

feathers cannot be counted ; it is in very worn plumage and moulting, and has no swelling on the forehead. It appears to be a very old bird.

In the young example the tail is composed of 22 feathers, and is in entirely brown plumage and not much worn. Evidently in first dress.

[*Ad.* Irides red-brown ; bill blue, pinkish flesh, red in stripes ; legs and toes orange ; round eye flesh ; pouch yellow.

Juv. Irides yellow, pouch dirty yellow ; bill greyish horn ; legs and toes dirty yellow.

Two seen at Lake Naivasha ; tolerably common and associating with Flamingoes at Lake Hannington.]

[To be continued.]

II.—*A recent Ornithological Discovery in Australia.*

By GREGORY M. MATHEWS, F.R.S.E., M.B.O.U.

IN the Introduction to my 'List of the Birds of Australia,' 1913, pp. xviii-xxiv, I made a few comments on zoo-geographical study, and on pp. xxv-xxvi added to the Australian avifauna three species, representing three genera not hitherto represented in the fauna, viz., *Globicera pacifica*, *Geoffroyus geoffroyi*, and *Eclectus pectoralis*. That two of these were residents newly brought to light was made clear by the fact that they were new subspecific forms, and not subspecies previously named from elsewhere and here simply recorded. For the first-named an old name was revived, but the fact remains the same.

Many ornithologists of repute have handled collections of birds from the islands north of the Australian continent, but they have rarely compared them with Australian birds, and appear to have been unacquainted with the local conditions and with the vast extent of Australia, ornithologically considered. Showing a disregard of the literature, they have probably caused considerable confusion and have retarded the advancement of knowledge. This is written without prejudice, but simply from an examination of the facts

displayed by a criticism of the results obtained. There would be no hesitation in admitting the accuracy of this statement were I to indicate the errors committed ; but this I do not now intend to do, and I would suggest that if a little more time were expended, coincident with more thought, many mistakes would be prevented, and useless word-battles obviated.

There is scope for much good work, and it seems unscientific to employ one's time in indicating errors of commission and omission on the part of the critic. When criticism is made the critic should deal with facts, not theories or fancies, for the latter belong to the province of the individual, and do not appear in nature.

I write this introduction because I here propose to indicate some facts of an extraordinary nature so far as the ornithology of Australia is concerned, and desire to show the delightful study that can be opened up by a little thought being displayed in connection with a few facts, and to add some novel ideas of my own suggested by these. The facts are incontrovertible, the ideas argumentative, and in considering them, much of the ancient history of the land has to be taken into consideration.

First I have to deal with the geography of Australia. Being my own land and especial study, I constantly find that to a European ornithologist it is a *terra incognita*, and that such a one would place a locality a thousand miles distant from its correct position, and also that another would think that a bird of less power of flight than a Wren could traverse two thousand miles across country in a night.

These are concrete examples, but I must defer from naming the authorities who make such statements. Of natural barriers, as opposed to geographical boundaries, I anticipate complete ignorance, and do not concern myself with errors in that direction.

This paper will only deal with a phase of the Queensland avifauna ; but here again the extent and nature of Queensland is not understood by European workers, and it may be as well to give a few figures.

Cape York, the extreme north point of Queensland, lies in latitude $10^{\circ} 50'$ South, while Brisbane, the capital, situated in the extreme south of Queensland, is in latitude $27^{\circ} 50'$ South; this is a distance of about 1400 miles. This might be regarded as inconsiderable by the general ornithologist, were it not that mountain ranges intervene, and these cause diverse climatic conditions and varied rainfall. Again, patches of forest country are mingled with tracts of desert, while along the coast there are great areas covered with mangrove swamps, so that it is very necessary to understand local conditions so as to interpret correctly the distribution of bird-life.

Cape York, being at the extreme limit of Australia, has attracted considerable attention from ornithologists, as forms resembling New Guinea species are there largely represented. New Guinea has been the Aladdin's lamp of ornithologists for the last hundred years, the Birds of Paradise furnishing a magician's call.

Australian birds found at Cape York show relationships to these wonders, and hold out a lure to local investigators as well as to those from other parts of the world.

The earliest Australian land-bird that I at present trace to have been described is the Giant Kingfisher, a truly typical bird; this was figured and described by Sonnerat from "New Guinea." It does not occur in New Guinea, and the only conclusion seems to be that a captive bird had been transported from Australia by the blacks, a somewhat inadequate suggestion. I note this, as this bird, after a century and a half's search, has been found to live at Cape York, as will presently be mentioned.

Though it is probable that no collections were brought from Cape York by Captain Cook's party, we know that a Bustard was killed in south Queensland, and there is good reason to believe that they brought back from what is now called Cooktown a Parrot which was described by Latham as the Blue-cheeked Parrot. Latham's description, which was regarded as inexact by Salvadori, I found to agree exactly with specimens procured at Cooktown, and as it does not range otherwise than from Cape York to New South Wales,

and the specimens differ so noticeably that Salvadori recognised the inapplicability of Latham's name to either the Cape York or New South Wales form, my suggestion seems reasonable.

Another bird which was described from New Holland at a very early date was the Great Black Cockatoo known as the Palm-Cockatoo. This, however, was named in literature prior to Captain Cook's time simply from "eastern seas," and Nova Hollandia was gratuitously added by Gmelin, who did not read carefully what Latham wrote. Latham added after his description, "This was taken from a drawing done by order of Governor Loten at Ceylon," and he then described a *different* form recorded by Parkinson as met with on the coast of New Holland. This latter was, of course, the Black Cockatoo known as Banksian Cockatoo. As a matter of fact the Palm-Cockatoo does inhabit Australia, having been discovered at Cape York by Macgillivray about sixty years after Gmelin's description was published. I designated as type-locality of Gmelin's species Salwatty, as that place was in touch with Europe at a very early date, and the bird is, or was, common there. My action has been questioned by one of the European ornithologists, who, only having knowledge of the fact that the bird occurred at Cape York, was desirous of rectifying my supposed error without investigating the history of the bird. This note may prevent the publication of more erroneous statements in connection with this bird, as such will certainly be made unless more care than usual is taken.

Gould did not visit Cape York, and the first naturalist who seems to have thoroughly investigated the avifauna of that district appears to have been John Macgillivray, when on board the 'Rattlesnake,' commanded by Capt. Owen Stanley, in 1846-50.

Jukes, on board the 'Fly,' while surveying Torres Straits, as well as his Commander, Ince, furnished more material to Gould, who obtained most of Macgillivray's specimens and notes. These provided the greater portion of Gould's 'Supplement.'

A prior investigator of north Queensland, whose collections were allowed to be submerged in the National Collection without study, was Matthew Flinders.

Since Macgillivray's time many collectors have touched at Cape York, each adding a bird or two to the avifauna, without any very startling results. Such are: Ramsay or his collector Broadbent, d'Albertis, Meek, Rogers, McLennan, Macgillivray, Masters, Barnard, Jardine, White, Kemp, and finally Cockerell and Thorpe. The last-named may be here first noted. These collectors, who must stand in the forefront of careful and accurate workers as regards the acquisition and preparation of bird-skins, thought that by the falsification of localities they might obtain better prices for their goods; they therefore made an expedition to some islands to the north of Australia, probably the Aru group, where they made a magnificent collection, and then palmed these off mixed with true Cape York birds as having been all procured at Cape York. This collection, purchased by Messrs. Godman and Salvin, and later presented to the British Museum, has been a source of endless trouble, and the only scientific course would have been to have rejected it entirely.

The other collectors named have added species after species to the Cape York fauna, so that it may reasonably be said to be well known. The latest collectors have each found little to add, McLennan's chief finds being a small subspecies of *Dacelo gigas* and a form of the New Guinea *Cracticus mentalis*. This latter Kemp again collected, while his most interesting discovery was the small Robin I have named *Kempiella kempi*.

The consideration of all these collections shows them to have a strong New Guinea element and to have no really remarkable forms; all the New Guinea species generally occur on the shores opposite, and the Cape York forms are slightly differentiated as subspecies only.

This is what one would anticipate when it is remembered that "a slight elevation of less than ten fathoms would now serve to connect the shores" of New Guinea and Cape York (Hedley, Proc. Linn. Soc. N.S.W. 1899, p. 396).

Hedley, speaking from practical experience, in the same place states "In the heart of a great Queensland scrub a naturalist could hardly say from his surroundings whether he were in New Guinea or Australia."

The majority of the Cape York birds occur at Cooktown, 400 miles south, and many still live at Cairns, 100 miles farther south. This remark refers to the New Guinea forms occurring at Cape York. Just south of Cairns there is a range of mountains called the Bellenden Ker, and this range has provided the startling novelties missing from the Cape York district. Thus *Prionodura newtoniana* and *Scenopoeetes dentirostris* are extraordinary members of the Bower-Bird family, being unique generic types elsewhere unknown. *Oreoscopus gutturalis*, another unique generic type, is probably related to *Sericornis*. Though probably having affinity with New Guinea forms, these are distinctly differentiated and do not occur at Cape York. Of course, in the Bellenden Ker district there also occur many well-marked subspecific forms, showing that it should be considered a distinct and characteristic faunal region.

The preceding review is necessary to disclose the new discovery that has been made, due to the enthusiasm of Dr. W. Macgillivray and his collector, J. McLennan.

The latter, when at Cape York collecting for Dr. Macgillivray, heard from the residents there of strange birds living farther south. He informed Dr. Macgillivray, and asked permission to be allowed to explore this locality, which had never been searched by previous collectors. Dr. Macgillivray willingly assented, and I agreed to share the expenses, though I must admit I did not anticipate any very novel results.

McLennan at once, however, sent two big Parrots, quite new to the Australian fauna, to Dr. Macgillivray, who sent one to me and named the other. These arrived just before I left England for Australia, and were included in the Introduction to my 'List of the Birds of Australia,' pp. xxv and xxvi, as *Geoffroyus geoffroyi maclennani* and *Eclectus pectoralis macgillivrayi*, both from the Pascoe River.

This river is only about a hundred and fifty miles south of Cape York, yet neither of these two birds lives there. They are both conspicuous birds and appear to be common in the locality, and the following note by Dr. Macgillivray ('Emu,' xiii. 1914, p. 196), who personally visited the place, is worthy of reproduction:—

"It is usually dry, and the whole place shows the effects of it, even the scrubs. Birds build their nests only to pull them to pieces again or to desert them. We have taken several nests of *Eclectus*, but cannot find that of *Pseudopsittacus* (= *Geoffroyus*). I have a Honey-eater, which is, I think, entirely new. It is small and lives in the midst of the scrubs.

"The other day, for a moment or two, I saw a bird like a Regent Bird, but it dived into the scrub and was gone.

"It will take a generation of field-naturalists to find out all the wealth of this district. There is another Parrot near here, but we have not come across it yet—a black one.

"*Pseudopsittacus* (= *Geoffroyus*) and *Eclectus* are calling now—one from the opposite side of the creek, where there is a nesting-tree, the other from a food-tree just below our camp. . . . Existence here is very pleasant, and it is glorious to walk in the morning and hear the multitudinous voices of the birds. The chorus was a babel at first, but the species are sorting themselves, and now our ears are becoming educated to their calls."

When I arrived in Australia I examined the collection with Dr. Macgillivray, and I have named the Honey-eater *Macgillivrayornis claudi*, and I also named a new Owl *Tyto galei*. I named a new subspecies of Finch, which added a genus and species to the Australian list, viz. *Erythrura trichroa*.

As a result the first collection made about the Pascoe and Claudie Rivers, contained *five* extraordinary birds, of which three were representatives of extralimital genera, one a new genus altogether, and the last quite a new species. The fact that these birds were comparatively common and also conspicuous entitles this discovery to rank as the most important one of recent times in connection with Australian

ornithology. It is also quite unexpected, as Cape York had been so well worked, while Cooktown, Cairns, and the Bellenden Ker Range had been well attended to. Yet this region about the Claudie and Pascoe Rivers harbours a peculiar avifauna, only second in interest to that of the Bellenden Ker Range. Dr. Macgillivray, from personal investigation, prophesies that it will take a generation of field-naturalists to exhaust its treasures. No prophecy could now indicate the nature of the finds to be made, as no worker conversant with the New Guinea and Cape York avifauna could have guessed the wonders of the Claudie River region.

Ecological study of avifaunas will certainly prove the most fascinating pursuit of the "new ornithologists," as the mere collection of birds' eggs gives little satisfaction, and the field-naturalist is generally no wanton killer of bird-life. The study of such a fauna as is here suggested in connection with its environment would claim Dr. Macgillivray's adjective as a glorious one. The mere record of the bird-life, in conjunction with a study of the land, the forest, and the seasons, would force a perusal by the most casual bird-lover, and would conduce to suggestions from more serious students.

Thus Hedley has told us that the dense bush of Queensland is very similar to that of New Guinea. Here it harbours quite a similar avifauna, whereas at Cape York, nearer to New Guinea, a less remarkable though still a New Guinea-like bird congregation exists. In the Bellenden Ker Range the peculiar Bower Birds strike a new note, but here the New Guinea effect is also produced.

It must be obvious that there must be some reason for these different faunas, and I suggest that the solution may be found in the high land of the two more southern habitats. That is to say, as above quoted, a slight elevation would connect the shores of Torres Straits. A further depression would have flooded Cape York, but have left the high land around the Claudie River and the Bellenden Ker Range isolated as islands.

The faunas there existent would be preserved, while that of intervening lowlands would have been exterminated. The elevation to the present level would probably be heralded by

a higher one, which, connecting the shores, admitted of a new immigration before it sank to the level now existent. This shifting up and down has been recognised by nearly all students of the Queensland fauna, and geological evidence confirms such conclusions. Such a theory would account for the presence of these island-faunas stranded in north Queensland, for according to observers the scrub about Cape York does not differ from that of Bellenden Ker, nor does Dr. Macgillivray note anything remarkable save new plants, which of course would be expected. The climatic conditions do not seem to be otherwise than normal in the two places.

It should be remarked that the genus *Casuarinus*, mainly restricted to New Guinea and the islands thereabouts, has one representative in Australia. That is not found at Cape York, but occurs in the Bellenden Ker district, though in the lowlands there. This would seem to confirm my suggestion. Probably a detailed criticism of the avifaunas of the Cape York District, the Claudie River District (when it is available), and the Bellenden Ker District, in comparison with those from various parts of New Guinea, would lead us to some conclusive results. There can be no doubt that, ornithologically considered, New Guinea embraces at least three distinct avifaunas, though the majority of New Guinea collections have been reported upon by ornithologists, careless to the last degree of the lessons to be learnt by a study of birds. As a writer on another branch of zoology once commented:—"The excellence of a British ornithologist seems to be governed by the number of pages he fills, irrespective of the matter therein contained."

The majority of papers have been mere lists, repetitions of well-known names, without any conclusions drawn from them. Without such conclusions the preparation of such lists appears to be a waste of time, for surely no one should be better able to indicate the lessons than the worker who has studied the collection and handled the birds. The "new ornithology" will deal with bird collections in a different way, and already there are signs, showing the improvement in the treatment of bird-study.

I would here summarize the new discovery above treated of, so that the worker who is too busy to wade through the preceding can grasp the gist of this communication with the least possible trouble.

Cape York is the extreme north-east point of Australia, and is separated from New Guinea by shallow water. The avifauna of Cape York is well known, over a dozen collectors having worked there. The bird-life shows strong affinity with that of New Guinea, many typical New Guinea forms being found, usually separable only as subspecies. No peculiar genera exist.

The Bellenden Ker district has also been well worked, and the affinities of this district are with New Guinea, though it is five hundred and fifty miles away. Three peculiar well-marked genera have been recorded, marking a characteristic fauna, while the presence of *Casuarius* is noteworthy.

The first collection made at the Pascoe and Claudie Rivers, only some hundred and fifty miles south of Cape York, has revealed an avifauna with a marked New Guinea relationship, and already showing a peculiar genus. The birds so collected are remarkable for their size and conspicuous nature, two being Parrots, one of them very large. The discoverer believes that other new and large birds are still to be found. None of the novelties occurs in any other portion of Australia, and all are quite absent from Cape York.

I would account for this peculiar isolated avifauna by the suggestion of former depression of the extreme point of Cape York, and later elevation above its present level, and subsequent gradual subsidence. Such an hypothesis would also account for the Bellenden Ker avifauna, as the peculiar forms are mainly highland forms, and are probably related to other slightly distinct forms now inhabiting the highlands of New Guinea.

New Guinea, ornithologically speaking, covers three distinct avifaunas, and recent workers on New Guinea birds have failed to recognise this fact, though commonly recording facts endorsing this conclusion without recognising it.



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