughest timber in New Zealand, and safely concealed within the heart of a living tree, the nest was built. Its foundation was composed of sticks, some of which measured over nine inches in length, and were of the girth of twigs that Shags might have used. On this substantial base was placed a superstructure of coarse rootlets, manipulated to the desired semi-circular shape, then finer rootlets interwoven and intermixed with a very few small Robin feathers; lastly, the five pure white, shining, glossy, luminous, elegantly pear-shaped eggs were laid on an unmixed bed of brown tree-fern scale. Late in December this nest was found to be deserted, remnants of three eggs lying below the orifice. In the nest itself two remained, one incubated almost to chipping point, the other addled. On the lip of the hole was a tell-tale scatter

of breast feathers ; probably a rat had done the deed.

The second nest was in a tawa-tree overhanging a thirty-feet precipitous bank. Its entrance also was guarded by two folds of raised bark, lips that served to turn aside rain and wet. Three feet within the cavity in an upward slanting direction was placed the nest, which when examined proved to contain four young birds, their quills about a quarter or fifth grown. They looked as if when fit to fly the plumage of all of them would resemble that of the female parent. There was also one pure white, luminous, pear-shaped egg, which seemed to have slipped out of the nest and lodged in the stick foundation. That undamaged egg and those already described measured slightly under an inch in length. The foundations of this nest also consisted of sticks, one of which was between nine and ten inches in length and of an extraordinary thickness, weight, and awkwardness to have been lifted and placed in such a position. Both in this hole and in the other one examined, there were several distinct strata of stick, as if the foundation as required had from time to time been renovated and rehabilitated, one layer, I remember, showing a certain kind of mould that does not immediately clothe rotting twigs. On the top of them, as in the case of the first discovered nest, lay coarse rootlets, then



STITCHBIRD NESTING HOLE.

finer rootlets, interwoven with tree-fern scale, together with a small number of small feathers, and lastly, scale alone. Immediately beneath the stick foundation of this second nest the rooty humus was saturated with moisture. It was clean wet, however, without a trace of voided matter. Droppings noticed on the edge of the nest were contained in the usual sacs, which were doubtless swallowed by the old birds. Certainly they were not carried out in the bill. Indeed, on no single occasion during several weeks' watch was anything visibly carried in or out. Apparently the nestlings were fed entirely on nectar. Often after emergence from the nest the tongue of the parent bird was darted forth as if to cleanse the horn of the bill. Sometimes, too, I have thought I observed dribblings of a pure liquid fall from the bill, though it may have been gleamings and glancings of light reflected from the plumage of the restless birds. Often, at any rate, the bill is wiped on a bough or liane as if to get rid of stickiness. The small feathers also immediately beneath the throat seemed to be run together as if glued or gummed by some sticky substance. Droppings voided by the old birds in the vicinity of the nest were clear liquid. If the birds were agitated by any novel proceeding on our part, uneasiness produced on them the effect known to be caused by that emotion in other animals—evacuations

became more frequent. The third nest was placed some fifty or sixty feet high in the rifted branch of a giant puriri. The fourth, built in a hole in a splendid taraire, was also fifty or sixty feet above the ground. We were, however, so fully occupied with the more attainable nests that little was seen of these, and nothing noted worth repetition.

Whilst the hen sits, the nesting hole is not often visited by the male. When that does happen he will look in for a fraction of a second, raising himself from below until his head is level with the hole; then having fed her he will disappear. Incubation is undertaken altogether by the hen. I watched a nest for nine hours one day and for ten hours another day, and found that she left the eggs at intervals averaging almost exactly sixty minutes. Immediately after vacation of the nest cavity she relieved herself, the droppings then being solid and relatively large, as those of sitting birds are apt to be. She then vanished into the bush, probably being fed by her mate at some considerable distance from the nest. He also appeared to be in the vicinity—galumphing as he came—every three or four hours. The hen never remained away for more than three or four minutes.

Both parents attend their young, both carrying

in food, and both doubtless assisting in the sanitation of the nest. Usually one bird enters about the time the other leaves. Sometimes both are away together; sometimes both are in the hole simultaneously. When that happens, when the female is within, her presence can always be inferred from the diffident hesitancy of the male when about to enter. Of the two parents the hen is the more anxious and careful.

During ten weeks' sojourn on the island, except on three occasions no indication whatever was afforded of courtship, of nesting, or of the rearing of the young. These three occasions the reader will remember were firstly, the hen seen to be carrying a billful of tree-fern scale; secondly, the proffer to the hen of a berry; and thirdly, the carriage of a small grub or caterpillar. The nests of most birds carefully watched can be located by activity in conveyance of building material. The Stitchbird gives no such clue; one nest serves for years, the site of the nest for scores of years, perhaps for centuries, for who can tell the permanence of a rift or a chink in a giant puriri? The nest year by year is merely repaired and renovated—renovated, moreover, with material procurable from every yard of the island. At a later period again no clue is given. Nests of most species can be found by food supplies

visible in the parents' bills. The young of the Stitchbird appear to be fed entirely on nectar. Lastly, a big proportion of the nests are placed almost beyond eyeshot. Their discovery, therefore, is no easy matter. We were fortunate perhaps in the finding of the five.

VI.

THE NORTH ISLAND ROBIN.

THE Robin of the North and the Robin of the South differ little from one another. Both, when standing expectant of grub or insect, indulge in that curious palsied shake or shiver of the foot—a rapid stamp or twitch; both are tame and trustful; both make choice of the same type of building site; yet as there are dissimilarities, real, though not perhaps specially conspicuous between the plumage of the one and other, so there are contrasts of a minor kind in the habits of the species.

The North Island Robin, dark above and greyish-white below, in size slightly larger than the Robin Redbreast of the Old Country, haunts in a rather greater degree the interior of woodland areas, the heart of the bush where the biggest heaviest timber grows—the mighty puriri, the magnificent tarairi. He does not eschew its

filtered light, its green gloom. Unlike his relative of the south, he seems to have a less marked preference for the fringes of the bush, where luxuriance of growth often deteriorates at sea-level into scrub, jungle, and fern, and on the high tops into alpine flora, rooted in peat and sheltered by naked rock. The North Island bird, too, seems to be rather less tame. Certainly it does not trust its nest and young quite so generously and unreservedly into the keeping of mankind. Huts and disused outhouses well adapted for building purposes, which in the south would undoubtedly have been utilised, are neglected. Crumbs, too, are not, I think, picked up quite unhesitatingly—without at least a due degree of inspection. The egg of the North Island bird is in my experience rather less elongated. The male bird in the north sings from a greater height; the female is a little more shy, her habits a little more furtive.

The most noteworthy dissimilarity, however, in the two species lies in their vocal powers, in the volume and variety of their song. In fact, since discovery of the glorious singing of the North Island bird, the small attention bestowed on it by New Zealand field naturalists has never ceased to amaze me. None have alluded to it with special praise, yet I say unhesitatingly that I have never heard from any other New Zealand



NORTH ISLAND ROBIN.

bird, or indeed for that matter from any English bird save the Nightingale, such delightful bursts of prolonged continuous song. My first knowledge of the North Island Robin was in the back country of Poverty Bay, where, in the late 'nineties, a considerable number still survived. Thereabouts Robins did not haunt the huge sheet of forest then spread over the highlands between Gisborne and Opotiki. They were to be noted rather in the narrow belts of tall manuka, and amongst the woods less high and less thick of the more open countryside. In these glades the males would sing at a surprising distance from the ground, pouring forth their song from the topmost branches of considerable trees. I remember on one occasion a male singing in warm soft rain for twenty minutes at a stretch. I have known another, so preoccupied, so engrossed, that attempts to bring him near did not appreciably distract or cause cessation of song for more than a second or two. Nearly as often I have listened to singers perched only a few feet from the ground. In the case of a bird thus in full view every motion could be noted, the tail quivering with excess of emotion, the inspiration ceasing only momentarily, ceasing only when from time to time the perch was changed. On many occasions my wife was with me during these delightful concerts. Comparing experiences on the spot,

we came to the conclusion that some of the notes were as mellow as those of the English Thrush. Sometimes, too, the song recalled that of the Canary before it breaks into trill; sometimes it resembled the beginning of the English Robin's song. There were interrogative notes like the high parts of the Grey Warbler's pipe, and more rarely a sibilant note. These outpourings, as I have said, lasted up to twenty minutes, with only brief intervals of silence whilst the bird changed its perch—twenty minutes be it noted, not estimated by guess-work but timed by watch. I cannot indeed but think that these Robins of the Poverty Bay back country may have been specially gifted, for otherwise the reputation of the North Island Robin would have swallowed the reputation of all other New Zealand singing birds, as the rods of Aaron swallowed those of the magicians of Pharaoh. Such music once heard could never have been forgotten; field naturalists of early days could not have overlooked it. Fifteen or twenty minutes of uninterrupted song are woodland episodes too rare and sweet not to impress themselves indelibly on the listener's mind. That this clan of North Island Robins was endowed beyond the average was certainly corroborated by my experience in Little Barrier. There the Robin's song, though pleasant and though superior to that of the South Island species, never reached

the sustained power and passionate melody of the Poverty Bay race.¹

Nests of the North Island Robin were, in Poverty Bay, built in situations not normal, the type of site most desired by the birds being unobtainable. One which I got in October was in the heart of a shrubby low-growing carpodetus. Its architects, failing the propitious shelf, had used as substitute the sound mud foundation of an ancient English Thrush's nest. Three perfectly fresh eggs had just been destroyed by rats or weasels. The sitting bird, too, had probably been killed, for abundant dark feathers lay scattered beneath. Alas! that exquisite music now is mute, the green woods are no more, the birds are gone. There are a few more sheep in the world, a few more cattle—surely God must wonder at the relative values we put upon his creatures. The generations to come have been despoiled of something precious and irreplaceable.

¹ Although the above is an extreme case, there is nothing remarkable in the variation of song in different localities. The notes, for instance, of the Tui of the west coast of Stewart Island differ from the notes of the Tui of Hawkes Bay. I have listened in vain for that "organ note of surpassing richness" credited to the New Zealand Crow by one observer; for that "flute-like note" attributed by another to the Saddleback. As in song, so in degree of shyness are there great variations in races of the same breed. The Banded Rail, for instance, is in the north an exceedingly shy and wary species, yet I have reason to believe it to be quite the reverse, strangely and remarkably tame indeed, on at least one very limited area.

In Little Barrier Island, where the Robin—though not this singing strain—is still plentiful, we witnessed in one particular pair, courtship, construction of nest, care of male for female during the nesting period, feeding of young, and finally, widowhood of the surviving parent. Courtship was already in progress during the first week of October, the cock from time to time offering small worms and small caterpillars to the lady of his heart, and she receiving them with drooped frame and flutter of wings. It was interesting to note the selection of material for the nest; it was chosen, not like a man shopping who takes the foremost article offered, but like a lady of mind and means who tries and tests. With her feet set and braced like a dog pulling at his master's stick, the hen would tug and strain at the dry brown aerial rootlets of tree-fern trunks; only the soundest stuff would serve her purposes. A dusty tangle, naturally strung together with cobwebs, was always an attraction, and could be steered nestwards with wonderful exactitude. On one occasion, whilst the nest was half constructed, she managed, like an animated kite, to trail behind her a yard long mass of web, amongst which dangled leaves and brittle husks of twig. This long-drawn train was navigated successfully through intricacies of greenery, sere tree-fern fronds, and jagged bark of all sorts of intervening



NORTH ISLAND ROBIN'S NEST.

brush and bough. Suitable sticks and bits of branch were grasped by their centres, thus minimising the chances of jar and jerk. Fragments of twig-tip, chewed as a preliminary into the shape desired and perhaps afterwards oiled, mouthfuls of moss, dry leaves, soft grey pappus of shrubs and creepers, were also carried. As the work proceeded we could see her seated within the nest bulging it out with neck and breast, sewing and tucking in frayed fibre and web. To ensure the proper shape, she would half-circle first one way and then the other. At a later stage, with the nest reaching completion, still sitting, she would spread her wings nearly to the full, and with weight and force beat down the edges smooth and firm. The male bird meanwhile occupied himself in the collection of food, from time to time calling his companion away from her labours, and at a few yards' distance regaling her with various insects, hard-looking brown grubs and caterpillars. On 19th October eggs had been laid, their number unknown, as we feared to disturb the bird. This nest was plundered by rats. A second nest containing eggs was found on 6th November. It also was destroyed. A third was found on 23rd November with two eggs. These hatched out, for on 10th December a pair of youngsters had chipped the shell. This third nest was likewise ruined and the hen killed,

for we found over the dead brood the tell-tale pluck of feathers that mark the handiwork of the rat. For weeks afterwards we used to see the solitary male as we passed up and down the creek which served as our trail inland. These three nests were placed within five and ten yards of one another, and were the property of one pair of birds. In spite of early disaster, they had chosen to stick to the area—a very favourable one—over which they had acquired rights; doubtless, too, the marauding rat after his first discovery, and still more so after his second, was aware of the fact, and laid his plans accordingly.

The first of these ill-fated nests was arranged on, rather than secured to, a flat projecting kohekohe bole, deeply shaded by fronds of the silver-backed tree-fern. The second was established on the surface of a considerable limb—also a kohekohe,—broken but not wholly wrenched from the parent tree, and still green-leaved and full of sap. On the broadest portion of this split, the nest was seated rather than built, the space of several inches betwixt its inmost edge and the main trunk being blocked and wedged with stiff brown leaves gathered from the ground. There they stood close-packed like upright shingles or layers of paling one against another, making the nest appear large and cumbrous. The third nest built by this unfortunate pair was likewise

placed on a sort of shelf formed by an accumulation of the midribs of tree-fern fronds consolidated by decay and rain. A fourth nest belonging to another pair was planted on a similar site, a gentle incline caused by the break of a huge limb from a puriri. In its fall away nearly two feet of its substance had been torn out, leaving a dry ledge at right angles to the magnificent trunk. Upon this the nest was deposited like a tart on a plate, so detachable that in order the more easily to observe the parent birds in attendance on their brood we were in the habit of moving it to the ground and up again as required. Any flat surface, or shelf, or gently inclined plane with a back to it is favourably considered by the Robin; always on such sites nests may be looked for.

In the disintegration of many deserted and old nests the inner parts came out almost whole, as wooden Japanese bowls fitted one within the other can be detached separately. The outer layer was composed of fresh-pulled fibre, small twigs, skeleton and dry leaves, bark, scraps of aerial roots of tree-fern, sere fragments of fronds, lichen, moss, and living trails of polypod, arranged so that the green ovoid fronds lay flat as if clinging naturally. The second nest within a nest was a wrapping of soft green moss; the innermost cup of all, a mass of the dark-brown hair

gathered from uncoiling tree-fern fronds. In one instance one or two seedling plants of another kind of small polypod had been utilised in the structure of the exterior cup; the innermost lining, instead of the usual tree-fern hair only, had that substance intermixed with layers of soft frayed grass and carex. The edges of all Robins' nests are, as already described, beaten hard by the outstretched wings of the female, and firmly netted with spider-web. The hen sits closely; only the impudent obtrusion of a Pied Tit or the inadvertent approach of a Whitehead rousing her to anger and brief chase of the offender. Two or three times an hour during the progress of incubation the hen is called off into some convenient greenery, there to receive the offerings of the male, who, after feeding her, mounts high on a neighbouring tree and sings delightfully.

VII.

THE WHITEHEAD.

GIVEN the clue to a mystery, difficulties quickly unravel themselves. The particular mystery connected with the nidification of the Whitehead was the number of individuals in attendance upon a single nest. For a few hours indeed the solution seemed simple. It was easy to surmise that the newly emancipated brood of a first hatching were still—as happens in the case of the Fantail—importuning their parents for food; that young freshly fledged Whitehead nestlings—the children of an earlier marriage—were still being given snacks and tit-bits by kindly parents even whilst engaged in the onerous duty of rearing a second family.

This theory seemed, moreover, to be corroborated by the habit of wing-quivering during the transference of supplies from one member of the little clan to another—evidently an earlier brood were still soliciting their parents for food, evidently

still the parent birds were responding to their solicitations. Certainly it was difficult to imagine where first families had sprung from, for how could we have missed the foremost batch of nests so common on the island ?

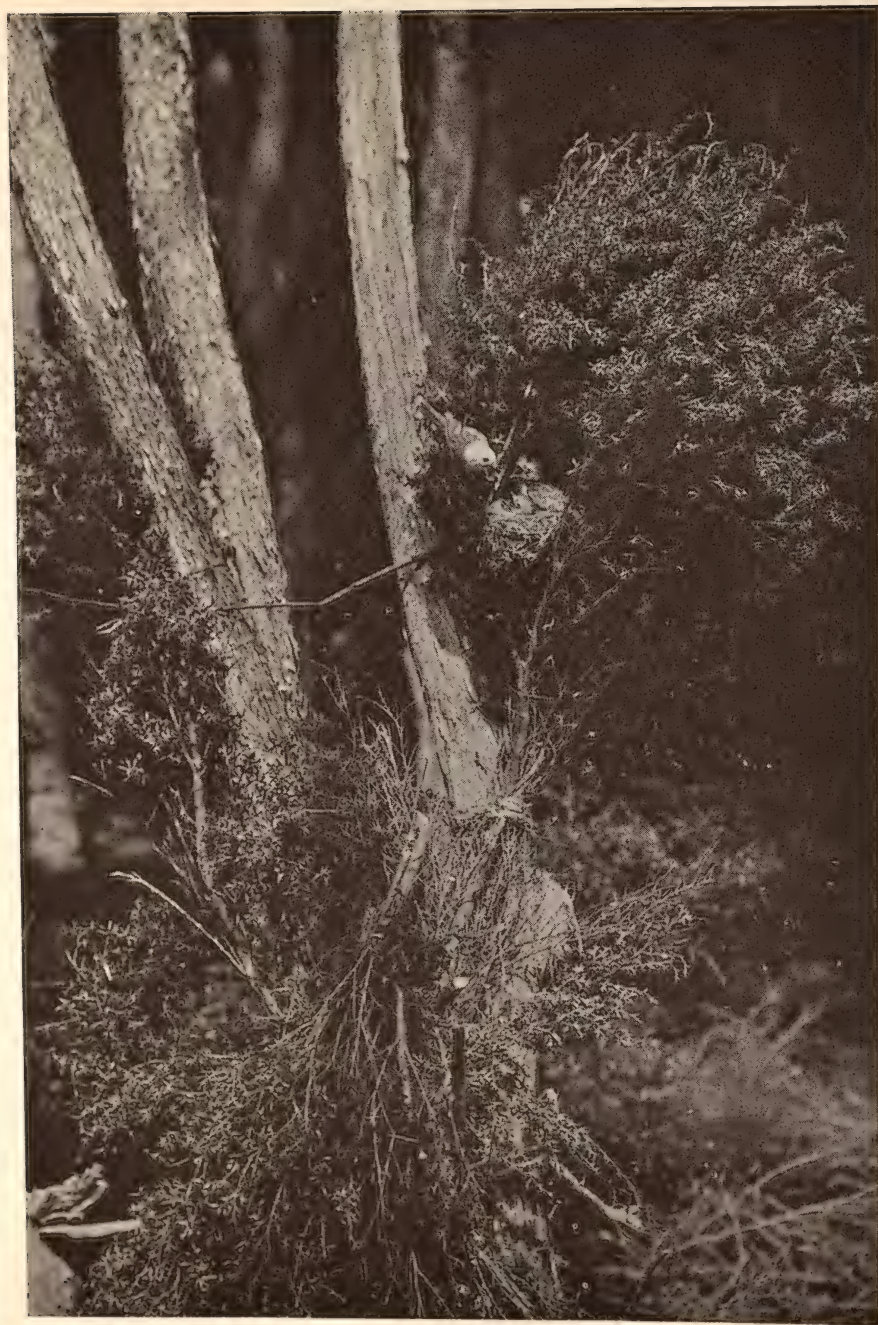
Our first solution of the puzzle was, however, soon discarded as untenable. Watching at the distance of a few feet, it became apparent that the birds busily flying to and fro were not expectant, tantalised, recently abandoned first-brood youngsters ; indubitably they were mature specimens of the breed. More leisurely observation, too, established the fact that the insects transferred from beak to beak by birds, at first inclined to be somewhat shy of the camera, were not immediately devoured as would have happened in the case of ravenous, growing fledglings. The food relinquished by the shyest member or members to others less timid was in all cases conscientiously carried forward, and placed in the gaping mouths of the newly hatched clutch of not many days' growth. We soon in fact discovered that our first nest under the camera was being run by at least three birds—four, we believed. Three were easily identified at one and the same moment by the difference in quality and appearance of food carried, by the different manner in which the legs and wings of moths, &c., lay in the bills of the respective birds. The identity of the



WHITEHEAD SITTING.

fourth, its relation to the other three, and its interest in the nest, was harder to establish, for when a single member of the quadruple alliance arrived alone, it commonly awaited the presence of a second and third shareholder, frequently of both, before proceeding to deliver the goods. Whilst waiting thus, the solitary bird occupied itself in cramming its already well-filled maw, jerking the latest layers into place with beak pointed upwards, so as not to drop the lower stratum of booty—much as a boy, face to sky, attempts to get a cherry into his mouth by the stem. Sometimes, however, as many species do, rather than waste time, the billful was swallowed, and the bird flew off to seek fresh provender. Again and again it was possible to swear to three separate birds, each definitely distinguishable by the insect wings, legs, and bodies in its beak; the fourth was the difficulty. It was a bird which appeared to be partly engaged in feeding the brood, and partly engaged in acting as outlook or scout. The plumage of the sexes being but slightly differentiated, it was impossible to tell if one and the same bird always acted guard, if in fact the responsibility of scouting was shared or was settled by arrangement or by chance. It was not until the youngsters were taken from the nest and placed on a twig preparatory to being photographed, that all four parents showed them-

selves simultaneously. The efforts of each of the four partners in the brood to distract and allure, their excitement, anger, and apprehension, then announced their parenthood as surely as Solomon's proposition to divide the child discovered the true mother. Later we had a second nest, also containing young, under the camera. As in the first case recorded, we were sure of the four birds, but could not actually identify them until as before the youngsters were handled. Then, as in the first instance, the four partners fluttered about the camera in a frenzy of alarm. A third case gave similar results. Besides these three nests actually under the camera, watched and photographed from the distance of a few feet, there occurred dozens of instances, where nestlings were observed, perched side by side in the bunched tops of the bare, spray-scorched, wind-blown kanuka. As with youngsters in the nest, it is difficult if not impossible in the dense greenery to particularise the parents. Even a third partner seemed sometimes dubious, especially as the nestlings were soon coaxed from our observation into thicker and more distant covert by the sight of food alternately offered and withdrawn. Twice, however, by climbing isolated kanuka-trees, securing the newly emancipated brood and placing them on the ground, the four parents appeared together at one and the same time. In addition to the



WHITEHEAD AND YOUNG.

three nests under the camera and the two broods brought down from tops of isolated trees or tree-groups, there were innumerable cases of families which we believed also were fed by four old birds.

Although, however, in the vast majority of cases a Whitehead's nest is run by a quartette, there do seem to occur cases where a pair may own a nest. One such, containing eggs, I watched for many days without seeing the slightest indication of ownership by more than two birds. I believe, moreover, that in manipulation of the nest for purposes of photography, I had done enough to excite apprehension, and to bring into view owners number three and four had they existed. On the other hand, there were eggs only in the nest, always estimated at a lesser value than young. The third and fourth birds may therefore not have been sufficiently concerned to show themselves. Again, what I viewed as interchange of duty between birds one and two may have been interchange of duty between birds one and three, or between two and three and two and four, and so on. Be that as it may, the vast proportion of Whiteheads' nests are administered by four birds, not two birds.

We never came across a family of more than three. Three was the number of youngsters photographed in the nests run by groups of four old birds. Three likewise was the number of

fledglings taken from the tree-tops, and immediately claimed as the property of four old birds. Three invariably was the number seen on the kanuka tops, where by-the-bye they offered excellent marks for counting, seated, as is their habit, cuddling close like love-birds. In our experience on Little Barrier Island—and it was an experience extending over weeks—a clutch of three eggs was never exceeded. One nest alone, already mentioned as owned perhaps by two birds only, contained two eggs.

Granting that the relationship between the small number of eggs laid and the large number of mature birds interested in the nest, rests on something other than chance, several questions raise themselves. Does each quartette consist of two pairs, male and female, or are there in each group three hens, each of which lays a single egg, and one cock? If there are two pairs—that is, two males and two females,—how does it happen that in these communal nests one of the females lays two eggs and the other one egg? What again is the originating cause of the strange partnership? Is it owing to the small number of eggs laid? Lastly, why should the clutch be a small one at all? Somewhat difficult to answer are these questions, because of the similarity of the plumage of the sexes; but watching the habits and customs of the breed, I thought I

noticed that in the quartette nests one of the four owners acted more or less as warden ; but then again might not each of the four have taken its turn to supervise the vicinity ? Again, was transference of the food which took place in the proximity of the camera due to the greater timidity of one sex, or were certain individuals, not necessarily of the same sex, merely less courageous than others ?

Although in the forest, both at high and low elevations, parties of Whitehead were from time to time noted, they were few and far between ; they were comparatively rare. It was amongst the tall groves of kanuka fringing the coast and in lower-growing denser shrubberies of manuka that these birds were most plentiful. These two species of scrub almost exclusively supplied them with insect food and nesting material. Orchard and garden stocked with alien caterpillars and grubs, ordinarily so tempting both to natives and aliens, were unvisited by Whitehead. Practically all food and all building material were drawn from the kanuka thickets.

The nest of the Whitehead is a fairly substantial structure, based on rootlets and small rough pliable kanuka twigs ; then comes moss, frayed grass, sedge, and thin strips of bark, intermixed sometimes and interwoven with a few skeleton leaves from a small group of Lombardy

poplars. The interior is composed of very finely shredded kanuka bark, the edges of the nest as trim and tidy almost as those of the Chaffinch. Nests are placed in a variety of sites: sometimes deep in the dense mass of twig and small pliable branchlet, dead or green, that darken the interior of the solitary young kanuka-trees of ten and fifteen feet; sometimes at similar heights in groups of the same species. Oftenest, however, woven with web and fibre into suitable forks and branch junctions, they are placed high among the naked, rough-barked, wind-blown thickets. The nest already spoken of as possibly owned by only two birds and containing only two eggs was situated but four feet from the ground. It was built into the interior of an outlying kanuka, young and dense. Another nest, run by four birds, was also low to the ground, not more than six feet from the boulders; it too was placed in a mass of dense, dead, and green shrubbery. Perhaps the better to blend with pendent lichen and loosely hanging bark, a sort of tail or beard is sometimes a feature of the nest. The eggs are white, sprinkled and peppered with brown. The newly hatched young are in the beginning fed on crushed insects, and when rather older on small moths.

Whiteheads are much troubled with parasites, the old birds constantly searching their feathers



WHITEHEAD AND CHICK.

for these troublesome pests, the young still in the nest spending long mornings preening and scratching. At a surprisingly early period they begin to stand upright in the nest and flap their little wings. Whenever they can grip the rough bark of the kanuka stems, they are encouraged to scramble upwards into the shade and shelter of the thick tops. There, immediately beneath the dense plane of green, they sit in threes, pressed close to one another. The old birds scale tree boles like the Rifleman, or mount upwards in alternate runs and pauses like Fern-birds on dry flax stems. Towards one another they are particularly sociable and friendly. Flying to and from the nest, meeting and passing, it is their custom to shiver wings in courteous greeting. Return to the nest, too, is always heralded by cheerful chirps and twitterings, audible at twenty and thirty yards. When, as not infrequently happens, one of the four is chased by a crabbed Tui or Bellbird, another of the little company will generally intervene to distract the foe. It is pleasant to be able to state that this amiable little species is plentiful on Little Barrier Island, and that there appears no reason why it should not continue so to remain on that ideal bird sanctuary.

In Mr Frank Hutchinson's bush reserve at Puketitri in Hawke's Bay, during ten delightful days in 1921, four old and two new nests were

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found on a strip of bush edge of nine or ten hundred yards. In this forest fringe, I believe, we located perhaps five lots of Whiteheads, each with a range of one hundred yards or so on either side. In this district the eggs of the Whitehead hatch late in November. One nest only, with young in it, was discovered. Watched from beneath there were no signs of more than two birds in attendance. As on Little Barrier, it was only apprehension of injury to the precious nestlings that assembled the four old birds.

My intention of obtaining the quartette on one plate, even if a faulty plate, was unfortunately frustrated by heavy, continuous, cold rain, which drowned the young. The Hawke's Bay nests were peculiarly picturesque structures, their exteriors roughed all over with curly, crisp, green moss of one particular sort. For preference these verdant ball-baskets were airily slung amongst loose trails of the smaller bush lawyer, the kind that tears the hands and face with innumerable minute cuts, and whose jagged teeth may well be supposed to baffle the approach of the Black Rat. The bases of these nests were in all cases solid and substantial, their interiors made soft and warm with pappus of clematis and bits of lace-bark, but chiefly with frayed, brown, dead bark of kaiku. The edges were firmly bound, almost

caked with spider-web, sometimes also—doubtless in appreciation of the preserver of their leafy sanctuary—with single hairs of wool; of course, Romney Marsh wool from the famous Rissington flock.

VIII.

PETANE SWAMP—THE BANDED RAIL.

THE Esk River in Hawke's Bay possesses two mouths—the normal exit by way of the Petane lagoon or inner harbour, the flood escape directly through the beach. By far the larger deposit of silt is carried directly out to sea, but often, especially during rainstorms from the east, hours elapse before the weight of accumulated water is sufficient to burst through the shingle and sand barrier. Until that occurs much flood water is carried into the upper end of the Petane lagoon, and deposited over several hundred acres of marsh and mud.

In certain lights the colouring of these swamps is gorgeous, immense ruby carpets of azolla crimson the surface, these carpets after showers bearing myriads of crystal-clear water diamonds. Vast beds of yellow cotula make a brave show. Stiff patches of ferruginous rush extend here and there over great areas. On the drier lands grow



BANDED RAIL, M. and F.

grey-green fields of sappy samphire, whilst almost in the soft mud of the crab-bored tidal creeks luxuriates the beautiful, open-throated, orange-blossomed marsh mimulus, like a good deed in a naughty world. The most common plant is a sombre rush. Of it there are many scores of acres—stretches in some places matted and deep, almost waterproof with the growth of many seasons, elsewhere after fires, thinner and more open. These levels are intersected by muddy sinuous creeks, quagmires so deep in ooze that waders up to the armpits had to be worn—garments excellent for the Aberdeenshire Dee in April, where I have found the coiled line stiffen between each cast and seen tiny icicles on the rod rings, but warm indeed when donned in a Hawke's Bay November.

This estuary in ancient days must have been full of Duck, Rail, Pukeko, Bittern, and other marsh birds. Now but a few of each survive. The survival, however, of any at all seemed a marvel, as day after day revealed the number of rats. Their innumerable wicked pads were thickly printed on the fresh mud; everywhere we found the eggs of birds destroyed, everywhere the shellfish devoured. In Hawke's Bay the harm done to bird life by the rat is greater, I believe, than the harm done by all other agencies combined.

During our first day's wallowing in the mire we got the new nests of four pairs of Banded Rail, in every case with eggs broken and destroyed. During our second day one nest was discovered containing whole eggs; they were cold and wet, the feathers scattered thick about the nest's edge, showing where the bird had been seized. During the third day four nests were obtained, each of them containing eggs freshly sucked. During the fourth day two nests were found with eggs newly laid and broken. On a later expedition we got eight more new nests containing broken shells. Our total bag was twenty-one nests of the Banded Rail, the eggs of eighteen of which had been destroyed by rats.

When our search began we had instinctively avoided the vicinity of settlers' houses. Before it had ended those rush beds in the propinquity of cottages and roads were discovered to be the most likely spots. Only three nests were obtained whole, sound, and warm, and each of these unspoiled clutches was in close proximity to human settlement, two of them near to settlers' houses, the third within a chain of the roadside. Nothing indeed could prove more incontestably the damage done by rats than thus to discover that the household cat had actually become a protection to this small species, a fact the more remarkable because of the cat's partiality for the smaller Rails. Not



BANDED RAIL NEST AND EGGS.



BANDED RAIL (M.).

once but many times I have been given birds thus captured and carried in alive; many museum specimens, too, have been obtained in this way.

With one exception, the nests, perfect or otherwise, were built preferably over water in very thick-matted layers of rush. The exceptional nest was built into a tall densely-tufted niggerhead. The nests themselves are rude structures composed entirely of broken, dry, brittle rush-stems. Above several of them, in addition to the usual natural protection, there had evidently been a rude attempt at bower-building. Green rushes had been pulled together, as the Pukeko gathers and entwines over its nest long grasses and tall raupo blades. Four or five eggs is the number laid. They are smaller than those of the Pukeko, and more rounded. The ground colour is light stone, handsomely marked with spots and blotches, ranging from dark purple to brown and faint grey. Spots are most numerous at the thick end of the egg.

From the heaps of droppings and from the appearance of the trampled vegetation about the nest, I imagine that the habits of this Rail resemble generally those of his relative the Pukeko. Like the Pukeko, too, the Banded Rail leaves his bath with a series of leaps and bounds; like the Pukeko also, he dries his wings by stretching them over his back, fully exposed to the sun. Of calls, by far the most frequent is one some-

thing akin to the pheasant's cheerful chirrup; another resembles in some degree the metallic chirp of the Fern-bird; another used when leading off the young, or in anxiety about the nest, is a cheep resembling that of a strong nestling. The breed is, in fact, quite hardy, and with ordinary care can be reared as easily as poultry. I have seen them thriving and rearing offspring in an aviary thronged with other birds. Though because of furtive and recluse habits the bird is seldom seen, its footmarks may be found on the mud of all suitable spots. Even on fern lands the breed is sparsely sprinkled over tens of thousands of acres. It is nevertheless rarely visible, never taking wing except when hard-pressed. Its slow deliberate flight in the open I have seen but thrice; on each occasion it was a lure to divert attention from the chicks.

The food of the bird consists of land snails, worms, and the insect life of slow-flowing creeks. The chicks are for the first few days perfectly black. If caught within an hour or two of hatching they evince no fear, and will feed from the hand, striking at food offered, in a most hearty active fashion. The Banded Rail is a species sure to survive by reason of its productivity, its habits of wandering, and its genius for concealment.



BANDED RAIL NEST AND EGGS



CHICKS OF BANDED RAIL.

IX.

THE BITTERN.

THE swamps and marsh land of Petane have for years supported a few pair of Bittern. From the beach road between the township of that name and Napier, one or more may sometimes be seen by those who know how and where to look. More often, wading furtively along the mud channels, or standing with bills pointing straight to the sky, they pass undetected. In the latter position, by the huge majority of wayfarers, they are regarded as snags.

During 1911, in the language of modesty, we were fortunate enough to discover three Bitterns' nests—really we had deserved them by merit and long-continued search. The site of the first was attainable only by a tardy, sticky passage through a slough of despond of most evil-smelling mud—except to one clad in waders the spot was unapproachable. Safe even from the human boy stretched a sort of Polynesia of small rush-covered

islets and rush bars. The particular quaking islet selected for the nest was surrounded on all sides by this black ooze. The nest itself was in the centre of a meagre rush plant, trodden almost flat by the great birds. It contained a family of five, a family so unbirdlike in appearance and with such unbirdlike notes that during the moment of discovery I stared wildly, amazedly, upon these strange live things—golliwogs, not birds—at my very feet. Their cold grey eyes, staring, protuberant, were the eyes of fish; their polls grew a thin crop of long, grey, wavy down; circlewise they sat with naked haunches pressed together. Their low pipe to one another was the thin quick drip of water on water. They were modelled on fish or frogs rather than on avian types. Immediately at sight of me they froze themselves into snags, each little head and bill pointing skywards at an odd angle. Disturbed and handled, the chicks—hatched intermittently, and now when discovered from one to five days old—opened their vast cavernous mouths, and lunged forward as if to strike, the biggest of all attempting to vomit up a small eel or “silvery.” From time to time, rather staggeringly, they preened themselves. Although hideous to look upon, they seemed nevertheless a very friendly little family—good but not beautiful,—cuddled close together for warmth and comradeship. On account of the youth of these



NEST OF BITTERN.

nestlings, and the probability of their getting chilled—we heard one of the parents booming in the distance, but otherwise there were no signs of anxiety,—the camera had to be withdrawn after the exposure of one plate. We then retired, and saw this set of youngsters no more.

The second Bittern's nest discovered was built within twenty yards of a road over which a big traffic rolled. At a slightly greater distance stood several cottages, so that proximity to settlement does not seem to repel the Bittern; perhaps, indeed, as in the case of the Banded Rail, the household cat may assist in the preservation of the species. The site of this nest was dry, the nest itself well hidden on all sides, concealed even from above by a growth of tall stiff rushes. Its construction, too, like that of the first found nest, was careless, the material used being such as grew about the immediate vicinity—rushes, flood-borne twigs, and dried grass. The five eggs, uncovered by the retreating bird, were of a pale olivaceous blue, unusually smooth on the surface, and somewhat blunt-ended. Over both nest and eggs was a distinct sprinkling of scurf from the body of the incubating bird. It was evidently anxious to return, and after our retirement we could observe from afar its cautious reconnoitring and approach. The eggs were much incubated, but even under these conditions it was over an

hour and a quarter before they were again covered by the suspicious bird. Observation of this nest too was relinquished, proximity to the road making it unlikely that we should succeed in obtaining the necessary seven or ten days' quietude.

A third nest was built on dry rush land, close to an extensive stretch of samphire. Within twenty yards of it was established another nest—that of a Harrier Hawk,—a fact inducing speculation as to whether, whilst the Bittern's full clutch was still unlaidd, the constant presence of one of its owners was required, or whether in the Hawk's mind the eggs were tapu with something of the divinity that doth hedge a king; whether the magic of proximity may have cast a mantle of sanctity over the Bittern's clutch. Had observation of these two nests been possible from the beginning, the question might have been solved as to the degree a predaceous species, through trains of association, will respect the property of another breed, probably a dominant breed. Though never to my knowledge used except in defence, the bill of the Bittern must always appear a formidable weapon; at any rate, I have seen it brandished with intimidating effects by a wounded bird. In the neighbourhood of this nest, well away from human traffic, we decided to erect a screen and to sap to within camera range. Whether we might or might not have been successful had



NESTLINGS OF BITTERN.

the advance been gradual, I know not. It was too rashly done ; the attempt failed. The Bittern as a species is shy, wary, and suspicious. Nests, moreover, are placed where blinds or screens of any sort are particularly conspicuous. Lastly, in the Bittern the organ of philoprogenitiveness seems to be comparatively undeveloped. In dealing with many species there are between seven and ten days during which the parents will endure much—days immediately before the eggs chip and days immediately after. The Bittern is not one of these long-suffering breeds ; it will readily forsake its nest or forsake it long enough fatally to chill the eggs or callow nestlings.

Our beats in searching these swamps, rush brakes, or samphire flats, were three-quarters of a mile or so in length. Throughout this covert the birds would run like pheasants before us, only rising when forced into the open. Though primarily a frequenter of marsh and swamp and unapt to rest elsewhere, yet on occasion these birds will alight on the sides of open-grassed hill slopes.

I am inclined to ascribe the remarkable snag-like elusive attitude so often to be noted in the Bittern as assumed in the first place, not for purposes of concealment, but in order to offer a minimum of resistance to the storms of his hunting-grounds—storms alike unavoidable and recurrent.

Only in the second place perhaps has the attitude been utilised to mislead and beguile. This belief is based on an incident once witnessed by me at Tutira, where half a dozen hens and a rooster had been caught in the open by a sudden sharp sunlit downpour of warm rain. In their tepid tropical shower-bath, before my astonished gaze they stretched themselves into what seemed twice their natural length, the rooster specially transmogrifying himself into one long line from beak to tail, a line exactly adjusted to the slant of the almost vertical downpour. Other species, then, when so minded, can assume the Bittern pose. In that bird only has it become habitual when immobility is desired. Devised originally to deflect the rains of the open marsh, of the unsheltered fen, the posture has at length become used on any occasion requiring statue-like stillness.

About estuaries, swamps, and marsh lands the booming of the Bittern may be listened for in early October. Breaking through the roaring frog chorus may be heard the occasional "spit-tock" of the Shoveller Duck, the long cheep of the Banded Rail, the rapid purr of its smaller relative the Swamp Rail, the petulant cry of the wakeful Pukeko, the wing vibration of flying Grey Duck, but most remarkable of all the deep sibilant drum of the Bittern, its fainter inhalation, and then again the resonant musical boom.



NESTLINGS OF BITTERN.

X.

PEGASUS—THE GIANT PETREL.

OUR southern trip of 1913 was favoured by excellent weather, and a journey by sea accomplished in three days that might quite well have taken a week or fortnight. Early in October Foveaux Strait was crossed for the tenth time, and the well-remembered and well-beloved hills of Stewart Island again seen in the distance. As we opened Half Moon Bay, the light began to fail, and dark had fallen by the time we clambered on to the wooden wharf, redolent of all sorts of savoury sea smells. At dawn the following morning on board the *Te Atua* we picked up, on their own quay, the brothers John and Albert Leask, who were to be my companions during the forthcoming expedition. The weather was again propitious, and after running past Lord's River, Break Sea, and South Cape, late in the afternoon we passed through Whaleboat Passage into Port Pegasus.

Ingress to this harbour may be compared to

that of the well-known Sounds of the west coast of the South Island. Picturesque, however, as it may be, the magnificent mountains and towering heights of the west coast Sounds are lacking. The several narrow entrances to Pegasus harbour lead direct from the ocean to vast expanses of deep still water. In one of its innumerable bays lies the tiny hamlet of half a dozen houses and huts, a small refrigerator for the preservation of fish, and a sawmill run by motor-power, used at the date of our visits chiefly in preparation of timber for tram-lines to the neighbouring tin mine. A certain liveliness—the phrase had not been invented then—was, however, added to the place during our stay by boats and fishing-craft anchored in the lee of the wooded islet that nearly closes the mouth of the little bay. Some of the houses are on its northern, some on its southern side. There is not a chain of roadway on the place; inter-communication is by boat alone. In other parts of the world men step ashore; at Pegasus they climb out of the ocean by ladders fastened to the cliffs that without a break edge the small cove. Pegasus is distinguishable from all other townships by the habits of its citizens. They arise perpendicularly from the ocean. They leap from sea-level to land. They are a pelagic folk. The ocean basin is a ship's hold, the surface of the earth its deck, and the perpendicular steps or

stairs by which each individual climbs, his own particular companion-ladder; or it may be that this little southernmost community, subsisting on fish and never venturing far from the sea that nourishes it, is really of Penguin affinity. Thus viewed, the perpendicular ladders may be considered simply as modifications of the original Penguin habit of leaping when about to land, directly upwards from the ocean.

We had heard of a small outlying colony of Giant Petrel or Nellies on an islet in the harbour. Before therefore proceeding south we determined to visit the spot—Nellie Island it is called. Even approximately correct local information about birds is so rare that it was gratifying to discover that the reports concerning the Giant Petrel were comparatively correct. The islet really did exist. It had, moreover, at one period actually been used for breeding purposes. There remained, in fact, relics of nests that might have been in use within two or three years. In all probability the Petrels—locally known as Stinkpots, and, I fear, without rhyme or reason treated as such—had been harried and driven away from their tiny territory in wanton mischief.

Although Nellie Island was itself desolate, there still remained in its vicinity seven or eight pairs of breeding birds established in a small contiguous bay. At the appearance of our new craft,

the *Dolly*, old birds in twos and threes began to fly off, until there remained probably only hens, parents of nestlings twelve or fourteen days old. Notwithstanding a careful quiet advance on foot, even they, when closely approached, scrambled off in ungainly fashion.

There is a time, as I have said, when many species will suffer near approach, risking all rather than desert their offspring: it is when the lives of the young, lacking mother-warmth, would be at stake. There are other times when the parent birds appear to be careless and callous: these are periods when their constant presence in the neighbourhood of the chicks can be of little or no avail. We happened to discover them in the careless stage. They were aware that their ungracious progeny could keep at bay the prowling Weka, the only foe which might at an earlier date have been supposed to be dangerous. Except as purveyors of food, the parent birds had now become useful only in shielding the chicks from such sun as could percolate through the tops of the scrubby trees, and in screening them from the sand-flies that do not willingly venture into the shade. They had been necessities to their young, now they were luxuries. Lacking pinion protection, however, and leaf-shade too whilst we exposed plates on them, the poor chicks were persecuted, so fiercely attacked by these insects that gouts



YOUNG OF GIANT PETREL.

of blood oozed from the base of every nestling's bill. Even so small-seeming a fact as the habits and peculiarities of the sand-fly may affect the larger inhabitants of the woods. These tormenting insects cease to feed about dusk; they do not rise any great height above the ground. Without venturing to affirm that the habits of Kiwi and Kakapo, which during the hours of light dwell in dark holes and cavities, may have thus originated, these factors may well have helped to accelerate change. It is easy to believe that as the disuse of their wings became accentuated, the craving for other escape increased. Be that as it may, that the Nellie chicks were able to look after themselves, though not perhaps very comfortably, seemed to be the opinion of the old birds. Except occasionally and perfunctorily to scan the neighbourhood, they evinced no particular interest in our proceedings. They believed their chickens thus temporarily deserted could fend for themselves. They knew, furthermore, it was out of their power to drive us from the beach.

The site of this small rookery, if it can be so far dignified, was a chain or two inland from an expanse of granite slab, by winter storms washed bare of peat and sand. The nests were at irregular distances: sometimes a few feet, sometimes a few yards from one another. They were shaded by the thick top leafage of gnarled bare-boughed

puheretaiko scrub. Above each great heap of dead twigs, pine-like dracophyllum needles, island grass, and débris of mountain flax, sat, ready to defend itself, a single chick. Nellie chicks must be approached with caution, for when startled they have the power of ejecting an oil from their bills, at first clear, but becoming with repeated use tinged with red, probably from food but partly digested. This liquid, which can be ejected several feet, judging by the caution with which Wekas approached the premises, is used as a means of defence. Though seemingly not a very terrible weapon, the mere knowledge that the chicks are dowered with some mysterious gift may suffice. At any rate, the Weka—for Weka—appear unwontedly diffident and unfamiliar. As the woodlands in the vicinity are miserably poor, the presence of this colony of food producers must have been vital to the local Woodhens, by whom all scavenger work is done, and whose nests are built within a few yards of those of their overlords. Besides half-devoured Kuaka, the prey of every Gull, Petrel, and Molly-mawk of the southern seas, all fatty matters ejected by the chicks were continuously gleaned from the edges of the nests.

Nellie nestlings have a curious habit of lying on their sides, one cheek pressed close to the rude nest, much in the attitude of a man asleep with ear close-pressed to pillow. I had hoped that at

sunset the old birds might return, and that we should witness intimate greetings and interchange of food. They never came. At last, in despair at their phlegmatic apathy, we hauled our anchor and moved off, not indeed without regret, but without enthusiasm for the breed. There was nothing ingratiating in the vomiting of the nestlings.

The day, nevertheless, had not been ill-spent. How indeed is it possible to misspend time in the wilderness? We had seen a little—a very little—of a new species, and could carry away mental pictures to be afterwards pondered on pleasantly.

Nets set in the sea-weed beds had yielded a rich harvest; our deck piled with fish in shape and colour previously unknown, we bade farewell to the southern end of the harbour. The cleaning and scrubbing of our catch, the swilling of our decks from time to time with water bucketed overside from the sea, the screams of Gull and Kittywake scrambling and quarrelling in the vessel's wake, half diving for liver and roe; the chat of the sailor-men over the chances of their craft, the mystery of fading day in a new land, the smell of the unpeopled tracts—each of them was a part of a glorious first experience of Pegasus at night.

The following morning we left for Kotiwhenu, and were not again on the mainland for many

weeks. In the interval we had been spoiled. During our second visit to Pegasus we had not time to readjust ourselves to want and poverty. On Kotiwhenu we had revelled in birds. Its area was so restricted that industry only was required for the discovery of every nest built. At Pegasus, on the other hand, the land was miserably poor, bird foods were consequently deficient, and birds themselves but sparsely scattered through its vast areas of timber. The very scope of the woods was a discouragement. A feeling of hopelessness was engendered by the prospect of penetration into their untenanted recesses. Penetration, furthermore, was exceedingly difficult; the branches of the low-growing scrub were rigid almost as wire, and advance possible on the high slopes only by means of axe and slasher.

In addition to lack of birds and difficulty of locomotion, I was uneasy on another score. The date of our departure from Pegasus was fixed by the sailing of the fish-boat returning to the Bluff, and gave me then only sufficient time to catch the liner taking us to England. Should we locate at the last moment the nest of an Orange-wattled Crow, its discovery would have forced on me a painful decision. This was our fourth season of search for the species. During two previous expeditions I had seen the bird; during each

I had failed to find the nest. Now at Pegasus on all hands we heard of it. Indeed it was principally because of the Crow we had fixed our headquarters there.

Every one of the residents knew the breed, we were sure of that; for though errors can be made in the description of many birds, the Crow is unmistakable both in appearance and habits. We were certain, therefore, that it bred in that part of Stewart Island, and by every open way searched for the elusive bird. Of these ways there were three—one, the overland route by Table Mountain and Paterson Inlet; another, the track connecting the settlement with the heights, where tunnelling for tin was in progress; and thirdly, the harbour itself, its bays and arms and creeks. In vain, trembling with hope and fear, we trudged the forest from daylight to dark; in vain we climbed the Remarkables; in vain we beat through the seaside scrub. We never heard or saw the Crow. We never did get the nest. I never did have forced on me the fateful alternative of renunciation of the study of the nesting habits of this long-sought species, or the forfeiture of five berths on the Orient liner *Orvieto*. Had, however, the nest been vouchsafed to us, I trust I should have been guided to the proper choice, and known where my duty lay.

XI.

KOTIWHENU.

THE weather continuing fine, we were advised to proceed on our way whilst such conditions lasted. We again therefore sailed south. No very definite destination was in our minds as the *Dolly* passed out of Pegasus harbour into the ocean. Neither of the Leasks nor myself had any knowledge of bird life in the islets we intended to explore; nor had it been possible to obtain from others information of any certain sort. I am bound to say, however, that our appetite for research was whetted by descriptions given. Evidently there was no lack of curious birds. Our crew, and indeed almost all of the local fisherfolk whom we questioned, knew of species about their coasts which, if correctly described, had certainly not yet been classified. I may say at once that we never came across these remarkable birds, though we thought afterwards that several of them might quite well have been the Goldfinch, the Starling, and the Yellow Hammer; the sun striking on the

plumage of any of these might indeed have excusably suggested adjectives not altogether extravagant applied to Birds of Paradise. Even a Sparrow multiplied in bulk, his browns made super-browns, becomes on the tongues of men unaccustomed to the descriptive art, and in the ears of men hoping still for undiscovered species, a bird of respectable plumage and exceptional aspect.

Thus ignorant of what we might or might not encounter, and with only unreliable descriptions to lead or mislead us, we determined to search island after island until one suitable to our requirements should be found. As the *Dolly* could only plant and transplant us whilst the weather remained calm, above all things it was important that we should not be stranded where rats were in possession. Time would have been wholly wasted, for where vermin have obtained a footing, as on Entrance and dozens of other islands, rarer species have been annihilated, and even sea-fowl decimated.

With mingled hopes and fears, therefore, but at any rate with the certainty that we should see much that would be new, we passed into the open sea. This belief was at once justified, for immediately we found ourselves amongst larger numbers of birds than almost I had deemed possible. We sailed alongside, and sometimes nearly

through, scores of revolving rings of Grey Petrel—Mutton bird,—some of the circles consisting of hundreds and some of thousands, but each apparently self-contained and not mingling with other groups. About the centre of each ring thronged birds in every attitude of motion and repose, some momentarily quiescent, gorged, others feeding in furious haste, till in their turn ousted by newcomers fiercely impatient for their share in the feast. There were birds on the water, birds about to alight on it, birds rising from it, all pursuing the same circular course, until each moving mass became a waterspout of birds, narrow at the base, wider above, its particles rapidly gyrating in the one direction. The hollow circle shape, or rather vase shape, for it narrowed at bottom, was due presumably to the constricted area on which the food was floating and to the wheeling drop to water of bird after bird in unending succession. There was no room for divergence of flight; each individual had perforce to follow his neighbour in a circular fall to ocean, and again to follow his neighbour in a circular upward rise. Birds ousted from the water by the crush seemed, after a moment's sidewise pause, to gather sufficient impetus to begin the round once more. From the food-supply centre they spun in wide and wider circles, far flung as if by some centrifugal force, each individual gyrating with desperate velocity;



MUTTON BIRD [Twilight and Dawn].



DAWSON'S PETREL (M.).

where thickest clustered on the base of the spinning vase, flight was comparatively slow; as distance increased, so proportionately did celerity of circumrotation. Except that man is a clumsy slow-footed creature, and except that football is played on the flat, if a tight scrum as enacted at Rugby in the 'seventies can be imagined revolving, with forwards bursting through in order to regain as rapidly as possible their proper positions, all likewise wheeling in one direction, some faint conception may be gained of the eagerness of each Petrel to regain the centre of events. Remarkable, however, as was the funnel-shaped mass of birds in outline, its aerial balance was no less amazing; wings were used only to break the fall waterwards and to rise. Once off the water, the birds, catching the wind, circled wide and wider, fast and faster, without beat of wings, without stroke of pinion. It was an exhibition of exuberant vitality consequent on stimulating food, probably in this case on extremely stimulating food, for birds are affected almost instantly by what they swallow. These Petrels were drunk with energy, mad with wild zest of life. For hours we passed through masses of feeding birds, each individual of each feeding flock seeming to adhere strictly to his own tribe or clan.

In due course we reached Kotiwhenu. There, after brief preliminary inspection, I decided to

remain—at any rate for a week. As a matter of fact, we never got farther. We could in truth hardly have done better. Species were breeding on it hitherto unknown to me. There were no rats, black or grey.

The *Dolly* anchored in deep water only a dozen boat lengths away from the cliff, and for further security moored to a convenient rock, the landing of our impedimenta was quickly finished. In less than a quarter of an hour cameras, bedding, and stores had been rowed ashore, and deposited above high-water mark. The anchor of the little craft was hauled, farewells shouted, and we were marooned on our island.

Kotiwhenu fostered an avifauna and flora not affected by the changes that have elsewhere transformed New Zealand into a second England. Its surface conditions remained as they had been centuries before, as they had been anterior to the last great migration of the Maori race. Elsewhere many kinds of native birds have disappeared; everywhere their numbers have decreased; elsewhere in New Zealand enormous changes have taken place in its flora. On our island, conditions were as they had been; there was no reason to suppose that birds were less plentiful, or that there had been any alteration in the relation of species towards one another. Certainly a few aliens, birds and plants, had put in an appearance;

their significance, however, as colonists was negligible. In no wise did they affect the original owners of the soil. As was to be expected, it was in the vicinity of the trodden ground in front of the huts that most of the alien birds were first noticed, and most often noticed. About this minute clearing harboured also such stranger plants as could withstand the climate, but thankful am I to say that none of these foreigners, animal or plant, have any chance of increase. Conditions were adverse, and likely to remain adverse. In other parts the Sparrow has increased. Here on our island the five or six pair seen on three or four occasions—always observed, moreover, on the little space of cleared ground in front of the huts as if clinging to the very shadow of humanity—were never suffered to remain at peace. Of us even they were exceedingly shy, upon our approach at once flying into scrub, where they were chased and harried by Bellbird and Tui. Nor did at night peace bless their rest, for then began the customary hailstorm of Petrel. The wretched Sparrows must have been jarred from their roosts by the fluttering of sea-fowl or struck down by their falls. They never attempted nidification, we felt sure of that. It was impossible on so small an area, searched daily by three experts, that nests so brazen in their effrontery could have been overlooked. For once, at any rate, Sparrows had

come to the wrong place. Starlings were in no better plight; like the Sparrows, they seemed quite unable to obtain permanent foothold. There was no suitable timber. Holes elsewhere that might have suited a Starling would also have admitted the little Kuaka, in which case Starling, nest, and eggs would have been summarily evicted. In any case, these holes would have been too damp for the rearing of young Starlings. At night, too, these aliens, wherever they may have elected to roost, must have been kept in perpetual perturbation. A single Greenfinch was noticed; Redpoles were seen thrice, each time in a different part of our domain. A brace of Goldfinch were also observed. There was not a Song Thrush on the isle. The only British species attempting to breed was the Blackbird. A nest containing eggs was found during our first day. It was afterwards deserted, having from its lopsided appearance been displaced by a falling Petrel.¹

On the few yards of open ground near the hut, cleared partly for light and sunshine and partly to facilitate the preparation of Mutton birds for market, nearly two dozen small stranger plants

¹ On an island in Paterson Inlet we had on another occasion got the nest of the Hedge Sparrow, and on the mainland at Port Pegasus had seen the Yellow Hammer, a species we were assured had arrived during the year of our visit.



MUTTON BIRDERS' HUTS, KOTIWHENU.

had managed to make a settlement. With one exception, these weeds had reached the island as stowaways; the potato excepted, none had been purposely imported. Some of the adventurers had been hidden in sacking or plastered in the soil glued into the eyes of potatoes, or on men's boots or clothes, or in the planking imported for the little huts, or ridden loose in the dust of old ragged bags. Aliens growing on Kotiwhenu at the date of our visit were—some of them are represented by a single plant—cock's-foot, Yorkshire fog, *poa pratensis*, sweet vernal, rye-grass, tall fescue, white clover, plantain, *vicia sativa*, capeweed, sorrel, dock, mouse-ear-chickweed, pimpernel, sowthistle—very rank and luxurious—wall speedwell, *polygonum aviculare*, shepherd's-purse, and pearlwort: these plants had got thus far at any rate on their march to the South Pole. The potato had managed to propagate itself from peelings and tubers thrown aside. We found it growing vigorously on the rich, oil-saturated, highly manured peat in the immediate neighbourhood of the huts, tuber-ing freely almost on the surface.

Kotiwhenu is wholly surrounded by cliffs. In shape it is roughly hog-back, the highest point reaching perhaps a couple of hundred feet. Almost everywhere the surface is covered by peat. Nearly half the total area is bare of undergrowth of any kind, and exposes a surface of bird-worn brown,

as of a gigantic wet rabbit warren. Especially were the lower slopes so perforated by burrowing Petrels that it was impossible to tread without breaking through the surface. Thereabouts, growing out of the bare peat, flourished low, thick-set, gnarled, hard-twiggged, rigid tupari woods, their gaunt grey stems naked to the neck, their leathery foliage borne on the topmost twigs, able alike to endure the buffeting of winter blizzards, the drift of salt sea spray, the bird tunnelling about their roots. They were of different ages; there were strips and patches in the last stage of senility, starved of sap, bearing depauperated leaves with no signs of young suckers or shoots or other token of rejuvenescence; there were spinneys of well-grown specimens in their prime; elsewhere again were to be seen healthy saplings. The plant at any rate renews itself from time to time in small irregular areas. Above the steep slopes, on the crown of the islet, grow ironwoods several feet in diameter, sprawling along the ground ere they send up leaders, creeping ere they can stand upright, as is the habit of this southern species. Amongst and beneath them flourished trees of lesser size. Here and there on the island were scattered groups of shabby-looking, loose-rooted tree-ferns, over-manured and undermined, unhappy at the perpetual disturbance of their sparse roots. There were thickets of island grass,

where scrub had been cut for firewood, but even here tupari seedlings and young trees of other sorts in lesser numbers and luxuriance were thickly reappearing. There was not a cabbage tree on the island. The giant nettle was rare. I do not recollect the black vine, often so abundant on the fertile peats of these islands of the south.

The deeper the blanketing of peat, the more suitable does an island become for Petrel. Because Kotiwhenu was a peat island, large portions of the surface were worn bare by bird traffic—seedling trees, grasses, and ferns trampled down and worn away.

As on all “birding” islands, paths—of a sort—were numerous and fairly well defined. A main track more or less free of fallen trees circled the island. Other routes of a foot or two wide opened up the points and peninsulas. Perpetual stooping and crawling, so tiresome on the mainland, was unnecessary. Conditions were indeed almost ideal: insect pests were absent, there were no sand-flies by day, there were no mosquitoes by night. Blow-flies were unknown, we had no anxiety as to provisions, we had no trouble as to blankets hung out to air or left on the bunks.

The weather was extraordinarily changeful. Sometimes in a single day we experienced every vicissitude marked on the meteorological chart—

blue sky, dull, cloudy, overcast, foggy. The sky was even for periods cloudless. The rainfall was small; on comparison it proved to have been considerably less than that of Port Pegasus, where I had left a rain-gauge. That there may be a dry belt south and east of Stewart Island is borne out also by the reports of friends camped from time to time on the Snares, on several occasions the weather there having proved relatively dry, whilst heavy rains had fallen on the mainland of Stewart Island. None of the islands immediately south of Stewart Island rise to any height above sea-level; they are consequently unswept by clouds that retain their moisture till reaching higher lands. After previous experience of weather south of Foveaux Strait, water was an article about which I had not troubled, yet had it not been for half a dozen tins supplied by a chance fishing-boat we should have been seriously inconvenienced; instead of the anticipated brimful barrel, we had water enough only for our simple cookery, barely enough to rinse properly the photographic plates, and almost none at all for washing ourselves. There was but one abbreviated peat burn, oozing from slopes honeycombed by Petrel burrows and running a shallow course of forty or fifty yards over rocks washed bare by winter seas. Its dark stagnant pools, reminiscent of midden overflow-

ings, were now in addition during summer blocked with the carcasses of Petrels in every stage of decay—a gruesome stream indeed. There were two water-holes near our whare, both unfit for use in summer during the height of the breeding season. Their stagnant water was so full of matter in suspension that my plates, even after rinsing in such rain-water as was available, had, on arrival at Tutira, to be rewashed. This want of sufficient water was, however, but a minor ill; it was a delightful variation from the unending blizzards of hail and sleet experienced in the centre of Stewart Island, where in other years we had lived for months in our waterproofs.

There lay diffused over this blessed island, too, a balm of deeper healing to the spirit than glow of warmth and sunny skies. We dreamed no awful auguries of ill; we wakened in the mornings with easy minds and happy hopes; our island was guiltless of rats; there was no risk that the labour of weeks might be undone by these thrice-accursed brutes; there was no risk to the security of nests under observation. We were beyond the daily perturbations caused by newspapers, by the perusal—we devour them with our morning meal, and I have thought what a healthy wholesome tonic they must be for the day—of famine, accident, disgrace, and greed, paid for as pleasant things, gathered as orchids are gathered for our

gardens and conservatories from every quarter of the globe. Lastly—and without it the expedition would have lost half its savour,—I had the tireless aid of two first-class mates. The Leask brothers, John and Albert, were born bushmen and naturalists, and their genuine pleasure in the work added much to my own.

Kotiwenu, for its size, was more thickly stocked with land birds than any spot of ground I have visited. The exact tally of nests was speedily lost. We must, however, have known of a score of Bellbirds, of a dozen Tuis, of fifteen or eighteen Robins, hatching eggs or feeding young. Of Morepork nests—searched for by me elsewhere for years and still unfound—we got two on the island; whilst, on the principle that it never rains but it pours, I got a third immediately after our return to Pegasus. We had also four Saddlebacks, three Bush Wrens, and two Sea Hawk under observation.

Yellow-fronted Parakeets, a breed I had already photographed in Stewart Island, were fairly plentiful. On Ulva during the month of March I had watched them at close quarters. Now on Kotiwenu as early as December I found them in occupation of their selected tree holes. Courtship was in progress, and more than once the crowning act of courtship noted. Apparently, therefore, holes are selected some time previous

to extrusion of eggs ; maybe the more experienced pairs take possession of good sites, and thus ensure certain accommodation for use at a later period. During the hours of light, and especially about noon, Parakeets sit cuddled together in the green shade of tree-tops ; their holes throughout the day are unvisited and untenanted. As darkness approaches the pair fly nestwards ; with her mate's sanction—his approbation and encouragement indeed,—the hen leaves him and enters the hole. There then take place further lengthy confabulations, lovers' last, long, lingering good-byes, she with her head only peering out of the crevice, recollecting everything at the last moment, like ladies risen to retire for the night—like ladies cramming their real news into a post-script—he, on a near-by branch, gallant, subservient, courteous to the last, but longing to have it over and get to his quiet cigar and tot or their ornithological equivalents. At last she retires, and he flies off to some safe perch in the woods, leaving her alone in her hollow tree trunk. Four nesting holes of Parakeets were found, and twice we witnessed the strange nightly partings of the little couples.

Though failing to secure the nest, we found the new-hatched brood of a pair of Banded Rails, one of the two pairs on the island. On the other hand, birds, elsewhere plentiful, were scarce. There

were but three pairs of Fantails, one pair of Grey Warblers, one pair of Yellow-breasted Tit, one or perhaps two pairs of Weka. Once a small party of Brown Creepers were noticed—stragglers from the mainland, we believed, as they were not again seen. A single Kaka, perhaps hurt and afraid on account of the Sea Hawk to venture across the intervening sea, lived alone on the tall ironwoods. Once high in the sky I saw a Harrier chased by a Sea Hawk. A few Kittywake and a few Black-backed Gull exist on sufferance. When noticed, they are swooped upon by the fierce Sea Hawk, and hunted off the premises. There was no shaggery on the island, but during calm weather a few Pied Shag roosted in the limited shelter of our landing-place. The only glimpse of any other kind of Shag was afforded by solitary representatives of a breed unknown to us. One of these strangers, passing up the gut of water dividing Kotiwhenu from another islet, was greeted, we thought, by an unamiable chorus from the Pied birds. They resented the presence of a stranger even on the confines of their territory. The Blue Penguin or Rockhopper bred with us. Their eggs, placed on unattainable cave ledges, we could see though not touch. We could mark, too, from the cliffs above, through the clear sea water, the subaqueous approach of the old birds. The Yellow-eye breed was not seen, but once

whilst I was fishing from the rocks three Tufted Penguin landed within a few feet, and, literally brushing past me in the most delightfully friendly fashion, scrambled up the rocks, and walked with an air of possession into one of the turf-thatched igloos. There they stood looking at me with complete unconcern, drying and preening themselves, pleased to be out of the heavy sea that was running. From the assured manner of their progression over the slippery ledges this male and his two accompanying hens were well aware of the haven awaiting them. Lastly, three species of Petrel—the Kuaka, the Mutton bird, and, I believe, Cook's Petrel—were breeding in thousands. Besides, however, the pleasure of thus meeting old friends in new surroundings, there lived also on the island birds unknown to me till then—the Saddleback and Bush Wren; nor must I omit mention of the Sea Hawk, which, though known previously, had been hardly more than noted.

The island was interesting on another account. It was possible, I thought, to observe in the ways of life of several of its inhabitants incipient departure from type, changes small indeed in themselves, but which in time might be capable of producing new forms; perhaps, continued on the same lines through periods long enough, forms sufficiently differentiated to deserve the appella-

tion of species. Owing to local conditions there seemed to be occurring certain modifications of normal habits—habits that hardly strike us as requiring explanations when we are born to them, accepted with as little concern as are the daily miracles of light and growth.

One of the modifying environments was the nightly shower of sea-fowl, a fall which continues during the whole breeding season of the resident land birds. Thus on the mainland, where no fall of Petrel occurs, the Tui, the Bellbird, and the Robin, I believe, habitually build nests open to the sky. On Kotiwhenu the Tui's nest is placed where protection is afforded by stout, small, covering boughs, branched clusters of twigs sufficiently stiff to fend off a falling bird. More pronounced is the effect of the Petrel fall on the nesting habits of the Bellbird. Of the two dozen Bellbirds' nests known to us on Kotiwhenu, half were built in cavities and tree holes; the others, as in the case of the Tui, placed where other protection was obtainable. Thus in some degree the idea of shelter for their nests in tree holes and chinks is permeating this breed. The Bellbird is a migrant. Undoubtedly there is free and constant communication with the mainland; equally certain is it that a large proportion of Bellbirds of this region breed, not on the barren mainland, but on the islands fertilised by centuries of guano

—islands which are dunghills, and which produce insect food as from a teeming midden. Thus amongst the Bellbirds of these southern latitudes an alternative form of nest structure is gradually coming into existence. When all Bellbirds breed in holes we shall then term the habit instinctive, and so it will be if instinct is sublimated common-sense. Of the nesting habit of the southern Robin on the mainland I know but little, but all Robin's nests discovered on Kotiwhenu were built in shelter of one sort or another, beneath cornices of ancient dead masses of fern frond, beneath projecting timber, spots in fact where of necessity nests had to be built to ensure the preservation of the race.

Differences between North Island species, such as the Pied Tit, the Pied Fantail, the Blue-wattled Crow, and South Island species, such as the Yellow-breasted Tit, the Black Fantail, and the Orange-Wattled Crow, are insignificant. It is impossible now to discover how these minute variations have come about—why, for instance, the Tit of the North should be white-breasted, whilst the Tit of the South should be pale yellow or pale carmine? Probably some small climatic modification has given rise to other modifications, one of which has at last affected the coloration of the plumage, and thus made visible to the eye a change previously existent indeed, but hitherto

passed over because internal. There is in fact a constant tendency amongst septs of a species, under varying circumstances of food and climate, towards small dissimilarities in colour, size, song, and, I believe, too, in shyness of disposition. We have but to suppose the discovery of New Zealand postponed by a few thousand centuries, to imagine the arrival of ornithologists who note the fact that Bellbirds breed in holes; the transformation effected, the link gone, the process of change complete, the fact alone would remain. Should such an alteration yet take place, a hint at any rate will now have been registered as to the why and wherefore.

Another of these departures from typical habits—departures sure sooner or later to induce structural variation—seems to be displayed in the Bush Wren. Watching its way of life, many interesting speculations passed through my mind as to the result of the crowding of species on to yet unsubmerged portions of a sunken land mass. In the movements of this tiny bird, once more it seemed that I might be watching steps—adumbrations, at any rate—towards the creation of a new species. In the case of the Bush Wren it is indeed almost possible to show the positive, comparative, and superlative of change. We must first picture the bird as described in times prior to the rat and weasel plague. It was then com-

mon in the forests of the mainland, a climber of timber, almost like the Rifleman. We must next note the breed on some islet more thickly wooded, less heavily coated in peat, and therefore less densely stocked with Petrel than Kotiwhenu. Lastly, we must view it on Kotiwhenu, positively a ground bird. The factors of change are inability to escape from a limited area, and the increasing persecution of another bird. The Robin is the chief instrument by which nature seems to be shaping out a new species of *Xenicus*.

Before the arrival of the European, Robin and Bush Wren were alike plentiful in the forests of the mainland. Ample room was there, and verge enough for both in the woods that then covered the country. Food was plentiful, nesting sites abundant. It was impossible that the two species could clash, or that the one could affect the other.

We have now to consider conditions obtaining on the considerable island Te Puka, where Wrens are abundant. Though also a breeding-ground for Petrel, it is covered almost everywhere with ferns and sedge and ample undergrowth; only on certain slopes has the vegetation been eroded with bird traffic. Both Robins and Bush Wrens abound, but owing to the greater area of the land surface and the quantity of cover, the two species are not perpetually in each other's presence. The Wren is less furtive and shy. Though

never daring to venture far into the open, it has on Te Puka not yet altogether lost its character of a creeper. We noted Wrens many times six, eight, and ten feet up the scaly boles of several kinds of trees.

Among the Wrens of Kotiwhenu a divarication still more marked is apparent. Its huge proportion of bare peat, its surface vegetation stunted and worn by bird traffic, its comparative poverty of large trees and healthy under-scrub have already been described. Here the Wren hardly dares venture away from the low shelter of island grass and fern; it never dares to linger. It is ceaselessly pursued by the Robin. During the course of our visit no Bush Wren on Kotiwhenu was seen to attempt the scaling of a bole, even of a bole protruding from the midst of fern—no Wren ever mounted higher than the height of a fern frond.

To recapitulate: in the forests of the mainland, unmolested and with ample space, the Bush Wren—I have come across him on a few occasions—remains a scaler of trees. Circumscribed somewhat in acreage and in considerable degree molested by the Robin, the Wren has on Te Puka become less of a climber and more of a ground bird. On Kotiwhenu, owing to its small acreage and lesser amount of covert consequent on the greater Petrel population, the persecution of the Wren

by the Robin is incessant. It has ceased in any degree to be a tree-climber ; all its food is obtained amongst fern and sedge ; the species has become purely a ground bird. The food of the Wren in the forest of the mainland, where it searches the boles and crevices of trees, must differ from the food gathered on Te Puka, and in yet greater degree from supplies found in the thickets of Kotiwhenu. The wings of the Wren are fully used on the mainland, partially used on Te Puka, almost useless on Kotiwhenu. With modified habits of exercise and modified food supply, structural changes and changes in plumage may reasonably be anticipated. Given time, the island Wren of Kotiwhenu becomes a form ; given unlimited time, it becomes a species.

Another difference betwixt birds known to me in other parts and those permanently resident on Kotiwhenu—autochthones—was in the size of the clutches. Non-migratory species such as the Bush Wren and the Saddleback lay two eggs only. The Robin, too, lays but a brace of eggs, though elsewhere the number is from four to five. The island therefore may be considered stocked to the limit of food supply of these three species. Migratory breeds, on the other hand, such as the Bellbird and Tui, birds that can come and go as they wish, lay the usual number of eggs.

It may be that my premises are too circum-

scribed, too frail to bear so tall a superstructure. Speculations, nevertheless, on dissimilarity between species on island and mainland, and on steps and processes likely to terminate in fixity of new habit, are always of special interest. At any rate, the altered size of the Robin's clutch and the altered habits of the Bush Wren, consequent on proximity to the Robin, may supply hints to naturalists of wider comparative knowledge. Some ray of light may have been thrown on the genesis of the two-egg clutch and on the interaction of species crowded together through shrinkage of area and shrinkage of food supply.

XII.

TWILIGHT AND DAWN.

IN another volume some description has been given of the several Petrels noted by me on islands immediately north and east of Stewart Island. On them the Mutton bird was comparatively scarce; now, however, fifty or seventy miles farther south, we had reached the main breeding-field of the species. On Kotiwhenu, and on the larger contiguous bit of land Te Puka, they were visible each night in enormous quantities. Readers of 'Mutton Birds and other Birds' may recollect an account of the stately sailings of individual birds of this breed over Te Marama, of their long sweeping circles hardly broken by flicker of wing, of their huge aerial loops and coils, albatross-like in sustained evenness of poise. On Kotiwhenu, flicker of wing-tip was comparatively prominent; the points of the primaries controlling speed and direction visibly played the part of brake and rudder. With so prodigious a number of birds

wheeling and circling overhead, collision must have been otherwise almost inevitable.

As on islets visited in 1910 and 1911, the quantity of Petrel attracted landwards varied every night. Their numbers were greatest on perfectly cloudless evenings. With a sky overcast or even cloudy fewer birds appeared. Though darkness was always shrouding the sea before they came, the time of arrival, too, differed slightly from day to day. With waning light parties began to reach the land, to draw inwards to their island. From headlands we could watch them drifting restlessly to and fro in bands and companies low on the water; then as twilight deepened into dusk they would rise higher and higher from the ocean levels, until at last the forerunners of the flight were hawking and wheeling over and around the island. Meantime, even before a single bird had pitched, the island had begun faintly to wail and murmur. From a burrow here and a burrow there, already there had arisen intermittent snatches of strange tuneless chants. Now with the faster fall of Petrels from the sky—much as the congregation of an old-fashioned kirk follows the precentor's lead—bird after bird, pew after pew chimed in, louder and louder the commotion grew. From twos and threes, from dozens, from scores, from hundreds, from thousands, from tens of thousands of burrows, rose an intensifying babel of sound.

By fullest dark, from that lonely island a roar ascended to the sky—a roar like that of water chafing over stones, an unceasing comminglement of sound, hour after hour sustained, seething, simmering, bubbling, the strangest, uncanniest, most unbirdlike epithalamium. Difficult as these Petrel breeding-grounds may be of access, their attainment is worth the certainty of *mal de mer*, the risk of wreck. There to have been marooned is to have known a new experience.

On my first evening after landing, a lovely starlight night, there must have been hundreds of thousands of birds in the sky. So great, in fact, were their numbers that it seemed impossible there could be available breeding room for all, even though many of the burrows contain side galleries. It may be that the Grey Petrel does not reach maturity until its second year, and that therefore not all the birds seen were mated birds. Above the heights of our own, and even more densely above the highlands of the neighbouring island, they wheeled and circled like swarming bees. As stars play in the rigging of a storm-tossed bark, so they moved to and fro across the pale clear sky, crossing and recrossing each other's line of flight, wheeling and circling in endless gyrations and loops. We could never tire of watching them silently appear and as silently disappear, for, unlike bees filling the air with sound and unlike

the joyous call of Swifts over some grey, old-world cathedral town screaming as they fly, Mutton bird gatherings are perfectly still. There is about them the fascination of speed without effort or apparent driving power. As evening progresses, the more venturesome begin to drop on to the ground through the trees from above, or skimming direct on to the naked sides of the island, reach land on the run, fast flyers sometimes in alighting seeming almost to ricochet along the surface.

These different ways of arrival may perhaps be ascribed to a change in the vegetation of the islands of the south, a change perhaps from a vegetative covering of grasses and sedge only to a later type of growth, one such as now clothes the surface—scrub of fifteen and twenty feet. The method still practised by the majority of Mutton birds is the direct drop; the other—the later mode,—that of alightment about the cliff edges and progression centrewards, is followed by comparatively few. Those constant to what we may believe to be the old fashion, if haply not tangled on the twiggy tops, fall plump and solid with folded pinions. Should, however, a Petrel be caught on the tops—and it happens to scores of birds nightly,—no sign of terror is shown; it rests on the tupari-tops apparently indifferent for minutes together. No mortal astonishment or uneasiness is evinced, even though it may be

arrested with wings outspread or partly spread. Often and often have I listened amazed at the patient indifference of birds thus delayed in descent—a kind of trapping that would instantly drive a land bird wild with terror. The Mutton bird behaves indeed as if all attitudes of rest on land were equally uninviting, as if, lacking the support of the deep sea, all modes of quiescence were indifferently unalluring.

There is nothing, in fact, more extraordinary in the evening fall of birds than their air of dazed bewilderment on land. Having touched ground, whether by direct drop, flutter through tree-tops, or running alightment on naked peat slope, they move at random, purposelessly. For minutes together they will sit alone, motionless, then perhaps in an aimless way shift a few feet, even a few inches, and then again pause. Sometimes in a perfunctory manner a little dilettante scratching will be done; at other times for minutes together they will squat with head leaning towards a burrow—any burrow. In this stupefied condition they can be stroked with the hand. They seem, indeed, hardly in possession of their senses, and, as can be imagined, fall the easiest of prey to the Sea Hawk, who move about among them like butchers amongst penned sheep.

Watching their unconformity, extraneousness, and detachment to their new surroundings, I have

wondered if they can perchance experience something of the feeling of travellers landed at last after long tossing on the sea, when though on solid ground they still in fancy heave and slide. At any rate, for one Petrel that appears to retain its wits, running off with wings raised as if in pursuit of a definite object, hundreds appear dazed, silly, imbecile.

With birds thus congregated in scores about our door—beneath the very floor of our hut,—it soon became possible to disentangle particular vociferations from the general din, to interpret correctly such evil melodies as the supplicatory wailings for regurgitated food, the squally courtships punctuated with scrapings and scratchings, the caterwaulings of preliminary wooing, the tuneless consummation of courtship which happens not on the wing, as might have been anticipated, but more prosaically on the ground.

Except for darkness and the chance of scrub and logs, there is no difficulty in watching Petrel. They are indifferent to the presence of man, their scrapings, singings, and courtships undashed and unabashed by his proximity. It was easy, standing directly above the birds, to watch, in a pre-occupied pair, the abject solicitation of the one, the long retention of the coveted food by the other. In this interchange of pabulum the pair have the appearance of wrestling with their bills,

of fencing for position, the one grovelling before the other, as, for instance young Shags coax their stern-eyed parents. The suppliant had doubtless during the previous day guarded the burrow or incubated the egg; the other, the free bird I took it, did not with tyrannical intent withhold the food, but was probably only able to disgorge through the full excitation of certain muscles by solicitation and endearment.

On these southern isles the very number of birds confuse. It is difficult to concentrate on one or one pair; there is too much to listen for and watch. It often happens, moreover, that such concentration is disappointing, that perhaps after an hour's stare the individual from which for some reason or other much is expected dimly disappears into shade of log, or fades into unnoted burrow at the observer's feet. Then again, like no other resting birds, it is not sufficient to mark a specimen to its hole. Amongst Mutton birds that is no certain clue to personality or possession. In the ramifications of a burrow each of the side passages may, and often does, harbour a sitting bird.

The observer is, in fact, bewitched by opportunity. He finds recorded in his brain and notebook vague fragments, unassimilated sights and sounds, rather than exactitudes. Something, however, can be disentangled from this mass of material,

some light shed on the character of the Petrel. Individuals of many species of birds take a kindly interest in the conduct, the motions, the pleasures of their fellows. They are hurt by one another's distresses; they rush to one another's assistance. The most self-engrossed evince at least appreciation, sometimes of a hostile and sometimes of a curious sort, of the presence of others of its race. Perhaps there is hardly a breed where some germ of sociability, some seed of fellow-feeling—let it be merely challenge, avoidance, warning, or fear—cannot be traced. The Mutton bird, I do think, reaches the zero of cold-hearted heathenism towards his race. No interest is shown in each other's affairs, no curiosity. They pass within inches of each other, and neither seems to know. Were it not for the dread of the terrible rending beak one bird would, I verily believe, walk over another. They are as insensible of each other's presence as fallen leaves—as cold. Between the units of these frigid millions there is a great gulf fixed, a barrier unfathomable, impassable as that sundering the quick and the dead. Each pair dwells solitary in a vast gregariousness; each couple lives alone, self-engrossed in the pack. Nor can it be urged in extenuation of such self-concentration that the hundreds of thousands noted each evening are mere loose units or pairs of one immense throng. The wheeling circling multitude

is not a homogeneous horde. It is as dissoluble as any army into divisions, brigades, and battalions. We found, in fact, that the swarm of birds flying nightly over Kotiwhenu and breeding on its peat were composed of companies of varying size. It was an aggregate of almost numberless parties that, great or small, each evening drew towards the land. Though in close proximity, they did not mix, each company preserving its entirety, swinging slowly backwards and forwards low on the water until the proper pitch of darkness had arrived.

That the seemingly homogeneous multitude was indeed made up of a number of tribes and clans was corroborated by the conditions of the burrows. On one headland, or bank, or crown, or indeed locality undistinguishable by any particular outward sign, there might be newly hatched young, on another incubated eggs, on another fresh eggs, on another unoccupied nests, each company, big or little, possessing its strip of territory, its own particular private breeding-ground. We experienced, indeed, in our own proper persons the difference in date of egg-laying by those different communities. An accident having prevented the return of the *Dolly* at the appointed date, and other food having been consumed, we lived for five days on Mutton-bird eggs and chickweed. These eggs, white like manna on the surface of

the ground and as fresh, we gathered each morning only on certain spots. They had either been inadvertently scraped forth from the shallow side passages of ramified burrows, or been laid on the ground by hens unable to obtain entry to their own proper holes. There may have been, and probably were, on Kotiwhenu alone scores of clans of Mutton birds breeding at periods differing from one another by only a few days. In that great shop there might have been procured "fresh eggs," "new-laid eggs," "country eggs," and "eggs." Whether therefore feeding in mid-ocean, drawing in at nightfall towards land, or nesting in the peat, the vast seemingly uniform multitude is in truth broken up into communities, companies, bands, and families as pronouncedly as are the millions of a great city, where a man may live for years without knowledge of his neighbour.

Perhaps that affection and friendliness, so absent as regards the race, may elsewhere find expression, may find expression in the mated pairs. Lengthy farewells are at any rate exchanged between one mated Petrel and another. I remember one bird, inadvertently disturbed by me at dawn and purposely thwarted a second time, was still resolute in his determination to return, for a third time he scrambled up the steep slope of his newly vacated burrow. There, unmindful of my pres-

ence, into the dark wet hole he wailed his last, long, lingering adieux.

Evening entertainments on Mutton bird islands vary but little from night to night. With waning daylight the Petrel fall begins, the birds pattering through the leathery tree-tops or falling with a rustle on to—rather than into—spreads of pea-green brake and beds of sedge. This living rain continues most heavily whilst twilight—the longer southern gloaming—still lingers over the dim sea. With deepening darkness it tends to abate, the rain as it were moderating and falling only in showers. The advent of full night is announced by a screaming “te,” “te,” “te,” high-pitched, shrill, and of brief duration, the calling birds of a species we could never discover dashing wildly about just above the tree-tops. Scarcely has it ceased when, distinct from the bubbling, seething, simmering roar of landed birds, fainter and far, and high, high overhead there can be heard a sough or sigh. In its beginning this vast distant suspiration is a little sibilant, but presently takes on a humming vibrant note, as though a steady stream of air were passing through tight-stretched cords. There is a moan as of wind through stiff bare boughs, a going in the branches. We stood expectant of dancing woods, bent boles lashed with the gale, grey blurr of ruffled stiff-necked tupari-tops, a racing sea. Our ears warned us

of the storm about to strike the island woods, and set them swaying, yet moments and then minutes passed. The dew continued to fall, the smoke of our whare fire ascended straight. There arose no puff of ashes from the unswept hearth, no whirlwind stirred the broken bents. The calm of summer night endured. It was a confounding of the senses, "an elfin storm from fairyland," unfelt, aloof, mysterious. At our feet the leaves lay motionless; above our heads we heard the magic gale that never reached its goal, the rushing mighty wind that varied in tone from a soft swoosh to a more audible blast, as the airs of night caught and kept or carried the sound afar. Twice we were thus deceived; twice we ran out of the hut to note the threatened change of weather. Then what we had heard with our outward ears became part of our island experience; the far-distant, rapid, vibratory hum we learnt to recognise as beating of innumerable wings.

Above these unspoiled isles of the clean unpeopled south the hosts of heaven had come forth to stretch their wings, to sweep and swirl in rapture of untrammelled liberty, to play in their innumerable legions over the great deep. For the night they were rid of their endless bliss—oh, the heat of these weary golden streets! Oh, the blinding glare of these gates of pearl! The coolness of night was theirs again, the fragrant sea,

the starry dark. On clear calm evenings the soft swoosh, the soft roar of their flight, lasted for hours.

With the faintest break of dawn the callings and wailings and howlings and caterwaulings that had troubled the island began to lessen, and very quickly to cease. Birds, called to dry land by dusk, were now summoned oceanwards by returning light. The wet peat sweated them. Dazed with the darkness of their long imprisonment, brushing clumsily against the petty obstacles in their paths, in thousands they rolled like giant drops, or trickled like thin streams from the bare sides of the islands.

In the hour of departure, even whilst still on land, to many of them their first thought was of their wings. The pinions that so well deserved care were from time to time stretched aloft, the bird pausing in its progress to the cliff edge and vibrating the tips with the rapid tremor noticeable in newly hatched moths. To the last, Petrel as indifferent to fellow Petrel as stone to neighbouring stone, these grey ghosts of the grey dawn paused or followed one another in silent unconcern to the rocky bluffs. There, from projecting juts worn smooth by centuries of use, they fell into the air rather than flew away, one reaching the sea by a long glissade, then resting a while on the heaving deck; another dropping to sea-

level, and then rising buoyant from the waves with quick little steps, as gulls rise from stretches of smooth sand. Not the spirits of departed Maoris winging their way across the ocean solitudes, flying back from northernmost cape to the land whence the race has sprung, seeking their ancient fatherland, could seem more utterly alone than each Petrel as he falls from the cliff edge and spreads his pinions to the air.

At last the hindermost bird has gone; at last, after the babbling of the busy night, silence prevails—a silence so sudden and distinct that often it has awakened me. Then, perhaps also awakened momentarily, and as if cheering the event, each Bellbird greets the quiet with a note of inexpressible freshness. There drops from each sleepy bird, motionless amid the dewy leaves, one single silver note, exquisite, unforgettable, of a strange sweetness, of an almost magical loveliness after the discords of the night. It was as though the clamorous rout of Comus had withdrawn, and that the lady of the play, spotless and pure, “breathing divine enchanting ravishment,” had reappeared.

XIII.

BUSH WREN.

THE narrow tracks of the island have been described. Originally hewn out by "birders" for their own purpose and from time to time opened afresh, these paths were a boon to us both for convenience of travel and as woodland rides, across which no creature could pass without observation. It was in the light admitted by one of them that a tiny unknown bird fluttered its feeble way late in the afternoon of our first day. About the size of the Wren of the Old Country, and as inconspicuous in appearance, the small stranger proved on further acquaintance to be the Bush Wren of New Zealand.

It had been my good fortune heretofore to note so much of humour, kindness, good nature, and good conduct in our bird world that observation at close quarters of a new species never fails to raise pleasing anticipations. Then and there, therefore—in natural history there is no time

like the present,—I waited to see more of the stranger whose proximity could be detected by stir of the vegetation into which it had pitched, shivering of fronds, rustle of rough sedge. After many momentary, tantalising glimpses of the bird, which was feeding in company of a mate—I could hear them talking,—one of the pair crossed the path, affording a good view, and corroborating what I had suspected as to species. A few minutes later the second bird, evidently the male, followed, and at once became engaged in warfare with another male, these Lilliputians fighting only a few yards from the tree trunk against which I stood. There was something in the air of the victor and in the determination with which he hustled the trespasser off his domain which showed how keen was his desire for seclusion.

In the bird world, too, there are vested interests, and the tenacity with which an owner will uphold his rights usually gives him the victory in anything like an even match. I judged there must be some special reason for my small companion's wrath, and I was right, for by the time my mates had boiled the billy I had thrice noticed one of the pair disappear beneath a particular iron-wood bole. Farther than that I failed to follow the bird. The locality, however, was close to our hut, and during the next two or three days all odd quarter and half hours were devoted to the



BUSH WREN (F.).



observation of the movements of these particular Wrens. Thus we discovered there was certainly a pair, male and female, equally often to be found near the great log. Later again we were able to ascertain a certain route constantly followed. At last one eventful evening I spotted one of the pair bearing a feather in its beak flutter up into the gloom of a frond-hung trunk. For gladness, like the damsel Rhoda, instead of waiting to locate the exact orifice, I rushed off to announce to the brothers Leask the good news. Such happiness granted to mortal by the kindly gods was not to be recklessly dissipated by immediate enjoyment; it was to be frugally prolonged.

Nests of the Bush Wren are unusually difficult of detection, the openings into them even in good light almost imperceptible. Shaded by overhanging foliage and within a foot or two of the dark peat forest floor, they are wellnigh invisible. During search, moreover, care has to be taken not to trample the entrance to such tiny structures, not to block them with trodden fronds and undergrowth. There was another disability too—no mean one either,—we were like all pioneers in search of the unknown, ignorant of the type of locality likely to be favoured. As the British Wren often conforms its colour scheme to the browns of beechen leaf and brake, it had been conjectured that the New Zealander might like-

wise have blent its nest into the material of the rough rufous aspidium crowns. With unavailing care we looked for a dome built in the open; as a matter of fact, we were searching for what was not to be found.

Of the three nests discovered, not one of them was as we had imagined it might be. The first was built somewhere within the mouldering bulk of the huge fallen ironwood already mentioned. Half-way down its dark side, corded thickly with the brown-green vigorous roots of the spotted polypod, was the entrance to the nest. So small was it, even when compared to the size of the little builders, that they could scarcely enter, always having to haul themselves in by many minute, grasping, scrambling movements. The edges of the circular hole, shaded by great dark overlapping fronds, were firmly bound with fibre collected from the durable cores of fallen tree-ferns, its dull blue-black hue matching exactly the rooty coating of the log. The ingress to our second nest, found by John Leask after a search extending over the best part of several days, was even more difficult to determine. It was actually down a Petrel's burrow, an earthy cavern scraped out like a rabbit hole, a vestibule whose disproportionate size made utilisation seem impossible. Although repeatedly, therefore, the Wren was lost to sight in its proximity, none of us could credit



BUSH WREN WITH FEATHER.

that so small a creature would enter its nesting quarters by so vast a cavity. The Petrel passage was not, however, followed far, the Wren relinquishing it for some infinitesimal tunnel passing upwards into the roots of the fern clump which thereabouts covered many yards of ground.

A third nest was found in the rotting centre of a half-dead green tupari—a small tree which in its fall had been wrenched and twisted, and was seamed with longitudinal cracks.

Nothing at first did more to mislead us than the Wren's toleration of dampness in its nesting site. With most species dryness is a prime consideration: hollows, holes, and crannies in the least degree moist or clammy are eschewed. Wetness it is impossible always to avoid, but nearly all species secure as perfect drainage as possible, in rainy districts even seeming to select vegetation that rapidly dries itself. A musty air in the neighbourhood of eggs is in fact peculiarly objectionable. Not one, however, of the three nesting sites described was other than damp; one was actually wet. After every shower, into the nest in the ironwood bole, dry feathers were carried in and wet feathers taken out; after every shower in the nest built amongst the fern roots, wet feathers were replaced by dry. The nest in the tupari trunk was the most sodden of all, pressed, as it were, against green wet wood,

reached by a long moist hollow way, and with stagnant water lying within a few inches of the eggs. Into it also dry feathers were carried, and from it wet feathers removed. In the two nests examined there was, however, no mass of feathers ; only a sufficiency of blankets were worn ; only a sufficiency of feathers stored to meet weather conditions. The more dry ones brought in, the more wet ones to be removed, the birds may have argued. Maybe, too, hunted by their ferocious foe the Robin, they had not yet learned to accept their fate unrepiningly ; maybe, too, they were aware of their unmerited handicap in health.

We can credit them, perhaps in some blind confused fashion, deeming that it was no part and parcel of the original order of things that they should hatch their eggs in a musty atmosphere ; that it was no part of the original order of things that their neat nest, created to turn rain in the open, and doubtless to joy the little architects' æsthetic sense, should perforce be built in black damp dark. Type of nest construction, nevertheless, after the ancestral model—its craftsmanship passed down from happier days—was followed still. Though now a work of supererogation, senseless, since it could neither be seen by the builders nor withstand on behalf of their eggs and young the vicissitudes of climate—the chill



BUSH WREN (F.).

of night, the heat of day—the dome form of nest still maintained itself.

As in the case of species not commonly met with, forbearance was used in approach to and observation of the earliest discovered nest. It was a pleasant piece of self-denial not more than to glance at it as we went on our ways. Although rats were not, and the Robin and Morepork little likely to do more than bully and intimidate, we felt the fear that permeates all true love; a first nest is to an enthusiast more precious than to a woman her first-born. No attempt to photograph it was made until others had been discovered; its interior structure was never explored. The second and the third nests were, however, exhumed as carefully as might be, examined, and, I am glad to say, replaced without causing desertion. In each we found the entrance to the dome placed low on the side; in each, the stuff used lightly and loosely put together, the careless construction perhaps making such ventilation as was possible rather more easy, or the birds deeming careful art in pitch blackness a superfluous labour.

Fern débris, fibrous rootlets, feathers absurdly large and coarse, often bigger than the birds themselves, were the material used. These feathers were, curiously enough almost without exception, other than those of the Grey Petrel, the common

Mutton bird of the locality. Was this species not in the neighbourhood in the beginning of things? Was the habit of using only the feathers of another Petrel inexpungeably branded into the brain of the Wren ere the Mutton bird arrived? I know not; but those used belonged almost invariably to Dawson's Petrel.

On account of fear of possible desertion, the duration of incubation was not ascertained with exactitude; we believed, however, that the birds of the first nest were sitting when discovered on the 6th of November. On the last day of the month, when I plucked up courage to introduce a finger, the Wren chicks scooped out were judged to be about six days old. There was no down on them; their eyes were closed. Four days later their eyes were still mere slits. During incubation the parent pair changed positions on the eggs at frequent intervals; not only then, but long after the chicks were hatched, feathers continued to be carried in and out. The chicks—there were two of them—were fed by the parent birds on moths, flies, and daddy-long-legs.

The conversational note of the birds amongst the low vegetation, where their lives are passed, is a faint rasping sound, the noise of a small wrist-watch in process of winding. When alarmed or excited they utter a loud cheep.

The nests excised contained in each case two



EGGS OF BUSH WREN.

eggs—eggs distinctly large for the size of the bird. Each pair of eggs resembled almost exactly the other pair, in each case also one of the eggs differing considerably from its fellow. In both the ground colour was white, but whilst one was altogether clear of dot or blotch or hair like pencilling, the other was sparsely marked with strokes resembling in a general way squares and cubes.

At the distance of only a few feet, many hours were spent pleasantly, if not profitably, speculating as to the why and wherefore of the lives of these little Wrens and as to the enormous terrestrial changes that has forced innovation upon such tiny creatures. The activities of the breed are altogether restricted to movements two or three feet from the ground. They never stray more than a few yards from the tangle where safety lies. Even when close to his own nest, a proximity that endows even a timid breed with some sort of fortitude, I have watched the male wait and hesitate unable to harden his heart sufficiently to dare to make a forward move. The lives of the little harmless fellows are overshadowed by an enduring dread—the dread of the Robin. Passing from log to log, taking cover beneath each gloomy bole, they listen for the snap of its terrible mandibles; they cower before its swoop. Progression therefore over their short Sabbath day's

journeyings is accomplished mostly by discontinuous flights from tuft to tuft of sedge, from stool to stool of fern.

They are at least as active, however, on their legs as on their wings. The hop of the Bush Wren is a remarkable performance. However alike the bird may be, stuffed and stiff in a museum, to its kinsman the Rock Wren, the difference in their hopping movements in life distinguish them instantly and unforgettably. During the first saltatory movement the Bush Wren carries himself parallel to the earth; at the termination, however, of each leap he telescopes upwards on his toes, momentarily erecting himself in the oddest way to his full height. When the two movements are blended in rapid action, what with his whitish feet, short toes, long thin legs, and tightly folded body plumage, he resembles in no small degree a barefooted bairn running on the sands with tucked-up garments firmly fastened round the waist. He passes through the darkling underscrub like a forest gnome, like a woodland brownie.

In the island Wren we may see perchance a minute example of the pressure of species one upon the other in a congested area. We can picture the Wren as he was and as he is. By a very limited exercise of imagination we may visualise him, not confined as now to a few acres on a tiny island,



BUSH WREN (F.).

but ranging over the forests of a mainland ; not laying a clutch of two eggs, the sign of a failing, or at any rate of a curtailed, food supply ; his choice of building sites not relegated to damp chinks and cracks ; his domed nest not built in the dark ; his flight not limited to a flutter of a few yards ; himself during incubation not forbidden the warm precincts of the natural day.

XIV.

THE MOREPORK.

MOREPORK are more often heard than seen, and the birds themselves more often seen than their nests. It once happened, nevertheless, that in ten days I discovered three breeding holes tenanted by these Owls. Two of the nests were on the small island where we were camped; the third in the woods at the southern end of Pegasus harbour, nearly opposite the bare grey granite cones of Gog and Magog. The breeding hole most closely watched was a considerable opening, where, during some past storm, a branch had been wrenched from the main trunk. There during subsequent years a cavity had formed, the centre wood decaying, the ragged edges remaining firm and sound. Within the raised rim of this shallow cup brooded the female Owl on two glossy, white, round eggs. Thus sitting, she enjoyed a filtered shade such as attracts the wandering Moreporks so often found perched in our New Zealand woods



MOREPORK (M.).



Morepark (F.) about to enter Nesting Hole.

during daylight. Against the nest and over it, tree-fern fronds and green-leaved branches diffused a pleasant gloom. A rapid inspection revealed two eggs, evidently from their dullness much incubated. On our retirement the hen at once returned, and reinstalled herself. Doubtless at that time she was particularly careful of her eggs; they had reached the most critical stage. Next day, in fact, one of them had hatched; the following morning there were two chicks in the nest.

The covering of these Owlets was at first slate-grey, changing when the eyes began to open—about the sixth day—into a beautiful white down. Their heads were remarkable—extraordinarily minute, so small, in fact, as hardly to resemble heads at all, and doubly disproportionate in comparison with the enormous feet and legs. During our first day's work near the nest, prior to the hatching of the second egg, the hen when inadvertently disturbed had immediately returned, sometimes flying straight on to her nest, at other times pausing to utter a growling menacing note; sometimes, too, alighting a little distance from the nest, she would creep forwards in crouching, furtive, feline attitudes, crawling towards her eggs foot by foot with dilated eyes, like a cat in the act of stalking.

During the second day, both eggs having

hatched, so extraordinary were these movements, so seemingly uncalled for her excitement, that twice I put her off in order to watch her return. On the first occasion she flew back within a minute or two; on the second occasion she failed to return. The chicks began to stiffen with cold; the camera was hastily removed; we retired into thick cover. Still, however, she did not reappear. Minutes passed away; there was no course left except to dry-nurse the babies. There had occurred once more what again and again had previously happened. I had found for the twentieth time that a brooding parent will stand a first liberty taken, sometimes a second, but that normal habits and trains of association once disarranged sense of time and of responsibility ceased to exist. On this occasion had we not possessed maternal bosoms for the little Owlets they would have inevitably perished. Not until after four hours did the silly mother return, perching preliminarily as anticipated on a low branch near the nest. The babies were then immediately replaced, the masculine nurse withdrawn. A minute later we had the satisfaction of seeing the chicks mothered by their proper parent. She snuggled on to them with perfect unconcern. She had neither reckoned on the cold of the long hours' exposure—it had not troubled her—nor been amazed at the lively health of the chicks—it had not surprised her.



MOREPORK (F.) SITTING ON THREE DAYS CHICKS.



YOUNG MOREPORK.

The cock bird, whom we had not seen at first, now as the nestlings grew older, appeared in the vicinity. One particular bough was the chosen perch of the fierce old reprobate. There in malignant reverie, full of vindictive recollections, he brooded over insults avenged and daylight wrongs redressed at dusk.

The unfortunate little Kuaka, whose fate has often been deplored as existing but to subserve another's need—as the chief food supply of Sea Hawk and Seagull—is victimised even by the Morepork. Although the manner in which the Owl, or perhaps the two Owls, slay their prey and afterwards manage to raise such a relatively immense weight many feet perpendicularly from the ground was not discovered, yet morning after morning we found in the nest sometimes one and sometimes two newly slain Diving Petrels. At first the parent birds rend the flesh from the bones, and feed it to their brood, but afterwards allow the chicks to help themselves “when so disposed.” In their *al fresco* butcher's shop upon or alongside these enormous masses of meat the young Owls peacefully repose.

XV.

THE SADDLEBACK.

THE Saddleback does not seem to reach maturity on Kotiwhenu until its second season. In the vicinity of our camp during early November three generations were to be found, each distinct from the other—the breeding birds, the yearlings, the chicks still in the shell.

Mature specimens of each sex were of an intense shining black about head and neck. Across the back stretched the remarkable band of reddish-chestnut—a new unused saddle on a black horse—from which the species derives its apposite popular appellation. On either side of the bill drop long slender caruncles, those curious sexual ornaments of the breed. Though in the female little developed, in the male they become prominent during the breeding season. They glow with especial brilliancy when the bird is paying his court or in rapid motion; they glance then, and gleam like drops of translucent carmine, like gems in a girl's ears.



SADDLEBACK.

More exquisite specks of colour are not often to be seen.

The plumage of the yearling bird was less gay. It was the hue of blended chocolate and black—ink, as it were, stirred into cocoa,—the conjoined tints producing a brown effect; whilst here and there were feathers or parts of feathers, promising in the immediate future the full maturity of colour. The caruncles of these first-season birds, or “brownies” as we called them, though visible, were wholly undeveloped. Usually these “brownies” were unaccompanied, solitary. One of them, which lived near our camp, roosting at night and often resting by day in a small turf-thatched maimai, was many times disturbed from its comfortable quarters during the first few days of our residence, whilst in fact we still believed in the “brownies” as a species, and vainly searched for their nests. Their call, too, was but a section of the mature birds’ call; and whilst the full-plumaged birds neither courted nor shunned observation, the “brownies” were distinctly inquisitive. From a foot or two above the observer’s head often they would peer down wonderingly. I was unfortunate indeed not to have obtained a good photograph of one of these yearlings. Attracted by the vision of chicks in one of the nests of its own breed that had been practically bared of fern fronds and leaves, this youngster perched for an

instant within focus. Hoping, however, to obtain a still better pose, I refrained from exposing the plate; the bird flew off, and no second opportunity offered itself.

The third generation of Saddleback were still in the shell.

During the first week of November one or two couples of paired birds were incubating eggs, another pair possessed a single egg, others were building, whilst the hens in many cases were still being courted by proffered food, spread tail, and fluttering wings.

Of the five nests under observation containing eggs or young, four were within a few feet of the ground, whilst all were built in deep shade. The first discovered, built into the fork of an ironwood and screened with polypod and the shrubby growths of several epiphytes, was a dozen feet above the dark gritty soil. A second nest was found two feet above the peat, placed in the long cavity of a prone tupari. Extraneous and parallel to this cavity ran an eroded bar of sound wood, which to a great extent concealed the sitting bird. Light was still further cut off by the proximity of many dead logs of considerable girth. A third nest at an elevation of three feet was built in a similar cavity. In this case, however, the fallen tree was a large ironwood, several of whose surface rootlets passed athwart the



SADDLEBACK IN MAORI KIT.

hole. The trunk was, moreover, densely thatched in matted polypod, whose erect fronds filtered such light as might still penetrate to the incubating bird. The orifice of a fourth nest opened into a cranny in a sound green tupari only a few inches above the peat. The entrance to this nest was unusually constricted, and the structure within almost invisible. The fifth nest, also in deep shade, was built into an open flax kit suspended from a nail fastened to an upright board in a Maori hut.

Each of the sites described contained, during November, eggs or young. An additional pair of nests, but in which no eggs had been laid at the time of our departure, were also obtained in tree cavities low to the ground. Guarding each of these unfinished nests was a traverse bar: in the one case a strip of sound dead stuff, in the other a stiff finger of living wood. It would seem, therefore, that the site nearest to the Saddleback's ideal is one low to the ground, deeply shaded, and if possible protected with aerial rootlets or splinters of hard, dry, seasoned timber.

The outermost materials of the nest consist of rootlets and portions of fronds of *aspidium aculeatum*, the latter so affected by exposure and age as to be easily tweaked into the desired circular form. On this rough base and outer edging rest quantities of narrow grass-tree leaves; on them

are piled, deep and warm, the shining scales of unrolled tree-fern fronds.

Without exception there were two eggs or two young birds in each nest—never more and never less. On several occasions the eggs, when not covered by the birds, had a leaf or two over them—these leaves, I think, not fallen by chance into the nest. Sometimes, too, the eggs appeared to be in some degree buried in the nest material. They may or may not have been consciously hidden—I was never quite able to reach a decision on the point. The pairs of eggs seen by me differed but little from one another, less indeed than do the eggs of many species. In size they were rather larger than those of the Tui, blunter, and less elegant. Grey was their ground colour, the shell thickly blotched all over, but chiefly and very clearly marked on the blunt end; there the grey blotchings became a blur, tinted with violet or purple brown.

Twenty or twenty-one days is the duration of incubation, the birds beginning to sit immediately after the second egg has been laid. Thus a nest got with two eggs on the 8th November contained chicks on the 28th. The nest built, as already related, in a flax kit had a single egg in it on the 9th; on the 10th there were two eggs; on the evening of the 30th the chicks were about to emerge. On that evening the hen was so



SADDLEBACK WITH BEAK FULL OF MAGGOTS.

wrapt in the ecstasy of brooding that she allowed me to lift the kit from its nail and carry her forth still sitting to show to my companions. She appeared to be perfectly unconcerned, her plumage fluffed out to the utmost, her side feathers made to cover completely the outer margin of the nest. It was a critical period when greatest warmth was required. The beak of one chick already protruded from the shell; the second egg was chipped. Unalarmed, she was returned to her comfortable quarters within the dry gloom of the hut.¹

¹ On the morning of 1st December I again visited this kit nest, and whilst waiting for the advent of the male Saddleback with food, searched the interior of the hut, lest perchance a Robin should have also utilised it for nesting purposes. Whilst thus occupied, a well-thumbed volume caught my eye, which, opened at random, revealed the magic names, Nupkins, Weller, Jingle. It was 'Pickwick,' and I pleased myself with the thought that I was reading perhaps the southernmost copy in the world of the Master. Captain Fitzmarshall, *alias* Mr Jingle of Nohall, Nowhere, was being denounced before Mr, Mrs, and cruel Miss Henrietta Nupkins—Miss Henrietta, who had "jilted old lover—Sidney Porkenham—rich—not so rich as Captain, though"—for the dashing Fitzmarshall. In that deserted hut, alone with the brooding Saddleback, I heard Mr Pickwick inculcating his high moral lesson, his left hand beneath his coat-tails, his right extended in air; I listened to the lamentations of the Nupkins' ladies: "How can we ever show ourselves in society?" "How can we face the Porkenhams? or the Griggs? or the Slummin-towkins?" I may add that I found in another hut one of brave old Marryat's sea yarns. It is often said that nobody reads old-fashioned writers, yet here at the back of beyond, and by those employed in the very roughest work, good stuff would seem to have been appreciated.

The usual call of the Saddleback is a rather harsh "che-che-u-che"; not infrequently another syllable is added, "che-che-u-che-che," the last earnestly accentuated with something of entreaty in it. Sometimes near the nest a rapid series of notes was uttered, which to me sounded like the faint rattle of a distant castanet. Another cry was "che-we-we-we-we-we," another "woo-ete-woo-ete." On one occasion, when the male had rather suddenly alighted on the edge of the kit nest, the hen gave vent to a sharp "vt-vt-vt." As the nesting season of the species had but barely opened when we arrived, it is probable that we heard during our residence all the calls of courtship and parentage. I give them, not because any two persons would clothe them in like orthography, but rather to show the limited number in common use. By no stretch of imagination could any of them be termed "flute-like"; the "flute note" of the Saddleback was indeed as non-existent in these southern regions as that "organ note of surpassing richness" credited by Buller, and others with whom I have spoken on the subject, to the Orange-wattled Crow. The absence hereabouts of both these calls bears out what I have elsewhere surmised, that members of a species differ in their notes in different districts.

Although the Saddleback is by no means a recluse, and although I may say I have a general



SADDLEBACK.

acquaintance with Stewart Island except its southwest corner, I have never there heard or seen the species. Its usual cry, too, is perfectly unlike that of any other species of bird, and can be heard, moreover, at a considerable distance. I doubt, therefore, if the breed is resident on Stewart Island; perhaps it may not have been there even in pre-European times. Supposing, however, that the Saddleback did at one time live in small numbers on the mainland of Stewart Island, it has probably, on account of its selection of nesting sites at low elevations, perished long ago by the depredations of the grey rat and of the old English black rat. Even the Wekas, the police of the woods, would find it difficult to conserve a breed that does not nest until its second season, which lays but a brace of eggs, and whose chicks reach adolescence slowly. The small clutch, slow growth of chicks, and retardation of sexual growth may argue hardihood and long life normally, but with eggs destroyed and chicks slain ere feathered, what would these qualities avail?

Unlike other chicks known to me, the Saddleback twins had on every occasion to be roused for their meals. Not even the jar of the nest structure consequent on the arrival of parents was sufficient to arouse the little sleepy-heads. They had to be gently prodded into wakefulness. This lethargy did not, however, proceed from any

indifference to their provant; like all healthy young things, they were ever ready for food. For several weeks, like the Fat Boy of Dingley Dell, they slept interminably except when roused for meals. At the date of our sailing they had still to be awakened when twenty-one days old or more. Almost all nestlings can be animated by artifice: a gentle jar of the twigs supporting the nest or a touch of the head, but it was rarely possible thus to deceive the youthful Saddleback. On one or two occasions only some incitement unknown to me would cause the long necks to stretch up and the yellow gapes to open wide. These strange youngsters were, moreover, not only always sleepy, but always silent, different in this respect to youthful Tui, Bellbirds, and Robins, who know presumably that they would not be fed at all unless the coast was clear, and that therefore they may give vent within reason to childish supplication.

Although the arrival of the feeding birds was most deliberate and most open, the actual offer of food to their chicks was conducted with a certain curious diffident bashfulness—in fact, though such a statement may sound strange indeed to the ears of some folk, again and again I was made to feel as if in witnessing the action I had been taken into the bird's confidence, that what I saw was a secret between the male, especially the



SADDLEBACK.

male, and myself. Often whilst feeding he would glance back at me with a shy, almost with a pitiful, air, as if imploring my sanction to some action or other, as if deprecating any shadow of ridicule, but, alas! though he so knew and trusted me, though he allowed me to watch the whole process as it were over his shoulder, I ever failed to fathom his mystery. It may be that the bird piqued himself on the exclusive possession of certain methods of administering food, specialities my human stolidity was unable to appreciate. It may be that the Saddlebacks did not wish their patrician modes divulged to the commoners of the island—the Tui, the Bellbird, the Robin.¹

The parent birds were, from almost the earliest hours, unconcerned in the presence of myself and camera, even at the distance of eight or nine feet. Eventually they became so tame that, when desirous of obtaining both birds on the one plate, I sometimes failed to keep the first-comer off by waving my hat directly over the chicks. The male and I had become real friends. He had perfect trust in me. We were in sympathy with one another. I believe he had fathomed my true opinion of his wife.

¹ I have always considered it a master-stroke of Kipling to make Mowgli, as an adopted wolf, taunt the leader of the Red Dog with growing hair between his toes. Depend upon it, if crossing between nearly allied species is rarely attempted, it is in part consequent on pride in minute but significant differences upon which breeds peculiarly plume themselves.

Until we sailed, a species of soft white grub was the food almost exclusively supplied to the nestlings. Throughout very many hours' watching at close quarters twice only I noted other pabulum offered. Once a hard-looking chrysalis and once a small green caterpillar were included in the juicy oblations—these two exceptional morsels given when the chicks were more than a fortnight old. The soft white maggots mentioned were plentiful; from beneath the tall clumps of aspidium the Saddlebacks grubbed them with their powerful beaks. Most of the food was delivered by the male. In his hard horny bill he was able to carry three or four soft grubs not only unbroken but alive—I could see them squirm and wriggle. Very many more than that number were brought in at each trip, but by the time the nest was reached the earliest obtained had become reduced to a white pulpy mass much diluted with saliva. During the act of deglutition its rosy dribble could be noted sagging between the parent's bill and the chick's gape. This pulp seemed to be produced from somewhere about the base of the old bird's beak.

Although, however, most of the food was collected and brought in by the cock, he was by no means always allowed the pleasure of giving to the chicks all that he had gathered. If the hen was on the nest or in the neighbourhood—and she



SADDLEBACK NEST AND EGGS.

made it her business to be in the neighbourhood—a part of each supply had to be given to her to pass on to the nestlings.

Studying the ways of one particular pair, I sat sometimes close in front of the nest; sometimes I covered their comings and goings from a seat high in an ironwood tree. I could well view from the one position the intimacies of feeding and sanitation; from the other, owing to the bareness of that part of the island, I could discover pretty accurately what the birds were about when not in the nest or feeding their young. To climb from the one observation post to the other was the work of a few seconds; it in no wise disturbed the birds. By this time, possibly believing me to be some sort of fancy seal and equally innocuous, they did not care what I did.

As in the woods there is no repetition, no action exactly reproduced, I will set down from my notes the gist of what I was able to glean of the proceedings of these Saddlebacks during three or four hours of one most heavenly summer day. The hen had been off her nest for some time when I took my seat among the ironwood boughs. On the wide expanse of comparatively open ground beneath I soon picked up the pair, and found that the hen was accepting large spiders from her mate. He then disappeared in the direction of an aspidium clump, where I could

fancy him toiling and grubbing for the family meal. The hen meantime spent her time in much less arduous fashion. On one of the boughs of my ironwood she preened her feathers very carefully and thoroughly; then, immediately below me, searched the ferns growing there, hopping leisurely from log to log, peering among the green leaves, or, like a woodpecker, inspecting every chink and cranny and bit of tattered bark. Nor was a vegetable diet scorned: she partook of several snacks of the fruit of blueberry and five-fingers. She then returned to her nest, where I was in time to see her loosening the structure of its sides by diving her great beak up to its hilt into the material, opening her mandibles wide, and thus prizing it apart. She then moved away a twig or two, and at long-last was settling herself on to the nest when the male arrived. The good-tempered fellow, who had been labouring while she played, was greeted with harsh cries and snappings of her bill. With an overflowing beakful of soft maggots he was made to await her caprice for some minutes. Finally, she deigned to allow him to give to the chicks a portion of what he had gathered and brought home.

In front of another nest on another occasion I have seen another male watch, with the pathetic look of a chidden spaniel wishing to be forgiven, for a chance of himself feeding his own offspring,



SADDLEBACK AND CHICKS.

hesitating and vacillating before his harsh shrewish wife with many a supplicating glance and many an embarrassed baffled approach.

Often—too often for chance to enter into the matter—the male is allowed only as it were by favour to enter into the nest and personally nourish the young. Advantage is taken of his amiability—to speak plainly, he is henpecked in no common degree. When, for instance, both cock and hen have been away from the nest, the hen will not infrequently return with an empty bill. She will then hang about the vicinity till her hard-worked mate returns, take food—sometimes the whole of it—from his bill, feed it to her chicks as if collected by herself, and then only settle into her nest. I conceive the chicks, reared in the belief that their mother toils whilst their father idles, allowed to think in her absences that she has been doing what she has not been doing, just as bad people who have shirked Sunday service will in the street mingle with the devout, passing off themselves also as worshippers.

Although, however, the female thus crows the male, both alike are bullied by other breeds.

There is always an especial pleasure in plucking out the heart of the mystery of a species the essential characteristic of a breed. The predominant trait certainly of the Saddleback is an exceeding mildness and gentleness of disposition.

Robins especially take all sorts of liberties with the sitting birds, spying, for instance, into the cavities containing their eggs and young, a bit of boorishness only to be compared to the conduct of a man inadvertently chancing on bathing damosels—happy inadvertence,—not feigning himself heedless, blind, and passing forward on his way. I have photographed the Robin and the rightful owner of the nest on the one plate. On the nest built in the Maori kit I have seen a Robin alight on the very edge of the woven flax, an impertinence of so gross and outrageous a nature as to provoke even this most pacific of birds. Still, however, remonstrance was but passive, the hen rising on her nest with legs wide apart—a favourite Saddleback attitude by the way,—and for long standing on guard over the new-hatched chicks. Few species again willingly suffer a stranger near their young, yet within a foot of the nest Robins would actually attempt to snatch food from the bills of the long-suffering birds, fencing and fronting them as people colliding in a street step together—first right, then left, dancing opposite one another in their attempt to get clear. Though so much larger, Saddlebacks never attempt to resist imposition; the best they can do for themselves is to ignore the highwaymen at their door. An unadventurous placidity marks their conduct always.



SADDLEBACK AND ROBIN.

Wishing once to obtain the two Saddlebacks on one plate, I had blocked the nest by wedging my handkerchief into the cranny. The gentle birds were not in the least alarmed by the linen. They could only not make up their minds to remove it, and in this dilemma very characteristically merely attempted to squeeze past the obstruction; on the other hand a Robin, who had no business at all on the premises, began at once with the utmost hardihood to tug at the handkerchief.

The business of sanitation of the nest is shared, but often, if the hen had been at work, the male would carry off in his bill any bit of rootlet or peat that might catch his eye. His instinct was to carry away something; it was a happiness even to seem to be doing something for his beloved children. Sometimes the droppings were carried off in the bill, and sometimes swallowed on the spot.

Although so exceedingly tame to me, now and then, for reasons I could never fathom, panic would seize the pair. On these occasions no cry of warning or apprehension would be given; without audible sound the alarm would be communicated from one to the other, the birds silently bounding over the ground or through the low scrub at a great pace. These nerve attacks were of brief duration, and from whatever cause origi-

nating cannot have been very acute, for after a minute or two one or other of the pair would return without caution or reconnoitring. In their entrances and exits it was more usual for the parent birds to hop than to fly to and from the nest.

The Saddleback obtains a large proportion of its food amongst the leafy tops of the bare-boled tupari, a tree naked to the neck, reaching a height of sixteen or twenty feet, thickets of which extend over a large part of the island. Immediately beneath this verdant thatch Saddlebacks may be most easily watched whilst courting and mating, whilst gathering grubs, spiders, caterpillars, and flies. On one occasion I believe I got a glimpse of a Saddleback using its foot in some feeding operation. In their unremitting search for insect life the loose bark of moribund trees is torn away by the strong-billed birds. If too tight for easy detachment, it is nosed off by insertion of the bill and neck and a jerk back of the head. I have seen the bird disappear, save for the tail tip, beneath hanging folds of bark loose enough to be thus raised, but sound enough to resist complete severance from the trunk. Any yellowing leaf also that promises a blight or gnawing insect is seized in the mandibles and examined.

As the Robin and the Wren haunt the floors



SADDLEBACK NEST AND EGGS.

of the woodlands and the Tuis the tops, so the Saddleback dwells half-way between the two. He never ventures much higher than the tupari-tops; he never climbs high on the ironwoods that attain a height of fifty or sixty feet; he knows that the Tuis and Bellbirds are unfriends to him. During the breeding season much time also is spent in the groves of aspidium and stilbocarp, their cool gloom seeming to be as welcome as the tall tuparis' filtered shade.

The progress of the species is accomplished, as already pointed out, by a series of hops, sometimes so rapid that they blend or melt into what appears to be a run. If the bird is in great haste the bill is held nearly erect, as is also the curiously curved tail. As he then bounds and leaps at speed over the uneven ground he bears no small resemblance to a monkey. Wing movements are laboured, the birds never flying far, nor do they fly directly upwards. They prefer to rise by rapid hoppings from bough to higher bough, and then to flutter or volplane downwards. The wings of the Saddleback are, in fact, used for brakes as much as for propulsion through the air.

Ringed in their slithery aprons of shining kelp, girt in their ramparts of battered rock, long may these islands of the south protect the breed.

Long may the roll of polar seas secure it from the interference of man. To me the Saddleback will ever be associated with the serene peacefulness of the wilds, the pleasant solitude of desert places, a loneliness far as the poles apart from the dreary awful loneliness of cities and streets.



Andell Beck



SADDLEBACK, M. and F.

XVI.

SEA HAWK.

THAN prejudice overcome and original dislike disarmed there is no surer foundation of lasting respect and friendship. Years ago I had become acquainted with the Sea Hawk—first on the wind-swept sands of Mason Bay, later again on the rock stacks off Stewart Island,—but whether viewed from a distance or comparatively close there was nothing attractive in the big gull's sullen mien and lowering dour demeanour. I heard no good of him either; he became registered in my mind as a dull heavy fellow of no very nice character. This superficial knowledge at a later period developed from negative disapproval into active disapprobation. I disliked his facile slaughter of the inoffensive Kuaka, his pursuit in unfair parties of threes and fours of single Kaka Parrots passing from island to island. Now, however, with a more intimate knowledge of the life of the Sea Hawk, his failings and frailties, his too obvious

slaughter of the innocents, his inexpungeable hatred of man, are condoned as we blink friends' faults. Though I do indeed feel sorrow for the silly little Kuaka and the wandering Parrot, naked of shelter above open strips of sea 'twixt islet and islet, yet it is pain only of the chastened sort, which lawgivers of the Dominion may be supposed to feel for the squatter class, whom season by season they do not cease to devour.

At any rate, whatever his faults may be, the Sea Hawk has reached a perfection of altruism, at least in certain aspects of family life, which we poor mortals can never attain. He has solved difficulties which cannot amongst ourselves be so much as considered, and which must for ever militate against the selfless ideal of communism.

With a fuller comprehension of these birds, respect, I say, grew and matured, until finally I came to have a deep admiration for creatures able to practise in their daily lives that essential part of Christianity—the spirit of the creed—able to reach the highest happiness by service, not selfishness, and, at least in the particular strange tripartite union watched, able to determine that all pleasurable action should be enjoyed collectively.

For many evenings after our encampment on Kotiwhenu, and ere those Sea Hawk, to whom the local rights of residence appertained, had



HEN SEA HAWK SITTING.

become aware that ours was a permanent establishment, regularly the great birds arrived at dusk, banging to earth on the tiny clearing with clumsy force and scorn of all concealment. They were monarchs of all they surveyed. On their alighting ground there were few stumps or branches, there was little risk of damage to the splendid pinions of these overlords of the islet. Besides this space by the hut there were other ribbons of open ground frequented by the Sea Hawk. These were the pathways cut by the "birders"; on them, too, gleanings of the Petrel crop were gathered by day as by dusk. At noon even I have met Sea Hawk on these cleared tracks, for each evening on the smallest islet it happens that, in their earthward fall through scrub, numbers of Petrel are hurt or hung up snared by neck or wing or leg. It is in search of these that the pathways of the island are perambulated and patrolled. Petrel know not danger of this sort on the ocean; they experience it only as presage to immediate death, and cannot therefore develop wisdom racially. These unfortunates are the Sea Hawk's daily bread.

So much so indeed has the species become habituated to this manner of replenishing its larder by broad day that, when an hungered, it straggles from the paths and ranges the entire island. A wandering bird thus discovered invites

molestation; he presents a ludicrous spectacle when compelled to walk or rather to trample and roll ahead of his tormentors. The Sea Hawk hates walking, and detests rapid walking; it was always therefore an entertainment to expedite his uneasy gait without, however, forcing him to rise, to note his ungainly progression, the anxiety with which he heard our steps behind, his perturbed glancings from side to side; finally, his relief when at last he could float off into the unobstructed air. Although thus careful of their pinions, and unfitted by the formation of their feet to move or rest except on rock or sand, I have nevertheless noted a female bird, agitated by our presence near her nest, sometimes alight on the unstable tupari-tops.

Sea Hawk chicks become wanderers from an early age. The nest, indeed, is so shallow a structure—often a mere depression in the short wiry turf—that any slight hollow where the parent bird may chance to be sitting can excusably be mistaken by the youngsters for their original home. From early life the nestlings seem to realise the environment proper to their race, and from the moment of hatching delight in the tide-rip running fiercely beneath them, the break of the seas on naked rock, the sting of the driven spray. Their birthplace is oftenest on the edge of the cliff, and it is only whilst still mere animated



HEN SEA HAWK: MALE SITTING.

balls of dense grey down that sullenly they will suffer capture. Birdlings only two or three weeks older have to be approached with the utmost circumspection. "I am a part of all that I have seen," the youthful Sea Hawk seems to feel. Rather than be taken from the rocks they have learned at so early an age to put their trust in, chicks will run almost desperately, as if wild with apprehension, along the more and more steeply sloping crags. They do not seem to be frightened; indeed rather they appear to lack the sense of all other fear in their intense desire of freedom. If rashly followed, all idea of self-preservation is abandoned; they precipitate themselves over the rocks into the sea beneath. Like Rebecca at the castle of Torquilstone, who would rather trust her body to the stones below her turret window than her honour to the Templar, so the Sea Hawk fledgeling will prefer death to the desecrating touch of man.

The open spaces of the island were parcelled out amongst its Sea Hawk inhabitants. There was no trespassing or poaching; the demarcations of the various holdings were never transgressed. A general good-fellowship prevailed; the greeting passing between birds in the sky and those on land was cheerful and friendly. During these picturesque salutations the wings are uplifted and fully stretched as if to show the quills of the primaries,

the crest raised high, and the mouth wide opened in a crowing scream. Whether in mid-air or on firm land the attitude alters not. Oftentimes when the thunder of the surf dulled all other sound it was quaint to see a bird high overhead pause in his flight, open his pinions, raise his head, and distend his great beak. We could see but not hear the recognition. The Sea Hawk establishment most persistently watched was perched on the very edge of the cliffs that girdle the islet, cliffs permitting only on one place a landing, rough and awkward even in fair weather, unapproachable otherwise.

Another larger island lay but a few score chains distant, protected also by girdling granite rocks. Immediately above its precipices straggled a long irregular line of daisy-trees, at this season in full bloom, making with the rocks below and the bush above a ribbon border of green, white, and grey.

Two or three yards from the rock face fronting this pleasant prospect the writer watched in all weathers the manners of the Sea Hawk. Sometimes an angry rip ran in the narrow strait, its centremost current crested, combed, and raging like a mountain stream in spate; sometimes, heaved on the rise of a long ground swell, the restless fringe of huge bull kelp would toss its shining skirts like wantons in a dance, then in the downward draw become a roaring slope of



SEA HAWK: PRELIMINARIES OF FEAST.

gleaming, writhing, slippery brown. There were calm days, too, when the kelp streamed evenly this way and that in the current's tow; there were hours so calm, indeed, that the smaller seaweeds, red and green, floated, each thread apart like long hair combed on a frosty night, when dry leaves resting on the rocks were moved off one by one. I used to try and detect the exact moment when fullest flow was reached, that mysterious instant when the highest mussel cluster was awash, the driest limpet just submerged, when the channel lay filled full as if welled up from the depths, when for a moment ebb and flow had ceased, and the mighty forces of nature balanced one another in wax and wane.

The weather experienced was perhaps exceptionally fine. Our drinking water, caught from the roof, had to be carefully saved. In sunshine and shade, the sky never fully clouded and never cloudless, the time passed but too quickly.

Thus established on the cliff edge, looking across to Te Puka, downwards on the channel beneath, the woods of Kotiwhenu behind, full of Tuis, Saddlebacks, Robins, and Bellbirds, the domestic economy of the Sea Hawk family could be registered under particularly pleasant conditions.

The preliminary stage in an approach to in-

cubating birds is usually a brief cursory inspection. If that is borne with philosophic endurance, an advance gradually accomplished diminishes the distance between observer and observed, until sometimes the twain are separated only by a few yards, a few feet, even a few inches. Species will endure the presence of man according to their varying natures, some from intrepidity, as the Caspian Tern and the Falcon, whose fury consumes their fear; some from use and wont, like the Pukeko; some from dull brainedness, like the Penguin; some from the moral support of numbers, like the Shag or Tern; some from absorption in work, like the Warbler and Waxeye; and some, like the Tit and Robin, from trustfulness. Sea Hawks belonged to the first category; because of their fierce nature they soon learnt to endure our presence.

About the spot chosen by the particular birds watched most closely was a small clearing on the cliff. Morticed into chinks of its grey granite grass grew short and sparse. On a sward so small that it might have been entirely covered by half a dozen handkerchiefs was placed the nest, a mere pressure in the turf. Upon first discovery of their breeding quarters two birds became much agitated, wheeling along the cliff edge and swooping overhead. A third bird continued to sit, and only at length left the nest less, I think, from fear than



SEA HAWK: PRELIMINARIES OF FEAST.

from uncontrollable emotion that had to find vent in action and physical exercise. It, too, joined in the outcry, and the demeanour of all three was so furious that we were glad of the shelter of the tupari-tops beneath which to beat a retreat. After a few minutes we had the pleasure of seeing the biggest bird resettle itself on the two brown eggs. Not long afterwards a second bird took up a position a few feet away from the nest rather lower down the cliff. With its appearance no doubts remained in my mind as to the likelihood of obtaining photographs at close range.

I was satisfied on that head, but much astonished when immediately after the arrival of the second bird a third appeared on the scene. It was a surprise that any pair of mated birds should thus permit a third to perch so near their nesting site. I was the more amazed when after a brief period it became obvious that the two sentinel birds were on terms of unaffected amity. My conclusion then was that the three were married—two hens doubtless and one cock. It was impossible, however, to remain satisfied for any length of time with this conclusion. The more I saw of the birds, the more I pondered over their relations towards one another, the more I began to doubt. At length I was no longer able to resist the conclusion that the married "pair"

consisted not of two hens and a cock, but of two cocks and a hen.¹

Though each of the three at times sat on the eggs, the largest bird, the hen, was evidently the most eager to do so. There were many minute signs of expectation, too, on the part of the others that she should take upon herself the chief burden

¹ Observations made during three weeks' residence in the late spring of 1923 on an island already mentioned—Te Puka—fully confirmed this view. There my daughter and niece discovered a Sea Hawk's nest, from which the sitting bird—the hen—resolutely refused to budge—refused to budge even when gently pressed with sticks. From this nest when visited by myself next day the hen was gone; only the two males remained in charge. These gentlemen, after much screeching and swooping, at length became reassured. They returned, and finally snuggled down as if incubating—one on the peat near by, where already a saucer-like depression had been worn; the other on the more marked depression, the actual nest, within which lay the two brown eggs. I noticed, however, that the silly creature who had taken the better place was sitting only on one egg; the other lay exposed and uncared for. He had sat there at all not particularly because the eggs lay there, but because there was a more comfortable convenient depression into which to fit himself. No female bird assuredly would have thus treated her clutch. After seeing a great deal of the many Sea Hawks' nests on Te Puka my companions believed that the tripartite nest was the normal condition of wedlock. We left the island, however, when only a single chick had hatched, so that, although strongly leaning to their views, I would not care to state definitely that there were no two-bird marriages at all. I may add that often we used to eat our biscuits on a certain northern headland overlooking a superb view of the west coast of Stewart Island, its promontories, granite cones, and islands, with, farther afield, the towering snow-clad peaks of Westland, and far to sea the Solander rocks. There on that wind-blown top a trio of Sea Hawk used to participate in our frugal meal, and accept with apparent relish such foreign delicacies as apple-cores and apple-peel.



SEA HAWK CHICK ABOUT TO BE FED.

of incubation. There were, moreover, but the usual two eggs in the nest—the normal number laid. Had a couple of hens shared the nest there would have been double that number of eggs, or at least more than two. If each had not laid her full complement of eggs—and I have given reasons elsewhere for believing that the extrusion of eggs can be controlled in a very wonderful fashion—not both of them would have laid a single egg.¹

There were airs, too, of particular peculiar proprietorship indulged in by the biggest bird. She was the boldest on guard. It was she who, not content with staving us off the precious eggs, would sometimes assume the offensive, following us with ungainly trappings into the scrub, harassing our retreat with screams, minatory gesticulations, and on one well-remembered occasion seizing the rearmost man by the slack of his trousers. After a few days not one of us had any doubt but that the trio consisted of one hen and two cocks.

¹ I have seen a Pukeko's nest containing seventeen eggs—a co-partnership of four or five or even six hens,—and on several occasions have also seen in nests of this species ten and twelve eggs, the property of three or four hens, according to age, food supply, and other factors. A Grey Duck's nest found with twenty-one eggs in it was certainly also a joint-stock concern. Amongst game birds of British coverts the sharing of nests is common enough, but as they are semi-domesticated such examples go for little.

As when a problem solves itself a light is shed on past difficulties, so the strange co-partnership explained many circumstances noted and briefly treated in another volume.¹ So rigid, however, is the human mind in regard to questions of sex that for long Byron's sneer was of frequent occurrence. I confess that at first I spent time in attempting to discover which was the wise Catullus and which his friend Hortensius. That I was never able to decide. It was, indeed, a decision impossible to determine, impossible for long to contemplate in regard to a union so evidently proper according to Sea Hawk habit and custom. Perhaps the younger male—if one was younger than the other—was only allowed his proper privilege as a sort of Sunday treat, perhaps the favours of the lady were scrupulously shared, perhaps the mere observation of the function of mating gave to the unprocreating male an altruistic satisfaction, a benevolent happiness, a great-great-grandfatherly platonic ecstasy. Almost at once any ignoble interpretation of this threefold union became distasteful; indeed that such a thought should have ever been harboured in my mind seemed contemptible. Any way, the tie uniting these three birds was in their eyes as sound as the marriage, say, of the son of the Primate of the Church of England to the daughter,

¹ 'Mutton Birds and other Birds.'



SEA HAWK CHICK BEING FED.

say, of the Moderator of the Church of Scotland. No union surely could be more proper than that.

In size and coloration of plumage the males were indistinguishable, but fortunately one of them had the web of one of its feet torn. I could thus discriminate between the two birds, and note with certitude the individuality of each. I could be positive that it was sometimes the bird with the cut web that stood sentinel next to the hen, and that sometimes it was the bird with the entire web. The female, too, besides her considerable advantage in size, was also distinctly marked, the web of each of her feet being torn. These rents resulted probably from struggles with the much smaller but fierce and active Mutton bird. Each of the three Sea Hawk sharing this nest could be thus distinguished at a glance.

Racial rules of conduct are in the long-run based on the tastes and inclinations of the individual. Between the relations of these three units of this particular species and anything in human custom and law there is a great gulf fixed. Amongst birds the sexual appetite is absent for the greater part of the year. Even in respect to those ascribed by the ancients to Venus—the Sparrow and the Dove—both are semi-domesticated. No more than those of poultry are their habits the normal habits of wild birds of the

woods. On the other hand, as Coleridge says of mankind in one of his lyrics—

“All thoughts, all passions, all delights,
 Whatever stirs this mortal frame,
 All are but ministers of Love,
 And feed his sacred flame”—

inclinations vitally and continuously affecting the manners and conduct of our race are of ephemeral concern to the avian tribes. Exclusive possession of the female as mistress, companion, or nurse is the ideal of man. It is not the ideal of the Sea Hawk.

The union of these three particular birds was by no means unique or even uncommon. On Te Puka, visited for a few hours, but where we were unable to camp because of weather conditions, there existed just another such triplicate household. There, too, were to be seen the normal two eggs, the produce of the single hen. Furthermore, in another volume I had noted and wonderingly commented on the toleration of mated Sea Hawk owning nests ready for eggs towards other members of the breed. I know now that it was the presence of the third individual in the family that had so surprised me, and which for lack of fuller experience had then seemed so incomprehensible.

It was not long before the presence of my camera and myself became not indeed indifferent



Sea Hawk Greeting a Passing Friend

to the birds, but endurable. There existed truce, not peace, between us. So resolute, indeed, and steadfast was the hen in her incubation that, when it was necessary to know if the eggs had hatched, the great bird had to be gently displaced with a lengthy pole, always, of course, in such a manner that no hurt came to herself or her brown eggs.

It was not until about a week after our arrival that one of the eggs hatched and a chick appeared, the feeding of which provided one of the most interesting sights witnessed by me in wild nature. The training and care of the chick was not only in itself curious, but brought out all that was best in the parents three. Often only I myself saw what it was impossible that the absent parent or parents, male or female, could witness, a deliberate self-abnegation and sense of fair-play. There was not only a rare and beautiful outward courtesy between the three birds, but a true inward selflessness, a constant practise of the golden rule, "Do as you would be done by." There was never a thought that by the combination of two the third might, whilst absent, be deprived of participation in what I cannot but believe was the deep joy of feeding the chick. So speaking a testimony to the relationship of the triplice was this act that no excuse is offered for the accompanying mediocre illustrations.

It was always easy to forecast the feast. Be-

coming and hungered, the little one grew restless beneath the sheltering feathers, poking out his small head and evincing unmistakable signs of a desire for dinner. If two of the three parents happened to be away, no notice was taken of his wishes by the mothering bird, and then often he would quit his covert and venture forth for a desperate ramble by himself on the cliff edge. If a second parent was about the nest standing sentinel, he would then attempt to seduce it. On no occasion, however, did I see success attend these manoeuvres. I am, in fact, convinced that he was never fed except by the combined action of the three parents.

Not one of the triple alliance ever thought of cornering the chick. It was evident that each bird desired the presence of the other two. Maybe in great degree this pleasure was of an altruistic kind, positively a pleasure in each other's pleasure. Negatively I feel sure, lacking one of the party—could such an event have happened—each of the other two birds would have experienced a sense of disillusion, disappointment, dissatisfaction. When, however, all three old birds were assembled, the chick seemed to know that feeding could no longer be properly postponed. His coaxing and pestering became more and more persistent. At last one of the parents—propinquity seemed to decide the choice—would slowly advance to the

banquet table, a flattish bit of grassy ground strewn with grisly relics of former feasts—skeletons, bones, and curled grey feathers. Always the same site was used, and the chick, if inclined to linger or straggle to less level spots, was stimulated now and again by touches of beak, or lured on by simulated retching. During these preliminaries the conscientious bird immediately in attendance on the chick, advancing still into the open, would now and again pause, turning his or her head towards his or her fellows, as a setter at his point will slowly turn his head to ascertain the position of his master. Again by very slow, almost reverent glancings back and signalling—ghostly beckonings as it were of the minister's hand from the pulpit—the chick is lured forward to the predestined spot.

Although by this time there is an air of grave concern in the expression of each one of the trio, the two furthest from the chick will nevertheless sometimes loiter and linger, standing about, or one of them even continuing to sit, until the last moment. The entire absence of hurry, indeed, makes conspicuously apparent the utter trust placed by each on the others. Each, whether near the chick or far distant, is perfectly confident that he or she will not be ousted, or slighted, or forgotten. The more distant parents now move forward, for each of them knows that the act of

feeding is about to be consummated, and now usually there is a considerable amount of manipulation and manœuvring required to get the chick into the centre—it becomes the hub, they the spokes. With the three parental beaks almost touching or perhaps actually touching, one or other of the old birds very easily and gently disgorges food, whilst each of the three helps the youngster to scraps. If perchance an osseous morsel is brought up, one parent holds the bone whilst the others strip it of flesh, or a pair of them pulling as if at tug-of-war, the third bird picks clean the fragment. During the whole process the necks of the old Sea Hawks are lowered almost to the ground, stretched forth to the uttermost; and if perchance the food regurgitated is not wholly consumed by the chick, the superfluity is then divided equally and with delicate discrimination—most amiably shared amongst the trio. The movements of the three great birds, equidistant from one another and ranged like the spokes of a wheel, I could never tire of seeing re-enacted. The strangeness of the act had in it something of glamour and magic. I used to find myself—so enthralling was the contemplation of the little drama—drawn as if by sorcery from my seat amongst the tupari; a little more, and though a man and master of a Christian household, I should have joined the Sea Hawk circle.

The second egg was addled. One morning, as I was watching, it exploded with a soft plop beneath the hen who happened to be sitting. Whether she really was unaware of the event or thought it good manners before me to appear not to notice it, I do not know. At any rate, she sat unmoved until the chick, not appreciating the reek or becoming hungry, ventured forth. When rising from her nest the hen moved forth to participate in the feeding processes, the broken egg stuck to her feathers, and finally becoming detached rolled in front of her, and was several times disdainfully touched by her bill. Next morning it was gone.

Although during our intercourse with this household at no time did it become friendly towards us, we on our part could not but sympathise with the happiness of the old birds in their child, even in the small ailments and ills that extended to them as to all living things whatever their rank in life, or creed, or breed.

I have mentioned the torn webbing of the feet. One of the old birds was slightly lame for a time. Another for a few days suffered from a cold in the head, or at any rate from some such nasal distress as amongst us would have necessitated the use of a pocket-handkerchief. Often a drop would gather and hang at the end of the patient creature's neb. When perhaps it became an

offence to propriety, or may have begun to tickle, the bird would blow its nose by plunging its beak into the soft soil. We blow our human noses into our pockets; the Sea Hawk blows his into the earth—we may deem our method the more refined—certainly our noses are too soft and wobbly to dive into the ground, but few, I think, will affirm that it is the more sanitary.

When first I saw the Sea Hawk on the sands of Mason Bay, dour, lowering, commonplace, I then had no expectation whatsoever of finding aught in the bird of good or grace. I was to leave Kotiwhenu awakened to a selflessness in the breed, a magnanimity not often discoverable in man. Gift of a little knowledge had been granted me; a fresh impression, a pregnant hint. Such is the treasure-trove of the field naturalist, his harvest gathered of the wilds—and if to one, why not to all? May it not be that in the future, with thousands devoted to nature study for every one who is so now—may it not be that in such devotion the healing of the nations may be found? Only from nature's realm can a new province be interchanged without offence; only from nature's realm a conquest won without exacerbation. Even as to all living things water is not a source of strife, even as wild herds will lap out of the same stream, as dogs without jealousy will share the same pool, so surely will the nations participate



TUATARA LIZARD.

without strife in the unravelling of nature's lore ; her ways are ways of pleasantness and all her paths are peace. Creeds may fail, conduct be difficult to adjust in the rival claims of old and new, yet while life lasts, to follow nature in the woods and wilds is " sisterly sweet hand in hand " to woo a mistress virgin to the end—to court a happiness that never knows satiety.





