

It was only very recently that, through the kindness of Captain Hutton, Curator of the Auckland Museum, I had an opportunity of making a further examination of the specimen.

27. The two species of *Creadion*—*C. carunculatus* and *C. cinereus*—are totally distinct.

Herr Finsch is therefore wrong in his surmise that the latter is the young of the former.

*Creadion cinereus* has never been found in the North Island, where *C. carunculatus* is comparatively common. I have seen the young of the latter species, which differs in no way from the adult, except in the paleness of the tints and in the smaller size of the caruncles.

28. Another species of *Nestor* from the west coast of the South Island, *Nestor occidentalis*, Buller, has recently been described. (*Ibis*, 1868.)

29. In addition to the species enumerated in the above notes, I may mention the diminutive penguin, *Spheniscus undina*, Gould, (smaller than *S. minor*) of which I have obtained specimens on the west coast of the Wellington Province.

The following is a list of the additional species referred to in the above notes as occurring in New Zealand, which have been added to the Avifauna since the publication of Herr Finsch's critique.

1. *Hylochelidon nigricans*, Gould.
2. *Xenicus* Haasti, Buller.
3. *Sphenæacus rufescens*, Buller.
4. *Turnagra Hectori*, Buller.
5. *Nestor occidentalis*, Buller.
6. *Platycercus alpinus*, Buller.
7. *Ardea Novæ Hollandiæ*.
8. *Botaurus* . . . . .?
9. *Himantopus leucocephalus*.
10. *Gallinago pusilla*, Buller.
11. *Ocydromus nigricans*, Buller.
12. *Anas gracilis*, Buller.
13. *Spheniscus undina*, Gould.
14. *Larus melanorhynchus*, Buller.

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ART. VI. A.—Notes on Mr. Walter Buller's "*Essay on the Ornithology of New Zealand*." By Dr. OTTO FINSCH, Bremen.\* Translated from the German, by Mr. R. L. Holmes, F.M.S., Assistant Secretary New Zealand Institute.

[Read before the Wellington Philosophical Society, August 25, 1868.]

THE short Treatise of twenty pages, with the above title, appeared at the time of the "New Zealand Exhibition," 1865. A silver medal was awarded to the author by the Commissioners, "For his interesting Essay

\*A translation of Mr. Buller's Essay was published in Germany, by the distinguished ornithologist, Dr. Otto Finsch, with the following notes and criticising remarks appended. A copy was sent, by the author, to Dr. Haast, Canterbury, at whose request these notes were translated into English, and forwarded to the Wellington Philosophical Society. The original Essay was distributed among Naturalists, in 1865, and is included in the present volume. (See Part III.)—ED.

on the Ornithology of New Zealand, and the collection of admirably preserved specimens of New Zealand birds exhibited by him."

This first publication, on the birds of that distant land, appeared to the friends and students of exotic ornithology, to be of sufficient interest to justify an unabridged translation of this remarkably scarce pamphlet\* being rendered; the more so as it contains a great deal of interesting information, and some new and original matter, on the birds of New Zealand, and their habits.

At the same time, it becomes the duty of the translator, to make some criticising remarks;† since during the last two years our knowledge of the birds of that isolated land has been enlarged in many particulars; and corrections have to be made here and there, in consequence.

A careful perusal of the *Essay* shows clearly that it has been compiled almost exclusively from G. R. Gray's "List of the Birds of New Zealand and the adjacent Islands," (*Ibis*, July, 1862), and "Birds of New Zealand," in voyage of Erebus and Terror, 1855; and we may remark that the author has followed these praiseworthy works much too closely.

One might have expected from an ornithologist, established in New Zealand itself, some more decided information on many disputed species. To give an example: the question concerning "*Falco Novæ Zelandiæ*," and whether this species does not in reality include several others, remains without a satisfactory solution (I).‡ Here, as in many other instances, the author has failed to produce conclusive evidence, or close observations on the habits (*freileben*) of the birds, so much required.

In this respect, there remains open to his zeal, and to his acknowledged power of observation, a wide field of discovery, and the task of placing such matters beyond dispute. And, let us hope, that our knowledge of the ornithology of Mr. Buller's adopted country will yet progress as we desire, and many a gap be filled up.

The merit of describing in detail the species already known to science, and in particular with respect to the change caused by age or season of the year, is far greater than the superficial description of new species.

To his determined adherence to Gray's catalogue, of the year 1862, may be chiefly attributed the blame, that so many species, which have not been proved to be distinct up to the present time, remain undetermined; whilst on the other hand, the catalogue has been increased by a few new discoveries made during the last few years. The total number of New Zealand birds—of which I append a catalogue at the end of this paper—is now estimated at about 144. Of these, 8 species remain doubtful.

\*The only copy that has yet reached Europe, was received by the publisher of the *Ibis*, Prof. Alfred Newton, in Cambridge, who with the greatest kindness and courtesy sent it to me for my use, for which I now publicly return him my best thanks. The Treatise was first reviewed in the January number of the *Ibis*. (1867, p. 131.)

†Dr. Finsch draws attention to the fact that the names of the translators of different portions of Mr. Buller's *Essay*, with their respective observations on the same—for which they are solely responsible—are appended to each section. As I can find no other name so placed, except Dr. Finsch's own, I have omitted it altogether.—R. L. H.

‡The numerals, in parentheses, refer to Mr. Buller's notes in reply (*vide ante*).

Moreover, as regards the general remarks of the author, they require in some instances, additions ; in others, corrections : for, in my opinion, all the principal characteristics of the ornithology of New Zealand have not yet been described. And, further, the author does not appear to be well-informed on the geographical distribution of some species ; for instance, the *Waders* and *Swimmers*.

The remarkable distribution of some birds, comparatively speaking, spread North and South in species so nearly connected, is by no means an isolated instance, but is met with everywhere, only the fact is more observable in insulated zones. (2.) It would be premature to lay down any exact rule on the subject, from the few instances mentioned by the author. A better acquaintance with the birds of New Zealand will prove, doubtless, that they spread wider over their confined territory, than appears from Mr. Buller's quoted examples.

The fact, that the Avifauna of New Zealand, of which we now take into consideration only existing species, is very peculiar, has not received from Mr. Buller the consideration which it deserves. More than half (80) of the *species* are indigenous, and of the 64 species of land birds, there are only 8 that have a wider range. But more remarkable still is the comparative number of indigenous *genera*, of which not less than 19 are confined exclusively to the New Zealand region, viz :—*Heteralocha*, *Prothemadera*, *Anthornis*, *Pogonornis*, *Xenicus*, *Acanthisitta*, *Mahoua*, *Certhiparus*, *Turnagra*, *Callæas*, *Creadion*, *Nestor*, *Strigops*, *Apteryx*, *Thinornis*, *Notornis*, *Ocydromus*, *Nesonetta*, and *Hymenolaimus*. Taking into consideration the comparatively narrow limits of this country, it contains more peculiar forms than any other ; and for that reason occupies a very prominent position. In the Sandwich Islands *alone* can any comparison be made with New Zealand in this respect.

To this originality, may also be attributed the fact, that the ornithology of New Zealand stands in far more intimate connection with that of Australia, than one would suppose from the geographical position of the two countries.

The family *Meliphagidæ* proves this assertion more than any other. This family, so peculiarly characteristic of Australia, is represented in New Zealand by seven species only, of which only one (*Anthochaera Bulleri*, Finsch, *Mimus carunculatus*, Buller) belongs to an Australian genus.

Of the most remarkable genera of the family, as, *Ptilotis*, *Meliphaga*, *Tropidorrhynchus*, *Glyciphila*, *Melithreptus*, *Myzomela*, *Myzantha*, and others, the species of which are so numerous in Australia, New Zealand, strange to relate, cannot produce a single example. Among parrots, the peculiar honey-sucking "*Trichoglossi*" are entirely absent, for which, nevertheless, the *Nestors* might possibly be the representatives. Other families are no less remarkable, as, for instance, *Alcedinidæ*, *Silviadæ*, *Muscicapidæ*, *Janidæ*, *Corvidæ*, *Columbidæ*, and *Tetraonidæ*, which are very poorly represented. We are astonished to miss species from amongst the *Malurus*, *Cisticola*, *Sericornis*, *Acanthiza*, *Acrocephalus*, *Pardalotus*, *Monarcha*, *Myiagra*, *Microcca*, *Eopsaltria*, *Pachycephala*, *Artamus*, *Campophaga*, *Cracticus*, *Ptilinopus*, *Turnix*, etc., examples of one or other of which one might very naturally expect to meet with.

The scarcity of birds of prey, is in a great measure explained by the

total absence of mammalia. Still, it is worthy of note, that on the coasts which abound so in fish, specimens of the genera *Haliaeetus* and *Pandion* have not been discovered up to the present time.

Nevertheless these are not, by any means, the most remarkable features which characterize the ornithology of New Zealand. Some other peculiarities must be brought forward which Mr. Buller has not touched on at all; but which remain the more incomprehensible to us, as they do not receive even a passing allusion from him. I allude to the great poverty of the swallow tribe of birds (3), granivores proper, the shrike family and true crows.

The limited number of the order *Scansores* is well accounted for by the geographical position, and physical features of the country. The family *Psittacidae* appears to be particularly well represented. It contains two genera, and ten species, all peculiar to, and very characteristic of, the ornithology of the country. The scarcity of true *Trichoglossi* is remarkable. On the other hand the absence of woodpeckers is not at all to be wondered at, as it is well known that this family does not extend further than Cēlebes; and is not known to occur even in the Moluccas, New Guinea, Australia, or Polynesia (4).

The remarkable family of *Apterygidae*, so peculiar to the ornithology of New Zealand, is sufficiently well described by Mr. Buller, and can therefore be passed over by me.

I have already alluded to the remarkable absence of pigeons, and of the *Gallinae* tribe.

Among Waders, and especially among Swimmers, certain peculiarities can only be glanced at, as the birds of passage belonging to this country, have, it is well known, a very wide range. We know now for instance, that many birds from the highest latitudes of the eastern hemisphere, touch on New Zealand as their southern resting-place, in their winter migrations; and recent investigations show that the known number of these is continually augmenting (5). We miss, with some surprise, that first cosmopolitan of the bird tribe, *Streptilas interpres* (Linn.), also *Actitis incanous* (Gml.) and some other kinds which we might have expected to find here. Among Swimmers, we meet with five natives of Europe; and others which form the connecting link between the African and American ornithology.

The abundance of ducks and cormorants is remarkable, and particularly worthy of notice; of these a very large number are peculiar to the country.

The seven specimens described as new by Mr. Buller—but of which, nevertheless, three are more or less doubtful, or at least demand closer investigation,—I have added to the end of the list at the close of this treatise, together with two newly described species of Herr Von Pelzeln.\*

I considered it advisable to append the name of the authority after each species.—

General remarks (page 2, line 22).—Up to the present time no true meliphagous bird is known to belong to this country (India).

\*“On a recent remittance of bird-skins from New Zealand.” By Dr. Julius Haast. *Transactions of the Royal Zool. and Bot. Society*, Vienna, 1867. Read at a meeting, Feb. 6, 1867.

Fam. Falconidæ.—We are, up to the present time, acquainted with only one species of Falconidæ, for certain, in New Zealand: namely, *Falco* (*Hieracidea*) *Novæ Zelandiæ*, Gml., (*harpe* Forst.)—which has already been described by Forster—with its different male and female plumage. *H. brunnea*, Gould, resembles the female in colour.

*Circus Gouldi* is a synonym for *C. assimilis* (Jard. and Selb.), a species which is spread over all Australia and Tasmania, as far as Celebes, and eastward to the Viti Islands.

See Finsch and Hart, *Ornithology of Central Polynesia*, p. 7, and Von Pelzeln, *Transactions of the Royal Zool. and Bot. Society*, 1867 (6).

Fam. Strigidæ.—Of *Strix Haasti*, we must wait for a more accurate description, before we can enrol it as a new species. It appears not quite impossible that it may be identical with a known species. Besides the two species described by Mr. Buller, viz.—*Athene Novæ Zelandiæ*, and *albifacies*, a dwarf horned owl; *Scops Novæ Zelandiæ*, Bp., occurs also in New Zealand, and *Strix delicatula*, which ranges over the whole southern hemisphere. See *Ornith. of Cent. Poly.*, p. 11. The supposed small, and still unknown, owl of Mr Buller, is perhaps referable to *Scops Novæ Zelandiæ* (7).

Fam. Alcedinidæ.—The real native country of *Halcyon cinnamomimus*, Sws., does not appear to be yet fully determined, and Lesson's account makes the matter still more doubtful. But we may assume it for certain, that the species does not inhabit New Zealand at all. The Leiden Museum possesses specimens collected during the expeditions of Coquille and Von Dorch, at New Guinea, and the Marianne Island, Guam. In all probability the last named group is its true habitat (8).

Fam. Upupidæ.—Concerning the Huia, compare, besides, Dieffenbach's *New Zealand*, i, p. 167; also Layard's interesting notes in the *Ibis* (1863, p. 244).

Fam. Meliphagidæ.—A new species of *Anthornis* (*ruficeps*) has been lately described by Herr Von Pelzeln. The number of Meliphagidæ includes seven species, since *Mimus carunculatus*, Buller, belongs also to the family under the name of *Anthochaera* (9).

Fam. Certhiadæ.—*Mohoua albicilla* appears to be properly a *Certhi-parus*, as G. R. Gray intimated formerly (10).

Fam. Lusinidæ.—The sudden appearance of the little *Zosterops*-kind of bird in New Zealand has already been mentioned by R. Taylor (*Ann. and Mag. Nat. Hist.*, March, 1866). The bird is in reality a *Zosterops*, namely, *lateralis* (Lath.) *dorsalis*, (Vig. and Horsf.); the same species which inhabits also Australia and Tasmania. The museum at Vienna received specimens of it from Dr. Haast, New Zealand (Pelzeln, *Trans. of Zool. and Bot. Society*, 1867, p. 316) (11).

Fam. Muscicapidæ.—The Australian *Rhipidura albiscapa*, Gould, corresponds with *R. flabellifera*. *R. melanura* is identical with *Muscicapa fuliginosa*, Sparrm, which latter comes from New Zealand, and certainly, not from the Cape. *R. tristis* was received in the Vienna Museum lately from Dr. Haast (12.)

Fam. Corvidæ.—A third species of *Callæas* (*olivascens*) has lately been described by Pelzeln.

A close comparison between *Aplonis obscurus* and *Caledonicus*, Bp. in Bremen Museum, convinces me that the two species are one. Specimens

from New Zealand and New Caledonia show no such difference as to entitle them to belong to different species; another proof that there is a connection between the ornithology of the two islands.

Fam. Psittacidae.—These (*Nestor superbus*, Buller) must be regarded as great curiosities. So far as I am aware, there have as yet been no pure albinos found among the parrots.

*Nestor Norfolcensis*, Pelz., from Norfolk Island, deserves mention here also as an extinct bird.

After my examination of the original specimens in the British Museum, I must look on *Strigops Greyi*, Gray, as a well established species. It differs from the common species (*habroptilus*, Gray) by the broad, well defined, greenish-blue borders of the feathers on the upper portion, the whitish bands on the head feathers, the greyish-white feathers on the forehead and cheeks, the nearly white stern and thighs, and the whitish diagonal spots on the inner feathers and first pinions. (See Finsch, *The Parrots*, vol. i, p. 254.) According to Mackay (*Ibis*, 1867, p. 145) the *Strigops habroptilus* abounds still on the west coast of the Middle Island; and in former times inhabited also the Chatham Islands (*Travers, Journal of the Linn. Soc.*, vol. ix, 1865, No. 35) (13).

Mr. Buller was not fortunate in his description of the "Platyerceri." As it is precisely in this direction that I have made special examinations, namely, on the typical specimens in the British Museum, I feel myself constrained to make the following observations:

The longest known and commonest species in New Zealand is:—

1. *Platyercus Novæ Zelandiæ* (Sparrm.)
  - = *Pl. pacificus* (Gml.)
  - = *Pl. erythrostis*, Wagl. (Macquarie Island.)
  - = *Pl. Rayneri*, Gray (Norfolk Island.)
  - = *Cyanoramphus Novæ Guineæ* (Bp.)
  - = *Pl. Cooki*, Gray (New Zealand.)
  - = *Pl. Aucklandicus*, Bp. (Auckland Islands.)
  - = *C. Saissèti*, Verr. (New Caledonia.)

It has a wide range, and inhabits, besides New Zealand, also the Chatham Islands, Macquarie, Norfolk Islands, and New Caledonia. I can compare specimens from all these localities, which have been ranked as distinct species, with those in New Zealand, without being able to discover any constant difference sufficient to establish them as new species. The remarkably small specimens from Auckland Islands, might claim a place as a first defined species, were it not for the comparatively speaking, great contrast they exhibit to each other in transition. The species differs in measurement to an extraordinary degree. The length of wing sometimes varies as much as 16".

2. *Platyercus auriceps* (Kuhl.)
  - = *Cyanoramphus Malherbi* (Sou.)
 abounds in the Middle and North Islands (Ramsay), South Island, and Auckland Isles (Antarctic Exped.) The specimens from the last named district, form, according to De Souancé, a distinct species (*Pl. Malherbi*), which, however, according to my examinations, agree perfectly in kind.
3. *Platyercus Fosteri*, Finsch (*Parrots*, ii, p. 287.)
  - = *Ps. Pacificus*, Forst. (*Descr. anim.*, p. 73., No. 80.)
 differs from *Pl. Novæ Zelandiæ*, Sparrm, in the absence of red spots

on the tail. The future will show whether this difference is in reality always constant. Very little, in fact, is known as yet about this parrot; I know of only one specimen in the British Museum, which agrees almost perfectly with Forster's description. Perhaps it is *Pl. Novæ Zelandiæ*, changed by age.

The remaining allied species, which belong to the sub-genus *Cyanoramphus*, are:

*Platycercus unicolor*, Vig., of unknown origin, but for the present, by no means to be effaced, according to Mr. Buller's intention.

*Platycercus pacificus*, Forster, (*Descr. anim.*, p. 238) from the Society Islands (Tahiti) and

*Platycercus ulietanus* (Gml.), New Hebrides (Tanna), or Society Islands (14).

Fam. Cuculidæ.—I cannot find out where Mr. Gould made this remark. In his *Birds of Australia* (Folio) he expresses his regret that the nest of the *Eudynamys* *Flindersi* is still unknown, and again, in his *Handbook of the Birds of Australia*, vol. i, p. 632. Nevertheless, in describing the genus *Eudynamys*, he says explicitly, "all species are parasitical."

Since we are tolerably well acquainted with the range of *Eudynamys* *Taitensis*, we can say, approximately, where it hibernates. In any case it must be on some of the warm islands; the Friendly, Society, Marquesas, Viti, and Samoa group, which hitherto have been known to be frequented by the species.

*Chrysococcyx lucidus*, on the other hand, must frequent other districts during the winter, Tasmania, Australia, New Caledonia, etc., consequently, north-westwards; since up to the present time it has not been observed on the islands of Polynesia proper.

Mr. Buller's views with regard to the specific differences of the New Zealand Gold-cuckoos, copied from G. R. Gray, (*Ereb. and Terr. voy.*) do not hold good. New Zealand specimens, compared with Australian, do not exhibit any difference sufficiently well defined to class them separately. So also Verreaux's specimens from New Caledonia, agree with the Australian. According to Schlegel, the range of *Chr. lucidus* extends over New Guinea as far as Java and Sumatra.

The marking of the tail feathers, the number of bands and dots on the same, differ clearly in these as well as on the allied species (16).

According to Dieffenbach, *Chr. lucidus* lays its eggs in the nests of *Rhipidura flabellifera*. *Eri. taitensis* also makes use of the nest of that bird for the same purpose, as well as the nest of *Anthornis melanura* (Ramsay, *Ibis*, 1865, p. 154) (17).

Fam. Columbidae.—The dearth of the pigeon tribe in New Zealand deserves particular mention, as characteristic of the ornithology of the country.

Fam. Tetraonidae.—Of this family also, New Zealand is wonderfully deficient. We miss, with astonishment, representatives of the genera Turnix and Synoicus, of which there are so many species in Australia and Tasmania.

According to Hutton, pheasants are very numerous in the neighbourhood of Epsom, Auckland, and it broods twice in the year. *Ortyx virginiana* increases also wonderfully fast.

Fam. Apterygidae.—Our knowledge of *Apteryx australis*, (Shaw), is

not confined to the two specimens referred to by Mr. Buller. The Leiden Museum possesses one also; and there is a very fine specimen in the Imperial Collections at Vienna.

With regard to their nidification, the accounts given by the natives do not appear to be quite correct. From observations made in the Zoological gardens in London (on a female, *A. Mantelli*), the bird itself tries to hatch the egg. Mr. Webster states, in his communications, that the egg is deposited in a hollow log.

Gould has given an account of all that is yet known of the nidification of the Apteryx. (*Handb. Birds of Australia*, ii, p. 570.)

Fam. Charadriadæ.—There is a specimen of *Charadrius bicinctus*, from Lord Howe's Island, in the Leiden Museum. *Hæmantopus longirostris* ranges as far as New Guinea, *Charadrius xanthocheilus* (fulvus, Gml.)—which resembles our European *Chr. plumalis* to an extraordinary degree—has a very extensive range, extending over Australia, the Indian Archipelago, the Polynesian Islands, northwards to Siberia and Kamtschatka, where it rears its young. (See *Hartl. and Finsch, Ornith. of Central Polynesia*, p. 196.) *Hæmantopus unicolor* is found also in Australia, according to Schlegel.

Fam. Ardeidæ.—The white crane (*Ardea flavirostris*, Wagl.) is by no means restricted to New Zealand, but spreads itself over Australia as far as Java and the Philippines. It is identical with *A. intermedia*, Wagl., and *Herodias plumifera*, Gould.

*Ardea Matook* (sacra, Gml.; *jugalensis*, Forst.) has a still more extended range. (See *Ornith. Cent. Polyn.*, p. 205.) The remarkable variety in colour (white and slate coloured), and the important difference in size, were the reasons why the species has been described so often under various names (18).

*Botaurus poicilopterus* is found also in Tasmania and Australia (19).

Fam. Scolopacidæ.—The various grades of colour in *Himantopus Novæ Zelandiæ*, are found in one and the same species, attributable either to age or the time of year. A beautiful change of plumage in a specimen in the Bremen Museum, where the white parts beneath are still mingled with black feathers, leaves this beyond a doubt.

*Limosa Novæ Zelandiæ*, Gray (*uropygialis*, Gould; *Baueri*, Natt.) is the eastern representative of our *L. rufa*, Briss. (*lapponica*, Linn.). It only visits these southern lands on its winter wanderings, since it breeds in high latitudes of Eastern Asia. (See *Ornith. Cent. Polyn.*, p. 177) (20).

Fam. Rallidæ.—Concerning the existence of *Notornis Mantelli*, Mr. D. Mackay has recently contributed some very interesting details in the *Ibis* (1867, p. 144.) The bird is still living in considerable numbers in some districts on the west coast of the Middle Island of New Zealand. Those parts were first explored by the miners, after the discovery of the gold-fields in 1865, who often lived for days together on the flesh of what they called "ground parrots," or the *Notornis Mantelli*. Since the bird is so very helpless, and can be caught so easily by men and dogs, it appears certain that within a short time, the number will have greatly diminished, if not died out altogether.

I may add, by the way, that *Gallinula alba*, Latham, from Norfolk Island, the original specimen of which I have lately examined in the Vienna Museum, belongs much more to the genus *Notornis* than to Por-



phrio, as has lately been determined by Pelzeln (*Trans. Impl. Acad.*, 1860, p. 331) (21).

Our knowledge of the genus *Ocydromus* is still very imperfect; moreover, the number of its species has not yet been established with certainty; particularly, since we know so little of its change of plumage through age and sex. Von Pelzeln has lately discovered that *O. Australis* and *brachypterus* cannot be specifically different; whilst Schlegel acknowledges the last as a distinct species, and on the other hand is inclined to class *O. Earli* as the same species with *O. Australis*. The difference in size, which, according to him is the principal distinguishing feature, is nevertheless of an inconclusive nature. *O. brachypterus* should thus be distinguished from *Australis* by remarkable difference in size; nevertheless, the measurements which Lafresnaye has given, agree throughout with those of *O. Australis*. According to Gray's measurements, *O. Australis* is larger even than Schlegel's *O. brachypterus*. Also, with regard to colour, it is very difficult to show a decisive difference in the three species. In my opinion, *O. brachypterus* is the immature plumage of *O. Earli*, which latter species is distinguished by the brown colour of the bill and legs, the prevailing rust-red colour of the whole, and the almost unobservable grey marks on the head, chin, and throat (22).

*Rallus assimilis*, Gray; together with *R. Dieffenbachi*, *celebensis*, Quoy, and some other allied species, belong to the genus or sub-genus *Hypotaenidia*. Their specific independence is nevertheless very doubtful, in any case it would be well for the present not to separate them from the Australian *R. pectoralis*, Less. (Phillippensis, auct.) Concerning the latter, we know from Peale's account that the cinnamon-coloured band on the breast is sometimes absent. It has an extensive range over Australia, Celebes, many of the South Sea islands,—Viti, Samoa, Tahiti,—as far as the Philippines. (See *Ornith. Cent. Polyn.*, p. 157.)

Concerning the habitat of *Ortygometra tabuensis*, which embraces all Australia, and most of Eastern and Central Polynesian islands: See *Ornith. Cent. Polyn.*, p. 169.

*Ortygometra affinis* can scarcely be classed as a distinct species from *O. palustris*, Gould (23).

Fam. Anatidæ.—Of the seven species of duck which we know to frequent New Zealand, only one, *Anas superciliosa*, has a wider range; the remaining six species are peculiar to the Islands. This richness in the duck tribe must be recorded as a remarkable peculiarity of New Zealand ornithology. The total want of *Anseres* is less to be wondered at, since Australia also is very poor in native species (24).

The specific differences between *Podiceps rufipectus* and the Australian *P. poliocephalus*, Jard., (*nestor*, Gould) must remain doubtful until we possess distinguishing features of a more decided character, than those hitherto described. The bird drawn by Gray (*Erebus and Terror*, pl. 19) has certainly not yet attained its adult plumage.

Fam. Procellariidæ.—Gould gives, in his *Birds of Australia*, a list of only 34 species belonging to this country, of which, however, some are more or less doubtful. Still, the number of long-winged *Natatoris*, which visit New Zealand occasionally, may perhaps be greater, since nearly all the species belonging to the country have notably a very wide range; extending in many cases over both hemispheres.

The following species must be added to the ornithology of New Zealand as new : *Peocellaria incerta*, Schleg, and *Pr. mollis*; Gould (Pelzeln, *Novara Exp.*, p. 146); also, *Diomedea chlororhyncha*, Gml., and *Melanophrys*, Boie.; and a *Thalassidroma* sp. ? (Layard, *Ibis*, 1863, p. 245.)

Fam. Laridæ.—*Lestris antarcticus* may be set down without further consideration, as a synonym for *L. catarractes*, Ill.; Gould himself has lately declared them to be the same.

*Larus antipodum* is, without doubt, the same as *L. dominicanus*, Licht. The species ranges over the whole southern hemisphere. *L. scopulinus* has also a very extended habitat. Whether *L. Schimperi* really belongs to New Zealand is still a doubtful question; since the proof of this rests only on a label in the Museum at Mayence. On the other hand, the Leiden Museum possesses a specimen which comes, without any doubt, from China. Layard observed also *Larus pacificus*, Lath., in New Zealand. (*Ibis*, 1863, p. 245) (25).

*Sterna strenua*, Gould, is known to be the same as our *St. caspia*, Pall.; *St. frontalis*, Gray, is *St. longipennis*, Nordm., in its winter plumage; it spreads itself over the whole Indian and Pacific Oceans. (See *Ornith. Cent. Polyn.*, p. 222) *St. antarctica*, Forst., is the same species as our *St. minuta*, Linn. (*nereis*, Gould). *Hydrochelidon albobristata* is, according to Schlegel and Blasins, no other than our *hybrida*, Pall. (*fluviatilis*, Gould).

Fam. Pelicanidæ.—New Zealand, of all countries in the world, is the richest in cormorants; no land of the same size can produce so many species. Three of the eight cormorants known in New Zealand are peculiar to the country, *Graculus brevirostris*, Gould; *punctatus*, Sparrm.; and *Chalconotus*, Gray. The remainder are scattered over Australia, as far as the Moluccas and Sunda Islands.

*Graculus carboïdes* cannot be separated as a species from our European *Gr. carbo*, Linn. It belongs to the most wide spread *Natatores*, with which I am acquainted. *Gr. stictocephalus* is the same as *sulcirostris*, Brandt, and is found also in the Moluccas and Sunda Islands.

Gray mentions, besides *Dysporus serrator*, also *Dysporus piscator*, Linn., as an inhabitant of New Zealand.

#### NEW SPECIES.

##### 1. ANTHORNIS AURIOCUA.

We wish very much that Mr. Buller had given the comparative measurements of the new species with *A. melanura*, for it is scarcely possible to distinguish between them. The difference in the colour of the irides is, as is well known, no safe starting point, and is certainly a very hazardous method to determine the principal specific characteristics. I have found in one and the same species, the irides coloured differently, for instance, *Plectolophus leadbeateri*, *Plectolophus sulfureus*, etc. Mr. Zelebor describes the iris of *A. melanura*, "light cherry-red" (Pelzeln, *Novara Journ.*, p. 57), which is already somewhat different from Mr. Buller's description.

It is not uninteresting to mention here the melodious notes of *A. melanura*, which Zelebor compares to our *Sylvia cinerea*. The bird is also a good mimic.

##### 2. ANTHORNIS RUFICEPS.

Without doubt a well defined species, which I had the pleasure to see

among other rare objects from New Zealand in the Imperial Collections at Vienna, through the kindness of my friend Mr. A. Pelzeln.

### 3. GERYGONE ASSIMILIS.

It is difficult, and scarcely safe, to decide on this new species from skins alone, as it differs so slightly from *G. flaviventris*.

### 4. MIMUS CARUNCULATUS, Buller.

ANTHOCHÆRA BULLERI, Finsch.

With regard to the generic character of this bird, Mr. Buller must be wrong in his decision; for, as the description reads, we have here to do with a genuine *Anthochæra*, but in no wise with a *Mimus*. The latter, it is well-known, is confined to America. Buller's new species seems to correspond in size and colour very closely with the Australian *A. carunculata*, Lath. (Gould, *Birds of Aust.* 11, pl. 55), and since the name has been already given up, it must be re-named (26).

### 6. CREADION CINEREUS, Buller.

This new species may be the common *Cr. carunculatus* in immature plumage. In any case the description reminds one of a young bird. Forster has informed us in Latham's *Gen. Hist.* that the bright-brown back colouring is wanting in the female; and that the young are of one colour, viz. brown. The greyish-brown colouring of Buller's bird, may be that of a still younger plumage (27).

### 7. NESTOR SUPERBUS, Buller.

I cannot agree with Taylor's supposition (*Ann. and Mag. Nat. Hist.*, 3 ser., xviii, p. 140) that this species belongs perhaps to *N. meridionalis*. Better consider it as a *variety* of the latter, especially since Mr. Buller describes how those parrots are very liable to vary; which, however, is again contradicted by the fact that several specimens of it have been procured (28).

### 8. RALLUS FEATHERSTONI, Buller.

There is no doubt about the specific character of this species.

### 9. PODICEPS HECTORI, Buller.

A genuine crested diver, closely allied to *P. cristatus*, Linn. (*C. Australis*, Gould), from which it is easily distinguished, as Mr. Buller says very properly, by the uniformly dark colour of the wings and shoulders. This diver corresponds probably with *Podiceps cristatus*? which was mentioned by Haast (*Ibis*, 1862, p. 103).

### LIST OF NEW ZEALAND BIRDS (29).

The species marked with an (i) are indigenous, those marked with a note of interrogation are doubtful.

- |   |                                |
|---|--------------------------------|
| i | 1. Falco Novæ Zelandiæ, Gml.   |
|   | 2. Circus assimilis, Jard.     |
| i | 3. Athenæ Novæ Zelandiæ, Gml.  |
| i | 4. Athenæ albifacies, Gray     |
| i | 5. Scops Novæ Zelandiæ, Bp.    |
|   | 6. Strix delicatula, Gould,    |
| i | 7. Halcyon vagans, Gray.       |
| i | 8. Heteralocha Gouldi, Gray.   |
| i | 9. Anthochæra Bulleri, Finsch. |

10. *Prothemadera Novæ Zelandiæ*, Gml.  
 11. *Anthornis melanura*, Sparrm.  
 12.     "     *melanocephala*, Gray.  
 ? 13.     "     *auriocularis*, Buller.  
 14.     "     *ruficeps*, Pelzeln.  
 15. *Pogonornis cincta*, Dubus.  
 16. *Xenicus longiceps*, Gml.  
 17.     "     *Stokesii*, Gray.  
 18. *Acanthisitta chloris*, Sparrm.  
 19. *Mohoua ochrocephala*, Gml.  
 20. *Sphenæacus punctatus*, Quoy. and Gaim.  
 ? 21.     "     *fulvus*, Gray.  
 22. *Gerygone igata*, Quoy. and Gaim.  
 23.     "     *flaviventris*, Gray.  
 24.     "     *albofrontata*, Gray.  
 ? 25.     "     *assimilis*, Buller.  
 26. *Certhiparus Novæ Zelandiæ*, Gml.  
 27.     "     *albicilla*, Less.  
 28.     "     *maculicaudus*, Gray.  
 29. *Petroica macrocephala*, Gml.  
 30.     "     *Dieffenbachi*, Gray.  
 31.     "     *toitoti*, Less. and Garn.  
 32.     "     *longipes*, Less. and Garn.  
 33.     "     *albifrons*, Gml.  
 34. *Anthus Novæ Zelandiæ*, Gml.  
 35. *Zosterops lateralis*, Lath.  
 36. *Turnagra crassirostris*, Gml.  
 37. *Rhipidura flabellifera*, Gml.  
 38.     "     *fuliginosa*, Sparrm.  
 39.     "     *trestis*, Hombr.  
 40. *Callæas cinerea*, Grul.  
 41.     "     *Wilsoni*, Gray.  
 42.     "     *olivascens*, Pelzeln.  
 43. *Aplonis Zelandicus*, Quoy.  
 44.     "     *obscurus*, Dubus.  
 45. *Creadion carunculatus*, Gml.  
 46.     "     *cinereus*, Buller.  
 47. *Platycercus Novæ Zelandiæ*, Sparrm.  
 ? 48.     "     *Forsteri*, Finsch.  
 49.     "     *unicolor*, Vig.  
 50.     "     *auriceps*, Kuhl.  
 51. *Nestor meridionalis*, Gml.  
 52.     "     *Eslingi*, Sou.  
 53.     "     *notabilis*, Gould.  
 54.     "     *superbus*, Buller.  
 55. *Strigops habroptilus*, Gray.  
 56.     "     *Grayi*, Gray.  
 57. *Eudynamys taitensis*.  
 58. *Chrysococcyx lucidus*, Gml.  
 59. *Carpophaga Novæ Zelandiæ*, Gml.  
 60. *Coturnix Novæ Zelandiæ*, Quoy.

- I 61. *Apteryx Australis*, Shaw.
- I 62. " *Oweni*, Gould.
- I 63. " *Mantelli*, Bartl.
- I 64. " *maxima*, Verr.
- 65. *Charadrius bicinctus*.
- 66. " *fulvus*, Grul.
- I 67. *Thinornis Novæ Zelandiæ*, Gml.
- I 68. " *Rossi*, Gray.
- I 69. *Hæmatopus obscurus*, Gml.
- I 70. " *frontalis*, Quoy.
- 71. " *longirostris*, Vieill.
- 72. " *unicolor*, Forst.
- 73. *Ardea intermedia*, Kuhl.
- 74. " *sacra*, Gml.
- 75. *Botaurus poicilopterus*, Wagl.
- 76. *Nycticorax Caledonicus*, Gml.
- ? 77. *Platalea flavipes*, Gould.
- I 78. *Himantopus Novæ Zelandiæ*, Gould.
- 79. *Limesa uropygialis*, Gould.
- I 80. *Scolopax Aucklandica*, Gray.
- ? 81. *Recurvirostra rubricollis*, Temm.
- 82. *Rallus pectoralis*, Less.
- I 83. " *Dieffenbachi*, Gray.
- I 84. " *Featherstoni*, Buller.
- ? I 85. *Ortygometra affinis*, Gray.
- 86. " *tabuensis*, Gml.
- I 87. *Ocydromus Australis*, Sparrm.
- I 88. " *Earli*, Gray.
- ? I 89. " *brachypterus*, Lafr.
- I 90. *Notornis Mantelli*, Owen.
- 91. *Porphyrio melanotus*, Temm.
- I 92. *Casarca variegata*, Gml.
- 93. *Anas superciliosa*, Gml.
- I 94. " *chlorotis*, Gray.
- I 95. " *variegata*, Gould.
- I 96. *Fuligula Novæ Zelandiæ*, Gml.
- I 97. *Nesonetta Aucklandica*, Gray.
- I 98. *Hymenolaimus melacorhynchus*, Gml.
- ? I 99. *Podiceps rufipectus*, Gray.
- I 100. " *Hectori*, Buller.
- 101. *Aptenodytes Pennanti*, Gray.
- 102. " *pachyrhynchus*, Gray.
- 103. " *antipodes*, Hombr.
- 104. *Spheniscus minor*, Forst.
- 105. *Pelecanoides urinatrix*, Gml.
- 106. *Puffinus assimilis*, Gould.
- 107. *Thlassidroma* sp. ?
- 108. *Procellaria gigantea*, Gml.
- 109. " *æquinoctialis*, Linn.
- 110. " *Parkinsoni*, Gray.
- 111. " *glacialisoides*, Smith.

112. *Procellaria Capensis*, Gml.
113. " *Cooki*, Gray.
114. " *gavia*, Forst.
115. " *ariel*, Gould.
116. " *cerulea*, Gml.
117. " *incerta*, Schl.
118. " *mollis*, Gould.
119. *Prion vittatus*, Gml.
120. *Diomedea exulans*, Linn.
121. " *fuliginosa*, Gml.
122. " *chlororhyncha*, Gml.
123. " *melanophrys*, Boie.
124. *Lestris catarractes*, Ill.
125. *Larus pacificus*, Lath.
126. " *dominicanus*, Licht.
127. " *scopulinus*, Forst.
128. " *Schimperi*, Bruch.
129. *Sterna caspia*, Pull.
130. " *longipennis*, Nordm.
131. " *minuta*, Linn.
132. *Hydrochelidon hybrida*, Pall.
133. *Anous stolidus*, Linn.
134. *Graculus carbo*, Linn.
135. " *cirrhatu*s, Gml.
136. " *melanoleucus*, Viell.
137. " *varius*, Gml.
138. " *punctatus*, Sparrm.
139. " *brevirostris*, Gould.
140. " *chalconotus*, Gray.
141. " *sulcirostris*, Brandt.
142. *Dysporus serrator*, Banks.
143. " *piscator*, Linn.
144. *Fregata aquila*, Linn.

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ART. VII.—*On the Celtic origin of the English Vowel sounds.* By  
The Right Reverend C. J. ABRAHAM, Bishop of Wellington; Vice  
President.

[Read before the Wellington Philosophical Society, September 15, 1868.]

THE English pronunciation of the vowels is unique. The English language mainly consists of Saxon words, and yet our pronunciation of those words does not accord with that of our *Teutonic* kinsfolk. Evidently we did not get our vowel sounds from the German. I believe that we derived it from the *Celt*; and I arrive at this conclusion through the French mode of pronouncing Latin words.

I take the vowels in order, and observe—(1) That our vowel sound of