eternal forces of the universe, and believing also that the time must come when the sun will lose his heat, and all life on the earth necessarily cease—have to contemplate a not very distant future in which all this glorious earth—which for untold millions of years has been slowly developing forms of life and beauty, to culminate at last in man—shall be as if it had never existed; who are compelled to suppose that all the slow growths of our race struggling towards a higher life, all the agony of martyrs, all the groans of victims, all the evil and misery and undeserved suffering of the ages, all the struggles for freedom, all the efforts towards justice, all the aspirations for virtue and the well-being of humanity, shall absolutely vanish, and, 'like the baseless fabric of a vision, leave not a wrack behind.' As contrasted with this hopeless and soul-deadening belief, we, who accept the existence of a spiritual world, can look upon the universe as a grand consistent whole, adapted in all its parts to the development of spiritual beings, capable of indefinite life and perfectibility. . . . We thus feel that the Darwinian theory, even when carried out to its extreme logical conclusion, not only does not oppose but lends a decided support to a belief in the spiritual nature of man. It shows how man's body may have been developed from that of a lower animal form under the law of natural selection; but it also teaches us that we possess intellectual and moral faculties which could not have been so developed, but must have had another origin; and for this origin we can only find an adequate cause in the unseen universe of Spirit."

Art. IV.—*Notes on the Ornithology of New Zealand; with an Exhibition of Rare Specimens.*

By Sir Walter L. Buller, K.C.M.G., D.Sc., F.R.S., &c.

[*Read before the Wellington Philosophical Society, 25th July, 1894.*]

When I had the pleasure of reading a paper before you on the 13th July, 1892, I referred to the steps that had been taken by Mr. Ballance's Ministry, at the instance of our late Governor, Lord Onslow, towards preserving the native avi-fauna of New Zealand by setting apart island reserves and placing them under strict supervision. Having taken an active interest in these steps myself, naturally my first inquiry on returning to the colony, in March last, was as to how far the good intentions of the Government had been carried into effect. I was indeed glad to find that the negotiations for

the complete acquisition of the Little Barrier Island were being pushed forward, and with every prospect of speedy success, and that both there and on Resolution Island a custodian or ranger was being maintained by the Government. It is disheartening, however, to learn from the last report of the Auckland Institute that "in the meantime several natives and Europeans are living on the island, fires have been allowed to spread, and in the last week of January of this year a serious one was reported, which lasted at least a week." It is also alleged in the report that "the island has been visited by collectors, and specimens of the very birds which it was hoped might survive have been shot and brought to Auckland." I understand that effective steps are now being taken to prevent such depredations for the future. And, from what I can gather in the department, there is every reason to hope that within a measurable time the last of the native owners will have been settled with, and the private title extinguished. The whole of the island will then be Crown land, and will be under more effective control. All over the scientific world the action of the Government in this matter has been applauded. The efforts now being made, whether in the end completely successful or not, will in any case save us from the reproaches of posterity. If they should prove successful, as I believe they will, I venture to think that this service to science will bring credit and praise to the present Government when many of their more ambitious schemes and projects have been buried and forgotten. But it must be borne in mind that the conservation of the two islands I have named is only a partial carrying-out of Lord Onslow's recommendations and of the decision come to by the Government in 1892. The original proposal was not merely to protect the birds already existing on the two island reserves, notably the Stitchbird and the Whitehead on the Little Barrier, and *Notornis mantelli*, Kiwis, and Kakapos on Resolution Island; but that many other birds now living on the mainland, although becoming scarcer every year, should be systematically trapped from time to time and turned loose upon the islands. In addition to a further supply of Kiwis and Kakapos, of the different species, the birds specially marked out for these attentions were the Huia (*Heteralocha acutirostris*) and the Blue-wattled Crow (*Glaucopis wilsoni*) in the North Island, and the Thick-billed Thrush (*Turnagra crassirostris*) and the Orange-wattled Crow (*Glaucopis cinerea*) in the South Island. This could be done now, and at comparatively trifling cost; but every year it will become more difficult. It has now become a truism that the rarer New Zealand birds are passing away and will soon be extinct. But even species that were formerly very abundant all over the country are following suit, not only on the main-

land but on the small islands where the conditions of existence are so much more favourable. Mr. W. Hawkins, the well-known collector, writing to me from the Chatham Islands in August last, says, "The Fern-bird (*Sphenœacus rufescens*) and the Black Robin (*Miro traversi*) are gone. The Mako-mako and *Cabalus modestus* are going fast; and the Pigeon too. In fact Pitt Island is the only place where Pigeons and Bell-birds are to be got. . . . On the Sisters ten years ago the Maoris got a thousand Albatroses; last year they got only three hundred and fifty. They say that if I go there I'll frighten the Albatros away altogether, so they have absolutely prohibited my collecting there."

I shall now proceed to place before you my customary budget of ornithological notes. Dr. Sclater, the accomplished editor of the *Ibis*, has referred in terms of commendation to my practice of exhibiting at our meetings here the more important of the specimens to which the observations refer. I shall continue this practice, because it tends to keep up the interest of members in what is being done in this department of science. It is quite a mistake to suppose that because exhaustive works have appeared on the birds of New Zealand nothing remains to be done by the ordinary observer. In opposition to such a view, I may mention that since the publication of my last edition of "The Birds of New Zealand," in 1888, I have, through the medium of these periodical notes (without including those contained in the present paper), added no less than ten species to the list of our birds, recorded thirty-four albinisms and other abnormal varieties, and made original observations, more or less important, on eighty-four ordinary species. Others have been working in the same direction, and registering interesting facts, the most important of these contributions being a paper on the birds of the Chatham Islands by Mr. H. O. Forbes, which appeared (with two excellent illustrations) in the *Ibis* for October, 1893.

Heteralocha acutirostris, Gould. (Huia.)

Sir John Lubbock, in his charming volume "The Beauties of Nature," in an account of what he terms the Hura (meaning of course the Huia), pp. 48, 49, makes two mistakes. In the first place he calls it a Crow, whereas it has been proved to be a Starling; and, in discussing the curious modification of the bill in the two sexes and its use, he says, "When the cock has dug down to the burrow the hen inserts her long bill and draws out the grub, *which they then divide between them*" —the italics are mine—"a very pretty illustration of the wife as helpmate to the husband."

Now, I believe I was the first to observe and record the peculiar adaptation of the Huia's bill to its habits of life, in a

paper which I read before this Society in 1870, describing the conduct of a pair of live birds then in my possession (Trans. N.Z. Inst., vol. iii., pp. 24–29). But I had previously told Sir George Grey all about it, and he, with his usual felicity of expression, told the story at a meeting of the Zoological Society on his return to England. It seems a pity to destroy the pretty sentiment of the case as put by Sir John Lubbock, but science is inexorable, and the truth must be upheld. What I stated in my record of observations was this: "The very different development of the mandibles in the two sexes enabled them to perform separate offices. The male always attacked the more decayed portions of the wood, chiselling out his prey after the manner of some woodpeckers, while the female probed with her long pliant bill the other cells, where the hardness of the surrounding parts resisted the chisel of her mate. Sometimes I observed the male remove the decayed portion without being able to reach the grub, when the female would at once come to his aid, and accomplish, with her long slender bill, what he had failed to do. I noticed, however, that the female always appropriated to her own use the morsels thus obtained." I am sorry that the stern truth detracts from the poetry of Sir John Lubbock's narration.

Creadion carunculatus, Gmelin. (Saddleback.)

From Stephen Island, in Cook Strait, I received last year a fresh specimen, which was interesting as being in the full "saddleback" plumage, although a very young bird. It has very small caruncles, and a narrow yellow membrane at the angles of the mouth. The plumage is somewhat duller than in the adult, but the distribution of colours is the same. Such a specimen as this, which is still in my collection, establishes beyond all doubt the validity of *Creadion cinereus* as a distinct species.

Miro traversi, Buller. (Black Robin.)

The young of this species has the plumage slightly tinged with brown, and the feathers of the underparts have obscure margins.

Anthus aucklandicus, G. R. Gray. (Auckland-Island Pipit.)

In the Trans. N.Z. Inst., vol. xxi., p. 388, Mr. Reischek, after consultation with Professor Thomas and Mr. Cheeseman, described a new Ground-lark or Pipit from Antipodes Island, and named it *Anthus steindachneri*, after the Director of the Imperial Museum at Vienna. I have not seen the type, but the description of the bird given by Mr. Reischek indicates no difference between this bird and *Anthus aucklandicus*.

Rhipidura flabellifera, Gmelin. (Pied Fantail.)

In October, 1880, during a storm-bound visit to Motutaiko, in the Taupo Lake, I found the nest of this species, with four eggs in it, secured very neatly to a twig of kawakawa (*Piper excelsum*), a tree to which, as I have observed, the Fantail is very partial for nesting purposes. We had made our camp-fire immediately under the nest before discovering it, and, although we remained there several hours, the birds did not appear to be in any way inconvenienced by the volume of smoke that came from the driftwood fire, and enveloped them completely from time to time. Both sexes incubate in turn. There could be no mistake in this observation, because one of the birds had lost its tail, and could be readily distinguished from the other.

Rhipidura fuliginosa, Sparrm. (Black Fantail.)

On a recent visit to Papaitonga, I was much pleased to see a fine specimen of this South Island species in a clump of native bush near the homestead. It was associating with the Pied Fantail, which is particularly numerous in that locality. It was appreciably larger in size, and was in beautiful plumage, the white ear-spots being very conspicuous.

Mr. J. C. McLean, of Gisborne, in the *Ibis* for January last, gives an interesting account of the interbreeding in that district of a female bird of this species with a male of *R. flabellifera*. There were two eggs in the nest taken, and Mr. McLean thinks they are richer in colour than the ordinary egg of the Pied Fantail, "the spots being of a purplish tint, while in eggs of the pied bird they are brownish."

Petrochelidon nigricans, Vieill. (Australian Tree-swallow.)

Several instances have been recorded of the occurrence in New Zealand of flights of the Australian Tree-swallow. Mr. H. Guthrie-Smith, writing to me from Tutiri Lake, on the 20th August, 1893, says, "While up at the Mahia last week, I observed some birds like Martins or Swallows. They have been there for some weeks, I believe. They were flying high above some blossoming gum-trees when they were first pointed out to me. It was a dark afternoon; but, as far as I could see, their tails were not forked. I should be much obliged if you could tell me to what species they belong. Could they be a flight of *Hirundo nigricans ?*"

Mr. James Dall, of Collingwood, also writes to me, under date of the 25th June, 1893, "During this spring, summer, and autumn there have been large numbers of Australian Swallows or Martins visiting New Zealand—apparently all parts, as I see by a late *Canterbury Times* that a pair have built a nest and are hatching young ones in a mill about

Oamaru, where they are being greatly cared for by every one. In the spring of 1892 flocks of two or three dozen were observed in the neighbourhood of Cape Farewell." I have no doubt these visitants are referable to the above species. (See "Birds of New Zealand," 2nd ed., vol. i., pp. 74–76.)

Prosthemadera novæ-zealandiæ, Gmelin. (Tui.)

On examining a series of ten eggs I find that they vary a good deal both as to shape and colouring. For the most part they are of a narrow ovoido-elliptical form, with a very pronounced smaller end, but a few of them are less acuminate, and one is broadly ovoid. A typical one measures 1·25in. by 0·80in.; the more rounded one I have mentioned measures 1·125in. by 0·88in. This is almost entirely white, with only a few indistinct, widely-scattered, rusty or pale-red spots towards the larger end. The most highly-coloured example is of a delicate creamy-white or salmon tint, the larger end darker and thickly spotted and dotted with pale brown, these markings forming an indistinct zone. Two other eggs are almost exactly similar to this one, but with a paler ground, and all three are probably from one nest. Another set of three have scattered, somewhat obscure pale-brown markings over the entire surface. The three remaining ones (presumably from one nest) are white, with here and there a speck of pale brown, chiefly at the larger end.

Anthornis melanura, Sparrm. (Korimako.)

At 7 p.m. on the 26th October we left Tokanu for Tapuaeharuru in a four-oared boat, manned by a good crew of Armed Constabulary. It was a beautiful, calm day, and the surface of the lake was a perfect mirror. Five miles from land we could still hear the hollow boom of the Bittern, and the barking of the curs in the Maori village. There was not a breath of air to cause a ripple on the bosom of the lake, and the rock-bound margin of Motutaiko danced in the mirage of the morning sun. Our men were settling down to a long pull of twenty-five miles, and we had just arranged to make straight for Motutaiko and rest there for an *al fresco* lunch, when the seaman Todd, who was in charge of the crew, pointed to an advancing ripple from the southward; and, without a moment's warning, we were overtaken by a squall which increased in fury with amazing rapidity. Within the brief space of five minutes, instead of dreamily rowing on the placid waters, we were pitching and tossing in an angry sea—the rudder was powerless, and the oarsmen had the utmost difficulty in keeping the boat's head on. We shipped several heavy seas, and struggled on for hours, sometimes drifting, at others just holding our own, as the storm varied in force, the

men all pulling with desperate strength, knowing that to relax for a moment meant swamping and destruction to us all; for the best swimmer could not long have survived a capsize in such a sea, and with the atmosphere and water so intensely cold. After some four hours of unflagging labour, a lull in the storm enabled us to get under the lee of Motutaiko; but half an hour after we had landed, in a little rocky cove on the western side of the island, the storm redoubled in force, and for some hours such a gale blew as had not been witnessed in the lake for years. The "little white horses" of the sea chased each other in quick succession, and the spray rose in clouds as the winds swept over the tempestuous waters. Of course the first consideration on reaching land was a sense of gratitude at having escaped from a very perilous position; but I was delighted on landing to hear on all sides the silvery notes of the Korimako. As is well known, this little songster, which formerly was so abundant everywhere, has for a long time past been practically extinct in the North Island. At the time of this visit to Motutaiko it had not been heard of for several years on the mainland, although it was known to exist on certain islands off the coast, such as the Little Barrier in the Hauraki Gulf, and the Island of Kapiti in Cook Strait; and the generally-accepted theory had been that the chief factor in its extermination was the introduced rat. That certainly was my own belief. But a fact now came to my knowledge which seemed to tell very much against that theory. It was this: The island on which I so unexpectedly met with the Bell-bird is famous for its rats. It is covered with pohutukawa trees and koromiko scrub, and the whole island swarms with rats. The ground is in places almost honeycombed with their burrows, for in one spot I counted no less than five holes within a radius of eighteen inches. So numerous were they that Topia Turoa had found it necessary to turn some cats adrift on the island to reduce their numbers before he could put in a crop of potatoes on one of the slopes; and wind-bound boats lying in the little sandy cove at night have, it is said, been invaded by multitudes of rats and had all their provisions carried off.

Then, again, as to the rat theory, it is a significant fact that, although the Korimako has disappeared from the North Island, it has continued to exist in the South Island, although in somewhat diminished numbers; and, so far as I am aware, the introduced rat is as plentiful there as in the North. There may be destructive causes in operation of which we have no present knowledge.

I lately had an opportunity of examining a collection of twenty-three eggs of this species, all from the South Island. I made the following notes: They vary only very slightly in

size, but exhibit a considerable amount of variation in the markings. In most of them the ground-colour is white, in others it is suffused with a delicate pinky blush. Some have the larger end smeared and the rest of the surface irregularly spotted with rusty-brown; in others the brown markings form an indistinct zone; in some the brown is concentrated at the larger pole, the rest of the shell being entirely free from markings. In some specimens these markings are irregular, being streaky or blotchy; in others they are rounded dots, being more or less confluent at the pole. Their colour varies from a dull umber-brown to a warm reddish-brown. In a few of them the markings are distributed over the entire surface in the form of minute speckles, without any appearance of a zone or any congestion at the larger pole. Two that I selected for the purpose measured, respectively, 0·75in. by 0·625in. and 0·88in. by 0·55in., both being slightly pyriform.

Pogonornis cincta, Gray. (Stitch-bird.)

I have lately had an opportunity of examining a large series of specimens collected for Mr. Spencer on the Little Barrier Island, before that last resort of this species came under Government protection. The young male has exactly similar plumage to that of the adult female, except that there is a broad spot of canary-yellow near the bend of the wing. When the first moult commences this expands into a conspicuous band on the humerus, after which there is a gradual change of the body-plumage. I have described in "The Birds of New Zealand" a beautiful specimen in the Auckland Museum in a transitional state of plumage.

Halcyon vagans, Lesson. (Kingfisher.)

I am indebted to the kindness of Mr. Taylor White, of Hawke's Bay, for the opportunity of exhibiting this evening a lovely specimen of our Kingfisher. It is a perfect albino, every feather being of the purest white, and the whiteness extending even to the bill and feet.

Nestor meridionalis, Gmelin. (Kaka.)

This fine parrot is far less plentiful than it formerly was, and this is the inevitable result of settlement and the consequent destruction of the forests. In districts where formerly it existed in thousands its scream is never heard, and to many of the new settlers the bird is quite unknown. It is semi-nocturnal in its habits, and towards evening becomes very animated, flying over the tree-tops in an excited manner, generally in parties of three, uttering its harsh scream. This changes to a soft musical whistle as the birds alight; and, in doing this, they always select, as a post of observation, the

withered top of some aged tree, always climbing to the highest limbs, their progression being by a succession of short hops.

Platycercus novæ-zealandiæ, Sparrm. (Red-fronted Parrakeet.)

At Tapuaeharuru, on the Taupo Lake, I saw a fine caged example of this species in which the crown and sides of the head had a wash of yellow over the green.

Platycercus erythrotis, Wagler.

From a specimen received by the "Hinemoa," on her recent visit to Antipodes Island, I am able to give the measurements of this species: Length, 17in.; extent of wings, 12in.; wing from flexure, 5·75in.; tail, 6in.; bill, along the ridge 0·9in., along the edge of lower mandible 0·5in.; tarsus, 0·9in.; longer foretoe and claw, 1·25in. It proved, on dissection, to be a male.

Count Salvadori is of opinion that this species should be regarded as *Platycercus hochstetteri* (cf. Salvad., Cat. B. B.M., xx., p. 577), *Platycercus erythrotis* being the representative form on Macquarie Island. I have never seen the British Museum example mentioned by Dr. Finsch in his "Die Papageien," vol. ii., p. 275; but he treats it as a mere synonym of *Platycercus novæ-zealandiæ*. In any case there seems to be much uncertainty about the origin of this specimen; and Captain Fairchild informs me that he has been unable to get any evidence as to the existence of a Parrakeet on Macquarie Island.

Platycercus unicolor, Vigors. (Antipodes Island Parrakeet.)

I take this opportunity of exhibiting an egg of this species which was laid by a captive bird on board the "Hinemoa" on her last voyage from the islands. As will be seen, it is perfectly white, with a smooth surface, and almost spherical in shape, measuring 1in. in length by 0·9in. in extreme width.

Circus gouldi, Bonap. (Harrier.)

Although the Bush-hawk has almost entirely disappeared from all the settled districts, the Harrier maintains its ground, and is extremely abundant on some of the sheep-runs. At Papaitonga my son lately saw one with a perfectly white head, but it was very shy, and he was unable to shoot it. These hawks are in the habit of hunting along the shores of the lake, and are a perpetual terror to the young ducks. They are destructive also to the eggs of birds nesting in the sedge, on one occasion no less than fifteen eggs being taken from a goose's nest. They are bold enough, too, in their manner of attack. One day I saw three or four large Sea-shags (*Phala-*

crocorax novæ-hollandiæ) perched on the naked branches of a lofty matai near the edge of the lake, looking very fine as they balanced their bodies against the blue sky beyond. Presently a Harrier appeared in sight, and, without a moment's hesitation, swooped down on the group of Shags, and they, much to my surprise, instead of showing fight, made precipitately for the water. On another occasion one of these hawks made a determined attack on a flock of Black Teal (*Fuligula novæ-zealandiæ*) well out on the lake. The ducks splashed and dived, and evinced every sign of terror, and the assailant kept up the pursuit for fully half an hour, but without effect.

Apart from these depredations, I have reason to fear that these hawks have been interfering with the Mallards and other English birds recently placed by me on the Papaitonga Lake.

Harpa ferox, Peale. (Bush-hawk.)

At Waipuna, in Hawke's Bay, I saw, on the 17th March, a young Bush Hawk boldly attack a litter of kittens, whilst actually under the protection of the maternal cat! It seized one of them and lifted it some feet in the air. The quarry managed, however, to disengage itself and dropped to the ground. The hawk, which, from its size, I took to be a female, then settled on the dry limb of a tree close by, apparently to await another opportunity; and there we left her, balancing her body in an almost horizontal position, and looming large against the clear blue sky beyond.

Harpa novæ-zealandiæ. (Quail-hawk.)

The egg of this species is a very pretty object. I have now four specimens before me. They are of uniform size, and broadly ovoido-conical, measuring 2in. by 1·4in. Pale-brown, richly splashed and spotted over the entire surface with reddish-brown, especially at the larger end, where there is a mixture of blackish-brown with the brighter colour.

Carpophaga novæ-zealandiæ, Gmelin. (Wood-pigeon.)

It is very regrettable to see how scarce this fine Wood-pigeon is becoming in all the settled districts. Even as late as 1880 it was extremely abundant in the Forty-mile Bush. I find the following entry in my diary for April of that year:—

The Pigeon is now feeding on koroi, the small red berry of the kahikatea, which is exceptionally abundant this year, the trees by the roadside as we passed through the Forty-mile Bush having a russet hue from the abundance of the ripe fruit. The miro berry comes in next month, and the whanake

early in June. The pate (called "patete" by the Ngatikahungunu, and "kotete" by the Ngatiraukawa) is now in fruit, the long spikes or drupes of berries hanging in conspicuous clusters along the edge of the forest. This, too, is a favourite food of the Wood-pigeon at this season. The houhou, which has clusters of black berries, like the English elder-bush, contributes likewise to the bountiful bill of fare; so also does the karamu (*Coprosma lucida*), and a much larger kind, called raurekau by the natives, producing a brighter-red berry, and now in full bearing. The Tui and the Kaka also regale themselves at this season on these sweet berries.

The flight of the Wood-pigeon is rapid and direct at first, then oblique and somewhat tumbling: that is to say, the bird turns over first on one side, then on the other, in a very measured manner. The tail is partially spread during flight.

Many beautiful varieties of this fine Wood-pigeon have been recorded from time to time, but there is a specimen in the Colonial Museum of which no description has yet been published. In this bird the plumage of the head, neck, breast, and mantle is largely varied with pure white, which predominates on the neck, the normal bronzy plumage shining out in the midst of it, especially on the breast, with a very pretty effect; there are also a few scattered white feathers on the wings and tail. This handsome bird was obtained at Eketahuna, and presented to the Museum by Mr. R. R. Greville.

There are two beautiful specimens in the possession of Mr. C. J. Robinson, of the Upper Hutt. One of these, shot by himself on a miro tree at the summit of the western range, opposite Wallaceville, in June, 1892, has the head, neck, and breast, and the upper surface generally dull yellowish-brown, shaded with darker; the primaries and tail-feathers clove-brown, the latter darker; the higher interscapular region or shoulders and the small wing-coverts rich vinous-brown; some of the outer coverts pale-brown with vinous edgings; the whole of the under surface pure white. Bill and feet red. The other bird was shot in the same spot about eight days later. It is a lovely albino, the entire plumage being pure white, with just the faintest tinge of cream, or, so to speak, another shade of white on the breast; and on the smaller wing-coverts there is a pale wash of cream. The primaries and tail-feathers are pale cream with pure-white shafts. Bill and feet red.

A specimen which I lately received from Nelson has the white of the underparts, especially along the junction with the bronze plumage of the breast, washed with chrome-yellow, and the under tail-coverts are entirely of that colour. It is apparently an adult bird, and is marked "female" by the collector.

Carpophaga chathamiensis, Roths. (Chatham Island Wood-pigeon.)

I have very much pleasure in exhibiting this evening a specimen of the new species of Pigeon mentioned by me in a former paper,* as it is an excellent illustration of what I have recently said about the development of insular forms.

Gallinago pusilla, Buller. (Chatham-Island Snipe.)

Gallinago huegeli, Tristram. (Snares Snipe.)

The Bulletin of the British Ornithologists' Club for June, 1893, contains a communication from the Rev. Canon Tristram, from which I extract the following: "In the *Ibis* for 1869, p. 41, Sir W. Buller described a second species [of Snipe] from the Chatham Islands as *Gallinago pusilla*. Very few specimens have been received, but the species has twice been obtained in New Zealand (to which it is evidently an occasional wanderer): once by Sir James Hector, in the Gulf of Hauraki, and once by Mr. F. B. Hill, on Little Barrier Island. All doubts as to its being a distinct species have recently been set at rest by the large number of specimens obtained in the Chatham Islands by the collectors of the Hon. Walter Rothschild and Mr. H. O. Forbes. I have examined more than twenty specimens, and find that all of them agree in every respect, and cannot be confused with the Auckland Island species. But when Sir W. Buller published his second edition of the 'Birds of New Zealand' he had, unfortunately, sent back to New Zealand his only specimen from the Chatham Islands, and borrowed from me a specimen which had been obtained by Baron A. von Hügel on the Snares, seventy miles south of the southern extremity of New Zealand. This I had put down as *Gallinago pusilla*, having at that time never seen a Chatham Island specimen. It is very accurately figured and coloured in Buller's second edition; but it proves to be very different from the true *G. pusilla*. The only other example in existence, so far as I am aware, is a second specimen obtained on the Snares at the same time by Baron A. von Hügel, and in the collection of the Hon. Walter Rothschild."

Canon Tristram says, "This species may at once be distinguished from its congeners by its much redder hue, and especially by the remarkable fineness and delicacy of its markings, the edgings of the upper plumage and the striation and bands on the lower surface being much smaller, closer, and more distinct. In the other two species (*Gallinago pusilla* and *G. aucklandica*) the abdomen and thighs are whitish, while

* Trans. N.Z. Inst., vol. xxiv., p. 80.

in this they are thickly barred. In this species the three outer tail-feathers on each side are attenuated, with a white edging; in the others only the two outer pairs of tail-feathers appear to be so attenuated."

Gallinago tristrami, Roths. (Antipodes-Island Snipe.)

I have much pleasure in exhibiting a specimen of this rare Snipe, obtained on the last visit of the "Hinemoa" to Antipodes Island, and kindly lent to me by Mr. Bethune, the second engineer.

In his communication relating to *Gallinago huegeli,* cited above, Canon Tristram made the following remarks: "There would appear to be three species of *Gallinago* in the islands round New Zealand: *G. aucklandica* in the Aucklands, *G. pusilla* in the Chathams, and *G. huegeli* in the Snares, all being sedentary, or nearly so, in their several localities. To these further research will probably add a fourth from Antipodes Island, whence a single specimen has been received by Sir James Hector, who states it to be larger, darker in plumage, and with a more curved bill than the Auckland-Island species. Unfortunately he has not described it." Shortly after this a specimen was obtained by the Hon. Walter Rothschild, who described it at a meeting of the B.O.C., and dedicated it to Canon Tristram.

Larus dominicanus, Licht. (Black-backed Gull.)

Larus scopulinus, Forst. (Red-billed Gull.)

We have an excellent proof of the wisdom of protective legislation in the numbers and increasing tameness of the Seagulls that now frequent our harbours and estuaries. Not only are these birds very ornamental as they rest on the wharves and jetties, or hover lightly among the shipping at its anchorage, but they do good service to mankind as scavengers of the water by devouring the garbage which will inevitably find its way into the water in the vicinity of human habitations, and which, unless consumed, decomposes, and vitiates the atmosphere. On my last visit to Auckland I was much interested at seeing scores of seagulls of both species (*Larus dominicanus* and *L. scopulinus*) crowded together on the ridge-boards of the sheds on the Queen-street Wharf, in the very midst of the busy traffic. After years of rigid protection the birds have become quite familiar with the presence of man, and are, indeed, practically domesticated. What will happen in the course of time I saw exemplified at Glasgow, where hundreds of Kittiwake Gulls are to be seen all day long disporting themselves in the turbid waters of the River Kelvin, as it flows through the grounds in front of the Hunterian Museum. They are just as fearless and confident as domestic fowls, being wholly

indifferent to the stream of passengers to and fro on both sides of the river. I met with another instance of this at Blairquhan, the country seat of Sir Edward Hunter-Brown, Bart. Here, owing to the close protection given to a small lake in the park, a couple of hundred Wild-duck had become perfectly tame, and would come up every day to the keeper's house to be fed. These same birds on being seen on the River Girvan close by, where shooting is allowed, are as shy as ever. So much for the intelligence of the common Wild-duck, which has learned to regard the park lake as a sanctuary, where it is perfectly safe from molestation! But to return to the Sea-gulls. The manner in which they have increased in Wellington Harbour during the last few years, in spite of advancing traffic, is a striking proof of the efficacy of this protection. At Pitone, where the Gear Meat-freezing Works are situated, there is of necessity a considerable discharge of refuse matter, and the number of Seagulls, of both species, that congregate there on the beaches and gravel-banks is something surprising.

On my last visit to Tokanu, on Lake Taupo, I noticed many hundreds of birds flying overhead, and the natives assured me these were the tarapunga (*Larus scopulinus*) on their regular migration from the Rotoaira Lake. This was on the 25th October. The birds were at a considerable elevation, presenting peculiar combinations; at one time flying in closely-packed lines, then forming into a wedge-shape, and then scattering again like a flock of crows, and uttering all the time loud cries of *kek—kek—kek*. Large contingents of the birds had already arrived, because they were to be seen crowding together in large numbers on the exposed sand-banks just above the surface of the water.

Sterna frontalis, Gray. (Common Tern.)

On the Taupo plains, where there are thousands of sterile acres covered with manuka scrub, about five or six miles inland of the lake I observed two Terns, apparently of this species, hovering over the ground, although I found it difficult to imagine what they could find to attract them in such a barren locality. Probably they were in quest of lizards.

This species of Tern frequents the Taupo Lake, and so does *Sterna antarctica*.

Sterna fuliginosa, Gould. (Sooty Tern.)

I have received a good many specimens from the Kermadec Islands. Mr. Cheeseman writes, "It is called the 'Wide-awake' bird by the Bells, and breeds in immense numbers in the summer-time, but leaves the group altogether in the winter."

Ocydromus greyi, Buller. (North Island Woodhen.)

This species of Woodhen is still numerous on the wooded hill-sides and mountain gullies in the Murimotu-Taupo country. It is seldom met with in the open country, except at one particular season, when the birds are exceedingly fat, and the natives catch large numbers by running them down with dogs.

It is a very remarkable fact in local botany that on the arid lands forming the Onetapu Desert, and on the slopes of Ruapehu Mountain, where the climate is very rigorous, certain native pines, which in the lowlands attain to a considerable height as forest trees, are represented by dwarfed forms of the same species, not more than a few inches in height, and often assuming a creeping habit. These degraded forms, which are specifically identical with their forest relations, resemble them exactly in their fructification. The berries borne by these pigmy growths equal in size, and sometimes even exceed, those of the forest trees,—the fruit of the dwarf totara, for example, being sometimes double the size of the normal berry, while those of the miro, kahikatea, and rimu are at least fully equal to the berries produced by the forest trees. When these miniature woods are laden with ripe mast the Woodhen leaves the shelter of the woods and comes out into the open to revel in plenty. As already stated, the birds then become unusually fat, and, owing to their diminished activity, become an easy prey to the natives. Captain Mair informs me that he has known of a native with a good dog, ten years ago, killing as many as eighty in a single day. Pigeons and kakas, also, are said to resort to these subalpine woods in considerable numbers to feed on the ripe fruit. When camped on the edge of a red-birch forest near the Mangataramea Stream (at an elevation of 3,000ft.) I heard the loud cry of the Woodhen every night, but I never met with the bird in the open country, and the sheep-farmer with whom I was staying appeared never to have seen one.

I was much struck with the beauty of these clumps of bush in the Murimotu highlands, where the Woodhen was so numerous. Some of them consist entirely of kawaka (*Librocedrus doniana*) a very ornamental tree of bright-green foliage and tapering growth, with a trunk like a miniature *Sequoia*. This is plainly seen when a fire has passed through the forest and left the trees dead and naked. In some places you meet with the strange sight of the whole forest apparently hewn down, and strewing the ground with bleached and charred trunks. The explanation is this: that these trees are generally hollow near the ground, and have only a feeble support of lateral roots. Consequently, when a fire has passed through

and killed the trees, the dead timber cannot long resist the action of the weather, and one after another the "cedars" topple over with the passing blast, till at length not a single trunk remains standing, and an appearance is presented of utter wreck and desolation. For the most part the trees are of small size, but Captain Mair informs me he has often met with them 4ft. in diameter at the base. Another tree that adds to the novelty of these subalpine woods is the silver-birch—a graceful and elegant tree of bright foliage, resembling at a short distance the larch, and showing up conspicuously amongst the black- and red-birch with which it mingles. In these mountain solitudes, however, there is very little animal life to engage the attention of the naturalist. On the summit of Gentle Annie, in fine weather, I met with what appeared to be a smaller and very bright variety of the Yellow Admiral butterfly, but I could not catch any. I saw occasionally a small lizard, which I referred to *Tiliqua zealandica*. Bird-life is scarce, except at certain seasons and in particular localities.

Ocydromus earli, Gray. (Brown Woodhen.)

I have to exhibit to-night another remarkable albinism. It is that of the Brown Woodhen of the South Island. The forehead, face, foreneck, and breast are pure white; five of the quills in one wing and six in the other are entirely white; there are a few white feathers scattered among the wing-coverts, and there is a large admixture of white in the plumage of the abdomen, sides of the body, and flanks. The rest of the plumage is normal. To judge from its large size, it is a male bird. I obtained it, through a dealer, from the west coast of the South Island.

Ocydromus brachypterus, Lafr. (Black Woodhen.)

Dr. Sharpe reports that he has examined the type specimen of *Gallirallus brachypterus* from the Caen Museum, for the loan of which he was indebted to Professor Joyeux-Laffine, the Director of that Museum. Dr. Sharpe points out that the species has been the subject of much controversial opinion, but that it is evidently the same as *Gallirallus fuscus* of Du Bus, which must therefore be known as *Ocydromus brachypterus* (Bull. B.O.C., Jan., 1873). This being so, the Buff Woodhen, which I referred to *Ocydromus brachypterus* in my second edition of "The Birds of New Zealand," becomes *Ocydromus hectori*, Hutton (Trans. N.Z. Inst., vol. vi., p. 110, 1874), or, perhaps more properly, *Ocydromus troglodytes*, Gmelin.

Porphyrio melanonotus, Temm. (Swamp-hen.)

I have to exhibit this evening a curious example of the Swamp-hen or Pukeko, lately received by me from Nelson. All the primaries in each wing are crossed near the tip with a broad band of yellowish-white; the secondaries are similarly marked, but not so sharply, and so are most of the wing-coverts, imparting a mottled appearance to the upper surface. The tail-feathers are broadly tipped with yellowish-white, and there are a few scattered white feathers on the shoulders and on the underparts. The rest of the plumage is normal.

I take this opportunity of mentioning a Swamp-hen from the Chatham Islands described as new by Dr. Bowdler Sharpe under the name of *Porphyrio chathamensis* (Cat. Birds Brit. Mus., xxiii., p. 202). He gives the following diagnosis of the species: "Similis *P. bello*, sed gutture toto nigro, pileo concolore; præpectore saturate cyaneo: tibiis nigris, abdomine imo concoloribus"; and he adds, "The tints are difficult to describe, but the differences are well seen on comparison with *P. bellus*."

It seemed to me highly improbable that there should be a differentiated species of this widely-spread form at the Chathams, and, although holding Dr. Sharpe's judgment in great respect, I went to the British Museum to examine the type for myself. A single glance satisfied me that the supposed new species was nothing but our ordinary Swamp-hen in an unusual, but by no means uncommon, phase of plumage. The dark head and throat, the highly-coloured breast, and dark underparts are merely individual differences of colour and have no specific value. I would undertake to pick out several birds exactly similar to Dr. Sharpe's at the close of a day's shooting in any locality where Pukekos are numerous.

The Swamp-hen of New Zealand is abundant at the Chatham Islands, and the existence there of another species of so diffuse a form seemed on the face of it most unlikely.

Diomedea regia, Buller. (Royal Albatros.)

In the Hunterian Museum at Glasgow I saw an undoubted example of this species labelled as *Diomedea exulans*. The Curator told me the specimen had been in the Museum many years, and that it was recorded as having come from the Cape of Good Hope.

The following passage in Cook's "Second Voyage" probably refers to this species, and, if so, it is without doubt the earliest record of the bird: "In the afternoon of the 21st [January, 1773] being in the latitude of 64° 24′ South, longitude 42° 19′ East, we saw a white Albatros with black-tipped wings."

Diomedea melanophrys, Boie. (Mollyhawk.)

In the perfectly adult bird the bill is of an uniform gamboge-yellow, shaded with orange on the hook, and with a very fine line of black around the base of both mandibles; feet delicate blue-grey, darker on the joints and interdigital webs; claws white-horn colour.

Diomedea exulans, Linn. (Wandering Albatros.)

I have already mentioned the tame Albatros which lived so long at Government House, under Mr. Gillington's assiduous care.* But there is a still more remarkable instance of the kind, for Mr. Martin Chapman had a live one in his possession for several months, having obtained it as a nestling from the Auckland Islands. It partook freely of fat meat, and had an inordinate appetite. It became quite tame, but on being provoked would snap audibly with its mandibles.

Captain Fairchild informs me that when visiting the Brothers and Stephen's Island in June last, in perfectly calm weather, he saw at least six hundred Albatroses resting on the water, and that from the anchorage off the latter he counted as many as a hundred. He says he has noticed that during the last five years they have been getting more and more plentiful off the New Zealand coast. Prior to that he never saw more than a straggler now and then, and generally at Flat Point, about midway between Wellington and Napier.

Diomedea fuliginosa, Gmelin. (Sooty Albatros.)

Captain Fairchild states that about the end of May last or beginning of June, when off Milford Sound, in the "Hinemoa," he saw fully a dozen Sooty Albatroses coursing about together—a most unusual circumstance.

Diomedea bulleri, Rothschild. (Buller's Albatros.)

The bird which has hitherto been called *Diomedea culminata* in our New Zealand lists has been pronounced by Mr. Salvin a new species, and is described in the *Ibis* (vol. v., 1893, p. 572) by Mr. W. Rothschild, who has been good enough to dedicate this new form to myself. The type of the species, besides a very large series of representative specimens, is in the Rothschild Museum at Tring.

The following is the diagnosis: *Thalassogeronti culminato* quoad colores similis, sed rostro pallidiore, culmine ad basin latiore, ad latera attingente, culmine omnino flavo; alis subtus niveis. He adds, "It differs materially from the true *Thalassogeron culminatus* (Gould), a species of Ridgway's genus *Thalassogeron*, the base of the culminicorn being

* Trans. N.Z. Inst., vol. xxv., p. 76.

separated by an interval of soft skin from the latericorn. In this respect the present species is somewhat intermediate between *Diomedea* and *Thalassogeron*, but the base of the culminicorn, though not so well developed, distinctly spreads and has a well-defined posterior margin."

Diomedea salvini, Rothschild. (Salvin's Albatros.)

On the same unimpeachable authority, Mr. Rothschild has renamed the bird which has hitherto been known to us as *Diomedea cauta*, and has referred it to the genus *Thalassogeron*. The type of Gould's *T. cautus* is in the British Museum, and the present form is distinguished thus: Similis *Th. cauto*, sed rostro multo minore, ad basin minus elevato, plumbescente nec albido, tarsis et digitis brevioribus quoque dignoscendus. He adds, "In coloration this species is apparently greyer on the head and neck, the dark loral mark in front of the eye being very conspicuous."

Majaqueus æquinoctialis, Linn. (The "Stinker" of whalers.)

In a former paper (Trans. N.Z. Inst., vol. xxv., p. 62) I mentioned, on the authority of the carpenter of the "Hinemoa," a new species of Petrel at the Auckland Islands, of which he had obtained two specimens, and which, from his account of it, I referred to *Majaqueus æquinoctialis*. I have now the pleasure to lay before you two specimens (male and female), lately obtained through Mr. Smyth, the well-known taxidermist at Caversham, so that the claim of this fine species to a place in our list is beyond question. The peculiar odour which is characteristic of all Petrels in life, and never entirely quits the dried skin, is very pronounced in this species, and quite justifies the name by which whalers and sailors distinguish it.

Majaqueus parkinsoni, Gray. (Black Petrel.)

Mr. J. Brough, of Nelson, in sending me a skin of this Petrel, furnishes the following notes: "This bird was killed in February on a dividing-range between the head of the Heaphy and the Big River. It was found in a hole at the roots of a huge rata, in the midst of dense forest. I am quite satisfied that this bird is the 'Night Demon' of our diggers. I had a live one some time ago from Collingwood, and I kept it for three months; so I had every opportunity of observing its habits. It was strictly nocturnal, and would never feed by day. On windy nights the bird would become very excited, and then it would give vent to the hysterical laugh or scream from which it takes its name of 'Night Demon.'"

Œstrelata leucophrys, Hutton. (Kermadec-Island Petrel.)

Under the above name Professor Hutton has described a Petrel received from the Kermedec Islands. The description was to appear in the "Proceedings" of the Zoological Society after I left England, and a beautiful plate of it had been prepared by Keulemans. It is as well to have it on record, but it is by no means certain that it is a good species. I had previously taken Home two specimens of this Petrel, which I had received from Captain Fairchild. On submitting them to Mr. Salvin, the great authority on the Petrel family, he unhesitatingly pronounced it an aberrant form of *Œstrelata neglecta*, which has a great tendency to vary. At Mr. Salvin's request, I afterwards examined Professor Hutton's type at the Zoological Society's rooms, and found it was identical with the species I had submitted to him. Mr. Salvin's own verdict was, "a bad species and a bad name."

Œstrelata nigripennis, Rothschild; *Ibis*, vol. v., 1893, p. 573.

A third new species pointed out by Mr. Salvin in Mr. Walter Rothschild's beautiful collection of Petrels at Tring, and named as above, comes from the Kermadec Islands. "This species belongs to the *Œ. cooki* (Gray) section of the genus *Œstrelata*, of which *Œ. defilippiana* is also a member. It differs from all its congeners in having a short, stout, wide bill, and in the almost total absence of white on the inner webs of the outer primary beneath; the under wing-coverts, with the exception of a rather wide margin, being white, as well as the axillary feathers."

I do not know what authority Professor Hutton had for the following reference to me in his recent communication to the Zoological Society (Proc. Z.S., 1893, p. 750), of which he has kindly sent me a copy: "*Œstrelata nigripennis*, Rothschild (1893) = *Œ. cooki*, Cheeseman (*fide* Buller), Trans. N.Z. Inst., vol. xxiii., p. 224; not of Gray." I am not aware that I ever saw Mr. Cheeseman's specimen; and there is certainly no warrant for this statement in that gentleman's paper (*op. cit.*) on the Kermadec Petrels. Where Mr. Cheeseman sought my assistance in identifying his specimens he has mentioned the fact.

Œstrelata axillaris, Salvin; *Ibis*, 1893, p. 264.

This is a very interesting addition to our list of native species. In the collection of birds made by Mr. Hawkins at the Chatham Islands, there were two specimens of a Petrel allied to *Œstrelata cooki*, but differing in several marked characters, notably in having black axillary plumes. Mr. Salvin states, "The skins were not quite adult, but were marked

male and female. The birds had been shot on the south-east island on the 8th May, 1892."

Œstrelata cervicalis, Salvin. (Sunday Island Petrel.)

Shortly before I went to Europe, Captain Fairchild kindly presented me with a beautiful Petrel from Sunday Island, in both adult and young states. The bird appeared to me to be an entirely new species, but, as I was going Home, I decided to delay my publication of it till I could compare my specimens with the types in the British Museum. But I was too late with it, for, in the meantime, a Captain Carpenter had sent a skin to the Museum, and Mr. Salvin had named it as above. It had fallen into good hands; and my only regret in the matter was that I had wished to connect Captain Fairchild's name with this fine species.

Œstrelata affinis, Buller. (Mottled Petrel.)

Professor Hutton is in error in stating (*loc. cit.*, p. 753) that Mr. Salvin had identified my *Œstrelata affinis* with *Œ. gularis* (Peale). Had our acknowledged authority on Petrels, Mr. Salvin, so identified my bird, I certainly should not have described and figured it as *Œstrelata affinis* in my second edition of "The Birds of New Zealand." While admitting the species, Mr. Salvin suggested that it might prove to be the same as *Œ. gularis*, Peale (see *Ibis*, 1888, p. 358), and so the matter rests. Professor Hutton knew this perfectly well, because I had stated the facts in my account of the species. The type of *Œstrelata gularis* is in the Smithsonian Institution, and neither Mr. Salvin nor I have had an opportunity of comparing it with *Œ. affinis*, mihi.

Puffinus gavia, Forst. (Forster's Shearwater.)

A nestling obtained in the Hauraki Gulf, on the 8th November, was covered with very long and thick down of extremely soft texture, and dark slate-grey, on the upper parts; thick and close, and of a paler grey, on the under parts, fading to whitish on the crop and foreneck. Black feathers just beginning to appear on the wings.

Puffinus griseus, Gmelin. (Sombre Shearwater.)

A nestling obtained from one of the islands in the Hauraki Gulf, on the 18th November, was covered with thick down, long, extremely fine, and dark slate-grey in colour on the upper parts, shorter and thicker on the under parts; paler grey on the sides of the body; white on the foreneck, crop, and down the centre of the abdomen, in a broad band, to the vent.

Puffinus chlororhynchus, Lesson.

I do not know what authority Professor Hutton had for citing me thus, in a recent communication to the Zoological Society of London: "*Puffinus chlororhynchus,* Lesson; Buller, 'Birds of New Zealand,' 2nd ed., vol. ii., p. 235; *P. caneipes,* Cheeseman (*fide* Buller), Trans. N.Z. Inst., vol. xxiii., p. 226; not of Gould." On turning to Mr. T. F. Cheeseman's paper I do not find any justification for the reference. As a matter of fact I have never seen his specimens of this bird. I described both species in my second edition of "The Birds of New Zealand" (see pages 234 and 235), and am therefore familiar with them. From the Kermadecs I received two examples of *Puffinus chlororhynchus,* just as I was starting for England. I took them with me, and, on submitting them to Mr. Salvin, he confirmed my identification.

Puffinus assimilis, Gould. (Allied Shearwater.)

A fledgling which I have received from Sunday Island (one of the Kermadecs) is a very pretty object. The plumage is as in the adult, except that the longer wing-coverts and inner secondaries are minutely tipped with white. But the long, fluffy, dark-grey down still adheres to the sides of the body, and as the bird squats it looks as if reposing in a luxurious nest of down, which projects an inch or more from the body, and has a charming effect.

Anas chlorotis, Gray. (Brown Duck.)

I am indebted to Captain Mair for another partial albino of this species, which was shot by him on a lagoon near the Manawatu River. It has the forehead, sides of the head, nape, and hindneck white; shoulders and mantle with white feathers intermixed with the brown, the former preponderating. Rest of the plumage normal.

A specimen which came into my possession some time ago (now in the Rothschild Museum) has the sides of the head, crown, hindhead, and upper part of neck pure white, varied only by irregular patches of brown extending from the base of the upper mandible to the eyes, and thence across the vertex. Most of the small wing-coverts, also one secondary and one primary in each wing, are pure white; of which there are also touches near the tips of the other quills. The rest of the plumage is normal, except that the margins of the dorsal feathers are somewhat lighter than in ordinary birds.

Anas superciliosa, Gmelin. (Grey Duck.)

I have already recorded some remarkable eccentricities in the breeding of the common Grey Duck. I find the following in one of my note-books: At one end of the little island of

Motutaiko, in Taupo Lake, on a pohutukawa tree overhanging the water, and at an elevation of 12ft. from the surface, a pair of these Ducks, for several successive seasons, re-formed their rude nest and brought forth their young.

Hymenolæmus malacorhynchus, Gray. (Blue Duck.)

A specimen of this Duck from Dusky Sound which passed through my hands differed from ordinary examples in having the whole of the plumage of a silky texture, and the entire breast in front and on the sides thickly studded with dark chestnut-brown spots, becoming almost confluent in places.

Aptenodytes longirostris, Scop. (King Penguin.)

The examination of a series of eight eggs gave me the following result: They exhibit much variety in size and shape; the typical form is pear-shaped, but sometimes they are elongate, inclining to an elliptical form, with an attenuated smaller end. The largest of the former in this series measures 4·1in. by 3in.; and the smallest of the latter measures 4·1in. by 2·7in.

Apteryx haasti, Potts. (Haast's Kiwi.)

Two eggs of this rare form were collected by Mr. Charles Robinson on the Heaphy Ranges, on the west coast of the South Island. The larger of these, measuring 5·125in. by 3·125in., was taken, in a perfectly fresh state, on the 20th December, with the female bird, under a grass tussock. The male bird was found by the dog, also under a grass tussock, some distance away. The other egg, which is about one-eighth of an inch shorter, was taken (with a single bird in the nest) on the 26th January. It unfortunately got cracked through the struggles of the captive bird, and was found to contain a well-advanced embryo. Both eggs when taken were much soiled by contact with the birds' feet, especially the one that had been long incubated; but, on being washed, they disclosed a shell of a pale greenish-white. In form they are broadly ovoido-elliptical, the smaller one being almost a perfect ellipsis. These unique specimens are now in the Rothschild Museum, at Tring.