

The Nature of the New Zealand Avifauna.

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As we regard ourselves as specialists in connection with the New Zealand avifauna, and are now preparing a Handbook, we are naturally much interested in literature relating to this country. Consequently, we noted in *The Emu*, vol. xix., p. 275 (1st April = 29th May, 1920), a paper entitled "The Tasmanian and New Zealand Groups," by Robert Hall. It is well known that Mr. Hall was familiar with the Tasmanian *Ornis*, so that the essay demanded attention.

We have published a "Name-list" in the *Austral Avian Record* (vol. iv., pp. 49 *et seq.*, July, 1920), and we will here give details in connection with that list. We had not intended to do this at the present stage, as Hutton's account, published within the last twenty years, was comparatively good. This paper will only deal with the birds as we have studied them, giving the relationships as accurately as possible and their hypothetical method of arrival. It will be observed that many of the relationships are regarded as unknown by us; this is better than stating an alliance which is purely conjectural.

As the limits of the Maorian Region are debatable, we must preface these remarks with our ideas of the territory and its subdivisions. As we here include the Kermadec Islands, we must note that these constitute a Polynesian outlier with a basic Neozelanic affinity, and consequently species become admitted to the New Zealand avifauna which, if this were not emphasized, would show a peculiar aspect in some connections. Then it must be remembered that the Chatham Islands, which are an integral portion of the region, have been separated for a period quite inestimable with the present data; consequently we have, as endemic, forms which are missing from the mainland, and, *vice versa*, have no record of well-established mainland specialities. The next item is the Subantarctic series of islands, covering the Bounty Islands, Campbell, Auckland, and Macquarie Groups. All these are situated in different latitudes, and are more or less barren islets and islands inhabited by sea-birds, with a few land residents. These, again, give to the New Zealand avifauna a strange countenance, which would be different and might be differently interpreted in their absence.

To begin with, we credit New Zealand with nine species of Penguins, only four of which breed on the mainland, and these are the best known and, except one, the least significant of the Order. We admit two species of *Eudyptula* (the Little Penguin), with a strange distribution, the facts regarding which are not yet well known. One species, the earliest to be described by Forster—the *Eudyptula minor*—is so closely allied to the bird breeding in Australia that it is considered only sub-specifically

separable. No sub-species are recognized in New Zealand, though it is known to breed as far north as Auckland and south to Otago, while recently Nicholls and Alexander * concluded that no sub-species could be determined in Australia with a breeding range from the South Solitaires, New South Wales, through Bass Strait along the south coast to Western Australia. It is extraordinary and at present inexplicable that a second very distinct species should live at Banks Peninsula, about the middle of the east coast of the South Island, called, from its beautiful pale coloration, the Silver Penguin (*Eudyptula albosignata*). Of the genus *Eudyptes* we admit four species, of which one occurs on the mainland as a breeding species—*Eudyptes pachyrhynchus*—known as the Victoria Penguin when breeding at The Snares, but also having the name of the Big-billed Penguin, which is not so distinctive, as other species of *Eudyptes* have as big or even bigger bills. *Eudyptes serresianus* (the Tufted Penguin) also breeds at The Snares, and is peculiarly distinct in breeding plumage, but not so easily distinguishable in a worn state. These two appear to have been recorded from Australia as wanderers, but a complication has just recently been recognized in the description of one specimen, which determines it, as far as it goes, as *Eudyptes schlegeli*, the species which breeds on the Macquarie Group, and which is characterized by the presence of yellow feathering on the forehead, which is present but sometimes obscured in some stages. The fourth species is *Eudyptes sclateri*, the Auckland Island breeding bird, which appears to be separable by the culmen formation as regards the dead specimens, but which may show vivid features in life, as it appears to be easily differentiated by field observers. The Yellow Penguin (*Megadyptes antipodes*) breeds both on the mainland and outlying islands, and is remarkable as suggesting a higher place in the scheme of evolution of the Penguins, as derived from the *Eudyptula* series. This series seems to be more closely allied to the *Spheniscus* group, which occurs in South Africa, South America, and the Galapagos, and to the Emperor Penguins, and which include the famous Adelie Penguin. To the latter group two New Zealand species are allotted, both of them confined as breeding birds to the Macquarie Group—the Rock Hopper and the King Penguin. The former, also known as the Royal Penguin (*Pygoscelis papua*), is even more famous as the Gentoo of the Falkland Islands. Only sub-specific differences are ascertainable between the representatives on the two far distant groups, and this is confirmed by a similar distinction between the King Penguin (*Aptenodytes patagonica*), also with a similar distribution, but more southward at the Falkland Islands locality, only occurring as far north as a visitor even as in New Zealand and as once recorded from Tasmania. Before leaving these families we might note that latitude does not govern the range of these species, but apparently cold currents have more significance. It is a remarkable fact that while *Eudyptes*,

* *The Emu*, vol. xviii., p. 50.

Pygoscelis, and *Aptenodytes* have a world-wide Subantarctic range, *Eudyptula* is confined to Australia and New Zealand, and *Megadyptes* is purely Neozelanic. No other country can boast of an endemic genus of Penguins, and none other can show five breeding genera of Penguins with nine distinct species.

Australia, the nearest country, has only one breeding species, and that the least in size, though perhaps not the most insignificant in scientific interest.

If New Zealand can claim to be the present stronghold of Penguins, how can we express its relationship to Petrels? Out of a total of a little over 200 species of birds, one-fifth are Petrels. No proportion anything like this can be elsewhere seen, and no other country can show so many species, whatever its extent. Australia can nearly enumerate as many, but these are mainly stragglers, whereas in the case of New Zealand the majority are breeders. This is again due to the Subantarctic and Subtropical groups of islands, which are the breeding homes of many species. Of little value as regards the inter-relationships of avifaunas, we can dismiss them easily. They, however, characterize the New Zealand *Ornis*, and occupy, with the Penguins, the most prominent place in the study of the avifauna.

Frigate-Birds have occurred as stragglers only from the north, but New Zealand Shags are famous. Owing to the splitting methods of the last generation of ornithologists, many more species were credited to the Dominion than really exist. A large number of "White-bellied" species were named on account of indeterminate and variable differences seen in single specimens from different islands. A very careful examination has reduced the number of "species" to nine, but still this is more than any other locality harbours. Moreover, eight out of the nine do breed on the mainland, while varied forms of two of them inhabiting the subantarctic islands have been the ones to receive "specific" recognition without deserving it. Four species of the "White-bellied" series *par excellence* are allowed, one of which has not a "white belly." Such a paradox could not be achieved except in New Zealand, but it is one of Nature's ways in that peculiar country absolutely to contradict itself. This species is a melanistic evolution which has separated itself and at present lives along with its parent form. In another Shag we have the reverse procedure present—viz., the acquisition of a "white belly" from a Black-bellied form. Then two Shags only sub-specifically different from two Australian Shags occur, and two others, generically endemic, complete the tale, one of which represents the other on the Chatham Islands.

To indicate the facts with usage of technical names, we will note that the genus *Hypoleucus* has four species—*varius*, *carunculatus*, *campbelli*, and *chalconotus*—the last-named being the fixed melanistic representative of the preceding one. This genus is Subantarctic in distribution, occurring in Australia with two species, *perthi* and *fuscescens*. The latter is purely an Australian

form well distinguished; but the former, though quite distinct, was until very recently confused with the Neozelanic *varius*. The two species *carunculatus* and *campbelli* are scarcely specifically separable from the South American, Falkland Islands, &c., forms known as *atriceps*, *magellanicus*, &c. The two species of *Stictocarbo* constitute a peculiar group—one on the mainland, a very common and well-distributed Shag, *punctatus*; the other a rare and very beautiful Chatham Island representative, *featherstoni*. The genus is endemic and well defined.

Mesocarbo ater is an Australian species ranging from Sharks' Bay, Western Australia, eastward to northern New Zealand, only sub-specific differences being discernible. *Microcarbo brevirostris* we allow to be specifically distinct from the Australian *melanoleucus*, but the genus, like the succeeding *Phalacrocorax*, ranges from Europe, but with a more southern distribution. The last-named has only sub-specifically varied all over the Old World, and hence we get only a sub-specific difference between the Australian and Neozelanic forms. The Shags of New Zealand can therefore be seen to have two distinct sources—from the north via Australia, and from the south from the Antarctic. We have refrained from going into great detail and providing much speculation, as Hutton did in *The Emu* some years ago, and unfortunately the acquisition of much material has shown the majority of his premises to be framed upon insecure bases. Thus it might be noted that a species has been named on account of lack of a certain character, and this was thoroughly discussed by Hutton; since then specimens have been received showing the "species" to possess the character alleged as lost.

Two Gannets are included in the fauna as breeding species—the one from the Kermadecs, a tropical form also occurring as a breeder in Northern Australia; the other breeding on the mainland, and sub-specifically representing a Gannet breeding in Southern Australia and specifically representing a South African species and a North European species—a peculiar group.

With the Gannet at the Kermadecs live a Tropic-Bird, the Sooty Tern, Little Grey Noddy, White-capped Noddy, and White Tern. These are all tropical species, the first, second, and fourth breeding in tropical Australia, the other two being absent. These can scarcely be considered as affecting the New Zealand avifauna in the connection in which we are discussing it. Otherwise, as to Gulls, Terns, and Skuas, we find four Terns and three Gulls breeding on the mainland, and a Tern and Skua confined to the Subarctic groups. While the former are more or less represented (as hereafter noted) in Australia, the latter are absent, save that the Skua straggles northward to that locality. As to the Terns, the same species, White-fronted Tern, Fairy Tern, and Caspian Tern, breed, with only a sub-specific distinction, whereas the New Zealand Black-fronted Tern we consider a peculiar modification of the Australian Marsh Tern (*Chlidonias hybrida*); but this affinity has not yet been determined absolutely. The species,

however, shows more affinity to the Marsh Terns than to the normal Sea Terns. The three Gulls, again, show a peculiar state of endemism, the Red-billed Gull being only sub-specifically separable from the Australian Gull, while the Black-billed Gull is a distinct evolution, quite peculiar to New Zealand, and unrepresented in Australia. The common Black-billed is a Subantarctic species, very different from the Australian Pacific Gull, yet scarcely distinguishable from the South American Gull. In the Subantarctic group of islands two other Subantarctic forms breed—the Subantarctic Tern and the Great Skua. The range of these Subantarctic species is very peculiar, breeding at the Falkland Islands or to the south thereof, Subantarctic New Zealand islands, then altogether absent from Australia, recurring at the Kerguelen Group and thereabouts as breeding species, the variation during the extent of this range being only sub-specific.

Among the Snipe, Sandpipers, and Plovers we find even more of interest than we have yet treated of. Twenty-nine species are admitted, of which fourteen have as yet occurred only once or twice; these were stragglers from Australia or wanderers from the north, arriving through association with the migrating Godwits, which are regular winter visitors. As well-established visitors also are included the Knot, Sharp-tailed Stint, Curlew, Turnstone, and Lesser Golden Plover—all well-known Australian migrants. Two of the rarest stragglers, the American Godwit and the Grey Phalarope, have not as yet been noted in Australia. It is when we deal with the residents that we get excited, as, though we have two Snipe visiting Australia, we have no resident species; yet from the Subantarctic group of New Zealand islands we find a semi-Woodcock (*Cænocorypha aucklandica*), with no near relation save a huge South American bird, and which has been well described as a "living fossil," and approaching the most primitive idea of the Snipe and Woodcock series of birds. Next we find two Stilts—the one only sub-specifically distinct from the Australian Stilt, the other a fixed melanistic form, apparently like the Shag (*Hypoleucus chalconotus*) previously referred to. Of course, we have both a Pied and Black Oyster-catcher, which we also get in Australia and elsewhere. Then we have only four Plovers, but the quality quite suffices for lack of quantity. Probably the Wrybill alone would answer that query, but the New Zealand Dottrel is a big development of the Sand-Plover species elsewhere met with at only about half its size. The Double-banded Dottrel also occurs in Australia, with a problem hanging to it. It is a common breeder throughout New Zealand, and is resident, yet its nest has not been found in Australia, though recorded in the far West. It has been suggested that its presence in Australia can be accounted for by regarding it as a migrant from New Zealand, but we cannot see that we are justified in considering the wandering of a New Zealand bird to North-West Australia. To complete the quartet is the Shore-Plover, a peculiar long-billed form, which has apparently evolved

from the same form as the Common Ringed Plover of Europe, which is represented in Australia by the Hooded Plover, and which has not generically changed, while the generic distinction of the New Zealand bird has been unchallenged for nearly eighty years. In Australia we have Stone-Plovers, Painted Snipe, a peculiar generic type of Stilt, four peculiar Wattled Plovers, Jacanas, Pratincoles, and Coursers (to say nothing of such delights as Bustards and Cranes), all of which are missing from New Zealand. We again get recompense when we come to the Rails, as once more we are upon historic ground, Australia being unable to counter the Wood-Hens and Takahe with anything better than *Tribonyx*. Notwithstanding the incitation to exaggerate the wonders of these Rails, we can scientifically do nothing except depreciate them. Judging the series seriously, we are compelled to realize that they are simply degradational products through lack of energetic stresses allowing disuse of means of flight. Moreover, we can see the progress of the stages living in other generic types, as from the Auckland Islands has been described a *Rallus muelleri* which is a semi-flightless but otherwise little differentiated species, while *Hypotaenidia philippensis*, *Zapornia pusilla*, and *Porzana plumbea* are represented by sub-species, the most noticeable differential feature being the prominence of the secondaries at the expense of the primaries. At the Chatham Islands two well-marked generic types were found, whose origin could be recognized from a study of superficial characters, and which accurate estimation was confirmed by study of the osteological remains. These are *Cabalus modestus* and *Nesolimnas dieffenbachii*, the ancestry of the former being a species of *Rallus* alliance, while the latter's predecessors belonged to the *Hypotaenidia* branch. *Gallirallus*, the Wood-Hens or Wekas, have, however, become so large through flightlessness, and their ancestors apparently also become extinct, so that their origin is at present obscure. It has never been emphasized sufficiently that flightlessness is accompanied (with scarcely an exception) with increase in bulk; this is easily seen in connection with the Takahe and Kakapo. Thus the forerunners of the Wekas must have been small Rails, and the increase, possibly within comparatively recent times in the case of the Takahe, is noteworthy. Thus the Takahe is only a flightless *Gallinule*, and we can suggest two colonizations of New Zealand by the same kind of bird. Thus, at an early date, a *Porphyrio*-like bird must have reached New Zealand, and, finding no enemies, degenerated into a large flightless bird, well known as the *Notornis*. Probably man, in the guise of the Maori, was the unexpected new enemy, and the *Notornis*, having lost its means of escape, soon suffered extinction. In the wildness of the South Island it lingered longer, still developing new useless features, and, as *Mantellornis hochstetteri*, may still exist. It is even possible that its own relation, *Porphyrio melanotus*, assisted in its extermination by its arrival at a later date with more energy and capabilities as to

flight, as *Porphyrio* reached the Chatham Islands, where it still lives, and is common throughout New Zealand. It is as yet only sub-specifically changed from the Australian bird, and it may be noted that probably two entrances into Australia also took place, as *Porphyrio bellus*, the Western Australian form, is quite specifically distinct, and the whole family shows little distinction over wide areas. Thus the true Gallinules and Coots have colonized the whole of Australia and Tasmania without showing much individuality, but failed to reach New Zealand as settlers, because the Coot has been noted in New Zealand as a rare straggler. The Wood-Hens in New Zealand show local variation, as yet not at all well understood, three species being at present admitted.

On each point yet dealt with in a few lines a long essay could have been easily prepared, and this sentence applies well to the Grebes. Two species are residents—one, the great Crested Grebe of British authors, with a world-wide distribution, showing only sub-specific characters, yet peculiarly a sedentary form; the other, the Dabchick (*Poliiocephalus rufopectus*), specifically separable from the Australian species of *Poliiocephalus*, only the two species being contained in the genus. Also, in Australia is resident the European Dabchick referred to the genus *Tachybaptus*, and if all are lumped in the one genus *Poliiocephalus* must be used as the genus name. It is a curious feature that the European Dabchick should have colonized Australia while the species did not alter specifically, and that a different species of the same or an allied group should co-exist with differences in the near-by countries of Australia and New Zealand.

We now come to the Kiwis (*Apteryx*), the New Zealand *piece de resistance*—probably the best written-out birds we have, but our knowledge is still meagre. They are certainly no close relations of the Ratite birds as commonly understood, but we consider them more nearly related to the Rails. As to the Moas, their relationships are so obscure, notwithstanding the immense quantity of osteological material available, as to suggest the impracticability of laying much stress upon “deep-seated” features. It has been suggested that they are allied to the Kiwi, but this seems a very debatable matter. It is the presence of these two groups which have made the New Zealand *Ornis* so well investigated and so much argued, but the results do not seem comparable to the premises and surmises.

A Quail (*Coturnix novæ-zealandiæ*) has recently become extinct, and it was very closely related to the Australian form, very little difference even as to coloration being noted. It is suggested that it was a comparatively recent immigrant, and had scarcely established itself as a factor in the avifauna when the new conditions arose which decided its extermination.

Two species of Pigeon are admitted—*Hemiphaga novæ-seelandiæ* and *chathamensi*, the latter belonging to the Chatham Islands. It is peculiar that the only other species referable to the genus

Hemiphaga was a native of Norfolk Island, where it is now extinct. These are Fruit-Pigeons whose relations are all northward, and it is remarkable that the Chatham Island form has become more different from the New Zealand bird than the Norfolk Island form was. This fact has been adduced in favour of a Norfolk Island-New Zealand connection, but is valueless in that connection.

Neozelanic Ducks, again, show some remarkable items, as, out of twelve species admitted, four are wanderers from Australia, two are species common to Australia, while the other six are endemic and four belong to endemic genera. Such localization is quite as notable in this group as some of the better-known peculiarities of the *Ornis*. Thus, the Brown Duck (*Elasmonetta chlorotis*) appears to be the mainland representative of the Auckland Islands Duck (*Nesonetta aucklandica*), which is well known as being a flightless Duck, which is the true *Anas* group. The Mountain Duck (*Hymenolaimus malacorrhynchus*) is peculiar, inasmuch as superficially it shows some features commonly regarded as peculiar to the Diving Ducks, whereas it is a modified surface-feeding Duck. Moreover, in New Zealand lives a Diving Duck referable to the typical genus *Fuligula*—*F. novæ-seelandiæ*—which is unrepresented in Australia; and then at the Auckland Islands lives a Merganser, *Promergus australis*, whose nearest relative lives north of the equator. This constitutes an extraordinary anomaly, of which no reasonable explanation has yet been provided. The Paradise Duck (*Casarca variegata*), though referable to the same genus as the Mountain Duck of Australia (*Casarca tadornoides*), shows very different specific character, the sexual variation in coloration being very marked and well known.

As regards Herons and Bitterns, all the breeding species, five in number, are regarded as only sub-species of Australian (and extra-limital) species.

The Harrier and the Morepork (Owl) of New Zealand are well spread all over Australia, and only a sub-specific difference is allowed, but there is also the Quail-Hawk and the Laughing Owl, which constitute endemic genera, *Nesierax* and *Sceloglaux*. The former genus may contain two species, but at present this is not really established, while its nearest relative is supposed to be the Australian genus *Ieracidea*. As to the relationships of *Sceloglaux*, little is known, the species being almost extinct and always rare.

There are not many Parrots, but there is lots of interest in those. There is, for instance, the Owl-Parrot, or Kakapo. This is another almost flightless New Zealand form about which a lot has been written; and in this case it seems to have been concluded that the novel features were purely due to disuse, but that the ancestors must have been somewhat primitive Parrots. Our own view is that it is a not very distant relative of the Australian *Pezoporus*, and that the forefathers of both came from the same stock. One genus of Broad-tailed Parrakeets is represented by four distinct species, all of the same group, and different

from anything referable to the family in Australia, which is its stronghold. Three of the species—*Cyanorhamphus novæ-zelandiæ*, *auriceps*, and *malherby*—live on the mainland, more or less together, while the first two are represented by sub-species on the Chatham Islands and on some of the Subantarctic islands. On Antipodes Island—one of the latter—lives a very distinct species of large size, and from which, indicating the tenor of the evolution through isolation, probably a flightless form would have been produced. As representatives of a distinct family of Parrots, the Kaka and the Kea (*Nestor meridionalis* and *notabilis*) have become famous through the activities of the latter in search of a new diet. As a matter of fact, it is certain these would have become flightless had not man intervened and, through persecution, compelled them to utilize their flying limbs before disuse had totally disabled them. No Parrot of Australia, the home of Parrots, is classed near to these at the present, but their morphology is not well understood in view of recent scientific work.

Two Cuckoos are natives of New Zealand—the Shining Cuckoo, with its mythological journey of thousands of miles each year, and the Long-tailed Cuckoo, with a known distribution of less extent, but still its migrations are not tracked. We have written “mythological journey” because no facts have yet been provided to account for the myth. Shining Cuckoos are heard and then their whistles cease, and from these facts a journey of thousands of miles is premised and a settling place selected, but, so far, no birds have been secured at the suggested locality. Here lies the puzzle of Neozelanic ornithology. An Australian and Polynesian Kingfisher has established itself, so that a sub-specific distinction may be accepted.

Then we arrive at the Passeriform birds, which we enumerate as thirty-two species. Such a total is insignificant, and it is at once lessened by the removal of three very rare visitors from Australia. Of the twenty-nine left, one is the well-known recent Australian immigrant, *Zosterops lateralis*, about which much has been written as regards its introduction.

The genera which these twenty-eight are included in number twenty-one, and nearly every one of these is endemic. Rarely an Australian representative can be determined, but more often no near relation can be cited, and more than half a dozen constitute endemic families, but their exact situation in the phylogenetic classification is at present indeterminate.

The whole series can be dismissed with very little notice, as the speculation is not supported by facts, but merely fancies. Thus, the allotment of the four small birds—the Rifleman (*Acanthisitta chloris*), the Stephens Island Wren (*Traversia lyalli*), the Bush-Wren (*Xenicus longipes*), and the Rock-Wren (*Xenicus gilviventris*)—to two distinct families is based upon facts, but the inclusion of these in the Super-family *Pittoidea*, and thereby classing them with Pittas, has not such a sure foundation. The basis of this alliance is more probably due to convergence in the anatomical

items used for comparison. They are certainly not nearly related to the Pittas.

The birds locally known as Tomtits and Robins are relations of the Australian *Petroica*-like birds, and appear to have arrived in New Zealand probably about the same time as the antecedents of the *Petroica* series invaded Australia. Isolation caused their evolution in different directions, and thus we get the Robin (*Miro australis*) as a large form, while the Tomtits (*Myiomoira macrocephala* and *toitoti*), perhaps through competition, as degenerate species. An interesting item are the two Black Robins (*Nesomiro traversi* and *danneferdi*), which appear to have evolved independently on similar lines in achieving an entire black plumage on far distant isolated islands. We here suggest that they have developed from a form of *Myiomoira*, and not from *Miro*, with which they were associated until we separated them.

Another Australian form, the Fly-eater, is represented by a species which is a little different in structure as well as in habits. In order to emphasize these differences we have called the mainland New Zealand form *Maorigerygone*, while the Chatham Islands species had been distinguished previously as *Hapolorhynchus*, on account of its extraordinary large size and peculiar bill—a beautiful example of evolution by isolation on islands. A noteworthy item is the retention of aboriginal coloration, while structural changes are manifest and of great import.

The New Zealand Fantails, *Rhipidura flabellifera* and *fuliginosa*, are as interesting as any birds could be, as it is obvious they are only recently immigrants from the mainland, and, while the species was spreading throughout Australia without a great deal of variation, a melanistic "sport" was produced in the south of New Zealand, and this melanism is now spreading over the islands and probably displacing the original form. We do not know of any similar case of melanistic displacement in progress, but these forms show how such may occur. At the present time the two birds breed together without producing hybrids, each form appearing quite distinct from the egg upwards.

The Thrushes of New Zealand constitute an endemic family whose exact relations are unknown, and the name "Thrush" is only used as they are superficially large Thrush-sized birds with an obscurely spotted breast.

The Fern-Birds (*Bowdleria*) are, again, endemic and of family rank, their allies certainly *not* being the South African *Sphenæacus*, with which they were confused many years ago. They are island modifications of some such form as that from which the Australian *Atrichornis* was derived.

To the family *Paridæ* three very different species are allotted simply because a new family for each seems too much to admit at present; but they have as little real affinity with the Palæarctic Tits as the Australian Whitefaces (*Aphelocephala*) have.

The Yellow-head (*Mohoua ochrocephala*) may be distantly related to the White-head (*Certhiparus albicilla*), but whether

either of these is related to the Creeper (*Finschia novæ-seelandiæ*) is a very doubtful point. We hope to adjust these items at a later period, but lack of material is the difficult item to overcome.

Again, the family *Meliphagidæ*, the keynote to the Australian *Ornis*, is credited with three species—the Bell-Bird (*Anthornis melanura*), the Stitch-Bird (*Notiomystis cincta*), and the Tui (*Prothemadera novæ-seelandiæ*)—but none of these can be directly ascribed to an Australian ancestry, the Bell-Bird having the most superficial likeness. The Stitch-Bird is very probably not a member of this family at all, while the Tui is a remarkable evolution, with no very marked affinity to any existing Australian species. The Ground-Lark is a Pipit (*Austranthus novæ-seelandiæ*), very closely allied to the Australian one, and certainly quite a recent immigrant to New Zealand, and here again it shows how quickly evolution works in that country. Thus, a Pipit from one of the Subantarctic islands shows degeneration towards flightlessness in the reduction of the sternum.

The Huia (*Heteralocha acutirostris*) was referred to the family *Sturnidæ* along with the Saddle-back (*Creadion carunculatus*), because the investigators were unable to interpret the features they observed. They have little to do with each other, and still less with the *Sturnidæ*, and we allow each as an endemic family until we know more about the anatomy of birds and are better able to determine exact relationships. Similarly, the so-called Crows were placed with the true Crows, but they are not related in any sense, but contribute a distinct family, whose affinities we hope later to trace.

This short essay has been prepared simply with the idea of placing on record facts, and we have not loaded the paper with a lot of detail, but we can produce full confirmation of all the statements here made. It is unfortunate that the New Zealand avifauna should have been so ill-treated in the past that a mass of misstatements surrounds almost every bird. The superficial critic then grasps these misstatements, ignorant of the truth, and makes more confusion, and then the confusion is transferred into other books by writers attempting to cover wide fields, and they become historic. No word in this essay has been written second-hand, and we have not controverted the statements on record, as that would have more than doubled this space; but we ask anyone interested to contrast this article with any others they may have read.

We may conclude with a general survey in a few words. The New Zealand avifauna is very peculiar, and this is due to long isolation. This isolation has been once or twice interrupted, and later invasions have taken place. Even since the apparent latest, time has elapsed sufficient to allow (with the rapidity with which evolution has worked in this country) variation in many marked directions.

While the invasions may have been mainly from the north, there appear to be good reasons for allowing an Antarctic element

still persisting. The northern invasions are not easily traceable, but we cannot dogmatize by stating that they were through New Caledonia or Norfolk Island, and it is possible that a way existed of which we have no trace. It is possible that some of the earlier invasions took place simultaneously with an Australian invasion, which would account for some of the peculiarities, but we do not think that any direct colonization of New Zealand from Australia has taken place except in the undoubted case of *Zosterops*; consequently there can be no comparison of the Neozelanic avifauna with that of Tasmania, as the latter simply shows, with scarcely an intrusive element, the northern forms which travelled down Australia from the north before the separation of Tasmania from the mainland. It is also admitted that Tasmania may have been connected with Antarctica even as New Zealand was, but this connection was at a later date, when most of the peculiar forms had been dissipated. The Tasmanian endemic genus *Tribonyx* is only an island form of *Microtribonyx*, of larger bulk and less flight. Much confusion has been caused through the misunderstanding by palæontologists of the convergence in flightlessness in the Ralline birds, but when Andrews described a fossil *Tribonyx* from Madagascar he drew attention to this fact, pointing out that there was little reason to suggest that this was really a *Tribonyx*.

We might note that in *The Ibis* for 1913 we published a reference-list of the birds of New Zealand, which contains much of interest, a majority of the points in Hall's paper (1920) being discussed in that place seven years before.

A New *Menura*: Prince Edward's Lyre-Bird.

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INASMUCH as the Australian Lyre-tails are among the most remarkable and fascinating of the world's birds, and by reason of the fact that their habitat and range are restricted, importance attaches to the discovery of any variant from the type, and even to the recording of any extension of locality. The type-bird of the genus, *Menura superba* (Davies), ranks as one of the earliest of important "finds" in Australian ornithology; a markedly different species, *M. alberti*, was named by John Gould in 1850; and a third species, *M. victoriae*, was separated from the type species by the same great ornithologist in 1862.

Nearly 60 years having elapsed since the latter date (and over 100 years since the discovery of the type species), it is somewhat extraordinary that it is now possible to put forward, with a considerable degree of confidence, what is apparently a better variant from the type of the genus than is Gould's *victoriae*. Moreover, it has to be said at once that the new bird hails from Queensland—a State which was previously supposed to harbour



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