

## Some References to the Literature concerning the Extinct Emus of Kangaroo Island and Elsewhere.

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The recently discovered caves in Kangaroo Island having yielded some bones of the extinct Emu, renewed interest has been awakened in the remains of this bird, together with the hope that it may be possible at some time in the future to obtain a complete skeleton of it.\* Under such circumstances it may be acceptable to draw attention to some particulars that have been published on the subject.

In April, 1802, Matthew Flinders, in H.M.S. "Investigator," was off Kangaroo Island. He states:—"Some of the party saw several large running birds, which, according to their description, seem to have been the Emu, or Cassowary." ["Voyage to Terra Australis," Vol. I, p. 170.] Later he states:—"Not less than 30 Emus, or Cassowaries, were seen at different times, but it so happened they were fired at only once, and that ineffectively. They were most commonly found near the longest of the small beaches to the eastward of Kangaroo Head, where some little drainage of water oozed from the rock." [*Loc. cit.*, p. 184.]

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\*Since this paper was read an almost complete skeleton of the extinct Emu, as well as other new and rare forms, have been obtained from these caves.

In the last days of 1802 and the beginning of 1803, Captain Nicholas Baudin, in command of the French ships "Geographe" and "Naturaliste," with F. Peron on board, as zoologist and historian to the expedition, followed closely on the track of Flinders around Kangaroo Island, and obtained living specimens of the Emu of the island.

Points of interest from Peron's descriptions of Kangaroo Island will be found as translated extracts in an article written by the late Thomas Gill on "A Cruise in the S.S. 'Governor Musgrave'" [Proc. Roy. Geog. Soc. of Aus., S. Aus. Branch, Vol. X, 1909, p. 123], from which we quote:—"Beyond Cape Bedout, which forms the extreme western point of the island, we discovered a deep ravine, which must be the bed of some torrent, and called it Ravine des Casoars, in consequence of the great number of Emus living on the island. . . . As soon as the heat of the day began to abate, there came from the innermost recesses of the woods large mobs of Kangaroos and flocks of Emus, who sought from the ocean, that quenching draught which mother earth, no doubt, refused them.\* . . . Of all the birds with which Nature has endowed Kangaroo Island, the most useful to man are the Emus. These large birds seem to live on the island in numerous flocks; but as they are fleet of foot, and we did not waste our time in hunting them, we only managed to secure three living ones."

Peron has illustrated his work with a beautiful coloured representation of this bird with its young [Plate XXXVI], and also a coast section, in colour, depicting the position of the Ravine des Casoars [Plate III, fig. 5], which is situated about three miles to the southward of Cape Borda.

The fate of Peron's three living specimens will be described presently.

The following interesting communication appeared in "Nature," under date 31st May, 1900, from Signor Henry H.

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\* It seems scarcely credible that Emus would drink salt water to quench their thirst. It is possible that they might take a little salt in their drink occasionally, as a dietetic, but it is contrary to all experience that land animals could habitually drink sea water to satisfy their thirst. Flinders's observation of water oozing out of the rock near Kangaroo Head, where the Emus especially congregated, is suggestive of a possible supply of fresh water. Water soakages can be usually obtained on Kangaroo Island at the base of the sandhills, a little above high-water mark, by shallow digging, and when such sandhills rest on an impervious floor water is likely to accumulate at the surface. Gill suggests the possibility of a fresh-water spring occurring in the sea near the shore, which might be known to the Emus.

Giglioli, the Director of the Royal Zoological Museum, Florence:—

“A THIRD SPECIMEN OF THE EXTINCT *DROMAIUS ATER*, VIELLOT; FOUND IN THE R. ZOOLOGICAL MUSEUM, FLORENCE.

“In January, 1803, a French scientific expedition, under Baudin, visited the coast of South Australia and explored Kangaroo Island, called by them ‘Isle Decres.’ One of the naturalists attached to the expedition was the well-known Dr. Peron, who wrote an interesting narrative thereof. He noticed that Decres Island was uninhabited by man, but, although poor in water, was rich in Kangaroos and Emus (‘Casoars’ he calls the latter), which in troops came down to the shore at sunset to drink sea water. Three of these Emus were caught alive, and safely reached Paris. We learn from the ‘Archives du Musée’ that one was placed in the Jardin des Plantes, and two were sent to ‘La Malmaison,’ then the residence of the Empress Josephine. We learn later that two of these birds lived to 1822, when one was mounted entire and placed in the ornithological galleries of the ‘Museum’; the other was prepared as a skeleton and placed in the comparative anatomy collections. No mention is made of the ultimate fate of the third specimen.

“Peron was unaware that the Emu he had found on the Kangaroo Island was peculiar and specifically quite distinct from the New Holland bird. This was found out much later, and too late; for after Peron and his colleagues no naturalist evermore set eyes on the pigmy Emu of Kangaroo Island in its wild condition! It appears that when South Australia was first colonized, a settler squatted on Kangaroo Island and systematically destroyed the small Emu and the Kangaroos. When the interesting fact was ascertained that Peron’s Emu was a very distinct species, quite peculiar to Kangaroo Island, and found nowhere else, *Dromaius ater* had ceased to exist; and the only known specimens preserved in any museum were the two mentioned above, in Paris.

“For some years past my attention has been drawn to a small skeleton of a *Ratitae* in the old didactic collection of the R. Zoological Museum under my direction; it was labelled ‘Casoario,’ but was in many ways different from a Cassowary; but other work kept me from the proposed closer investigation, and it was only quite recently, during a visit of the Hon. Walter Rothschild, on his telling me that he was working out the Cassowaries, that I remembered the enigmatical skeleton. A better inspection showed us that it is, without the least doubt, a specimen of the lost *Dromaius ater*. I afterwards ascertained

that it had been first catalogued in this museum in 1833; that most of the bones bore written on them in a bold round hand, very characteristic of the first quarter of the nineteenth century, the words 'Casoar male'; and lastly, that during the latter part of Cuvier's life, about 1825-30, an exchange of specimens had taken place between the Paris and Florence Museums. I have thus very little doubt that our specimen is the missing *third* one brought alive to Paris by Peron in 1804-5.

"This highly interesting ornithological relic is now on loan at the Tring Museum, and can be seen there by any ornithologist in England who may wish to examine it. I intend shortly to give a fuller notice of this valuable specimen.

"HENRY H. GIGLIOLI.

"R. Zoological Museum, Florence, 15th May" [1900].

At the New Year in 1903, whilst examining the southern coast of Kangaroo Island, I discovered some remains of the extinct Emu in the extensive sandhills of The Brecknells, on the western side of Cape Gantheaume [See Howchin, *Trans. Roy. Soc., S. Aus.*, Vol. XXVII, p. 83], the most southerly point of Kangaroo Island. The bones were handed to Dr. Stirling, at that time Director of the South Australian Museum. These were placed in the hands of Professor Baldwin Spencer for determination, who recognized in them a tibia and tarso-metatarsus, "the size of which," he stated, "though they evidently belonged to a young animal, indicates, I think, that they are those of *Dromaeus ater*." [Spencer, "The King Island Emu," *Vict. Nat.*, Nov., 1906.] This was the first instance of a discovery of this kind since Peron's time.

In the same year (1903) a few Emu bones from the sand-dunes of King Island, Bass Strait, found their way to the National Museum, Melbourne. [Spencer, *loc. cit.*]

In 1906, R. M. Johnstone and Alexander Morton secured additional remains from King Island, from which Spencer determined 17 femurs, 28 tarso-metatarsi, 19 tibiae, and portions of eight pelvises. Comparing them with the specimens from Kangaroo Island, he states:—"Taking in each case the largest measurements available—and there can be, I think, no doubt as to the adult condition of the majority of the specimens—we find we are dealing with a bird of distinctly smaller dimensions than *D. ater*. If it be safe to form any conclusion from a comparison of the two bones from Kangaroo Island with similar bones in the present [King Island] collection, it would also appear that we are dealing with a bird of more robust build.

I have little doubt but that the two are specifically distinct, and I therefore propose the name of *Dromacus minor* for the new form." [Spencer, *loc. cit.*]

Little is definitely known of the Emu that formerly existed in Tasmania. Conflicting testimonies are on record from contemporary observers as to its size. Some state that it was of similar size to the species that lived on the mainland, while others considered it was somewhat smaller. Colonel Legge, in an interesting paper read before the Ornithological Congress in January, 1907, and published in "The Emu" [Vol. VI, 1907, p. 116], on "The Emus of Tasmania and King Island," states:—"During the 'forties the Tasmanian Emu used to inhabit and breed regularly in a locality known as Kearney's Bogs, situated about 12 miles to the south of Avoca, in the East-coast Ranges. About 1845, two young birds were captured and lived in the goose-yard, Rockport. Mrs. Legge had vivid recollections of these birds, and avers that they were large birds, very similar to the Emu of the continent." Other examples were kept in captivity and well-remembered by Colonel Legge. He states that "they were slightly smaller than the average examples of *D. novae-hollandiae*, but must, from the accounts given of *D. ater*, of Kangaroo Island, have been larger than that bird, and much in excess of the species found on King Island."

The subject is confused by non-scientific observations, in which the narrator may not have distinguished immature birds from those of adult age, and also from the fact that on one or more occasions Emus from the mainland had been introduced into Tasmania at an early date.

In the discussion that followed the reading of Colonel Legge's paper it was stated that four eggs of the Tasmanian Emu were extant, one of which was in the possession of Mr. J. W. Mellor, of Fulham, in this State.

In addition to the four eggs just referred to, three skins of the Tasmanian Emu are known to be in existence, two of these in the South Kensington Museum of Natural History, London, and one in the Frankfort Museum in Germany.

Mr. Le Souef, from the smallness of the egg of this bird in his possession, was led to the conclusion that the Tasmanian bird was distinct from the *D. novae-hollandiae* of the mainland, and in his "Catalogue of Australian Birds' Eggs and Nests" (1904) he named it *D. diemenensis*. Subsequently Le Souef had the opportunity of examining the skins in the South Kensington Museum, which he found possessed white breasts, whilst the mainland and Kangaroo Island Emus had dark-coloured breasts.

This he considered a confirmation of his original diagnosis based on the differences in the respective eggs. These facts he communicated to the British Ornithologists' Club, and this communication appeared in the Bulletin of the Club, No. XXI, p. 13, 1907.

A further communication from the Director of the Royal Zoological Museum, Florence, on this subject was published in "Nature" on 4th April, 1907 [Vol. LXXV, p. 534], as follows:—

“ON THE EXTINCT EMEU OF THE SMALL ISLANDS OFF THE SOUTH COAST OF AUSTRALIA AND PROBABLY TASMANIA.

“Some of my colleagues in Australia, as I gather from 'Notes' in 'Nature' (Vol. LXXV, pp. 228, 467) have lately been at work on the identification of the small Emeu of the islands in Bass Strait and Tasmania now extinct. Professor Baldwin Spencer, of Melbourne, having examined the bones of the Emeu which once lived on King Island and found them smaller than those of *Dromaeus ater* of Kangaroo Island, has felt justified in proposing a name for that bird, and has called it *D. minor*. Colonel Legge, an old colonist, has also been working on the King Island Emeu, and proposed for it a name which, however, he withdrew in a postscript to his paper in favour of Professor Spencer's one already published. From memory, having seen a pair in his boyhood, Colonel Legge considers the Tasmanian Emeu a distinct *small* species.

“Now, I believe that the question of the Emeus of small size, which about a century ago yet lived in Tasmania and on the small islands off the south coasts of Australia, can only be settled by a careful comparison of the bones, and then, and then only, shall we know whether one or more species lived on those islands. I do not know of the existence in museums of specimens, either mounted skins or skeletons, of well-authenticated Tasmanian Emeus, but we possess two authentic skeletons and two mounted specimens of *Dromaeus ater* (Peron) which in the first years of last century was abundant in Kangaroo Island; two of these four specimens are in Paris, one is in Florence, and one in Liverpool. Mine is a skeleton, and is one of the three brought alive to France by Peron in 1803: l'Île Decres (Kangaroo Island). ['Nature,' Vol. LXII, p. 102; 'Ibis,' 1901, p. 1.] The Liverpool specimen is, I think, not located. It is, undoubtedly, *D. ater*, but might hail from King Island, or even from Tasmania. It may be the lost 'lesser Emeu' of the Bullock Museum dispersed in 1819.

"I may now add that last summer Mr. Alexander Morton, Director of the Tasmanian Museum at Hobart, sent me some bones of the small Emeu, which he had collected on King Island, in Bass Strait, asking me to compare them with the corresponding bones of the skeleton of *D. ater* in this museum. I did so at once, aided by Professor E. Regalia, a high authority on ornithic osteology. The result of our careful comparison was that, barring some slight differences of a purely individual value, the remains of the three specimens from King Island examined were absolutely identical with the corresponding bones of Peron's specimen from Kangaroo Island. I therefore wrote to Mr. Morton (from whom I have not heard since) that I had not the slightest doubt that *D. ater* (Peron) once lived on King Island, and unless new evidences shall show the contrary, I am much inclined to favour the hypothesis that the same diminutive Emeu once lived in Tasmania.

"HENRY H. GIGLIOLI.

"Royal Zoological Museum, Florence, 29th March" [1907].

Mr. G. M. Mathews's great work on the "Birds of Australia," published in 1910-11, contains some interesting particulars concerning the extinct Emus. With respect to the Florence specimen, he says, "the third (a skeleton) was apparently sent as a present, or in exchange, to the Florence Museum," but he does not appear to have seen Giglioli's communications to "Nature" on the subject.

With respect to the Bullock Collection in Liverpool, which was sold by auction on the 18th of May, 1819, two Emus were catalogued for sale. One of them appears to have been the common *D. novae-hollandiae* of the mainland; the other was described in the catalogue as a lesser Emu, and a distinct species from the former. The birds were bought by the Linnean Society of London. The Society's collection was some years later handed over to the British Museum (Natural History Section), but the latter has no record of any Emu bones having been received in this transfer, and they were apparently in some mysterious way lost.

#### NOMENCLATURE.

The nomenclature of the Australian Emus is somewhat complicated, and contains many synonyms.

*DROMAICUS NOVAE-HOLLANDIAE*; Latham (sp).—The Emu of the mainland was first named *Casuarus novae-hollandiae* by Latham [Ind. Ornith. II, 1790, Sydney]. There followed:—*Casuarus australis*, Shaw [Nat. Miscel. III, 1792]; *Struthio*

*novae-hollandiae*, Meyer [1793]; *Dromaius ater* (part) Vieillot [Nouv. Dict. d'Hist. Nat. 1817, and in Gal. des. Ois. 1825]; *Dromiceius novae-hollandiae*, Vieillot [Stephens, in Shaw's Gen. Zool. 1819]; *Tachea novae-hollandiae*, Fleming [Phil. of Zool. II, 1822]; *Dromaeus novae-hollandiae*, Ranzani [El. di Zool., Vol. I, 1823]; *Rhea novae-hollandiae* [Field, Geogr. Memoirs of New S. Wales, 1825]; *Dromiceus emu* [Stephens, in Shaw's Gen. Zool. XIV, 1826]; *Rhea australis* [Mudie, Pictures of Australia, 1829]; *Dromaius novae-hollandiae* [Gould, Birds of Aus., Vol. VI, 1848, the only species of Emu recognized by Gould]; *Dromaeus irroratus*, Bartlett [since proved to be the young of *D. novae-hollandiae*]; *Dromaius novae-hollandiae* [Mathews, Birds of Aus., Vol. I, 1910-11].

*DROMAIUS PARVULUS*, Gould (M.S.), The Kangaroo Island Emu.—In Broderip's "Penny Cyclopaedia," Vol. XXIII, p. 165 (1842), it is stated that Gould, on the evidence presented by the two specimens, one at the Jardin des Plantes in Paris, and the other in the Linnean Collection in London, concluded that these birds were distinct from *Dromaius novae-hollandiae*, and applied to them the M.S. name of *D. parvulus*; it was also stated that "he placed that name on the bird in the Paris Museum." Gould does not seem to have published any descriptions in support of his conclusions, and makes no reference to any such M.S. name in his great work published in 1848. [*Dromaius parvulus*, Mathews, "Birds of Australia," 1910-11.]

*DROMAEUS DIEMENENSIS*, Le Souef, Bull. B.O.C. XXI, 1907, The Tasmanian Emu. [*Dromaius novae-hollandiae diemenensis*, Mathews, "Birds of Australia," 1910-11.]

*DROMAIUS MINOR*, Spencer, Vict. Nat., Nov., 1906 [Mathews, "Birds of Australia," 1910-11], The King Island Emu.—Mathews says:—"There is much difficulty in determining the question whether the Dwarf Emus of King Island and Kangaroo Island differed markedly in plumage, but I believe that this was the case. As the black-breasted bird in the Paris Museum is certainly from Kangaroo Island, and it is hardly possible that two species were found there, I think the white-breasted bird must have been the representative Dwarf Emu of King Island." [Loc. cit., p. 25.]

*DROMAEUS BASSI*, Legge, King Island Emu.—Name suggested in a paper read before the Royal Soc., Tasmania, 15th Aug., 1906, subsequently withdrawn in favour of Spencer's *D. minor*. ["Emu," Vol. VI, 1907, p. 119.]

*DROMAIUS PERONI*, Rothschild, Kangaroo Island Emu.—Rothschild justifies the proposal of a new name for the Kangaroo



Island Emu on the following grounds. He states:—"It is most unfortunate that the larger number of authors have neglected to go carefully into the synonymy of this bird. If they had done so it would not have been necessary to reject the very appropriate name of *ater* and to rename the Emu of Kangaroo Island. Vieillot, in the *Nouveau Dictionnaire d'Histoire Naturelle*, X, p. 212, distinctly states that his *Dromaius ater* was a name given to Latham's *Casuarus novae-hollandiae*, and makes no mention of Peron or of the Isle Decres." He states further:—"There is in the Museum at Liverpool a full-grown though immature Emu of the same size as *Dromaius peroni*, but owing to its proportionately longer legs and very scanty plumage it is not absolutely safe to identify it as a second mounted specimen of *D. peroni*. . . . In addition to Decres, or Kangaroo Island, also Flinders and King Islands, and Tasmania had Emus living on them at the time of Peron's visit, and I believe if authentic specimens from these localities were in existence we should find that each of these islands had had a distinct species or race of Emus. . . . I have come to the conclusion that the Liverpool specimen is an immature, though full-grown, individual from one of these other islands, but it is not possible from this one rather poor specimen to separate it from the Kangaroo Island species, especially as there is absolutely no indication of the origin of this specimen." ["*Extinct Birds*," London, 1907, p. 235, pl. XL.]

It is worthy of remark that Rothschild thinks that the figures in Peron's work of the adult male and female birds are not good, but those of the young very accurate. He thinks his own figure, which was taken from the type species in the Paris Museum, is truer to nature. He also considers that Spencer's *D. minor* was a smaller but stouter bird than *D. peroni*.

In 1912 Mr. Mathews published a further revision of the island forms of Emus.

(1) As to the name of the genus, he states:—"In the '*Birds of Australia*.' I accepted the spelling *Dromaius* for the genus name, but consistently with my method, as expressed in the '*Emu*,' Vol. X (1910), p. 318, I must revert to the original *Dromiceius*."

(2) He also made a revision of the specific names, as follow: "In my '*Birds of Australia*' I accepted *D. parvulus*, Gould, for the Kangaroo Island form, but at the quotation given (Bröderip, '*Penny Cyclopaedia*,' Vol. XXIII, 1842, p. 145) that

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name can only be continued as a nude name. I therefore now use Rothschild's name for that species." [See below.]

"There formerly existed in Australia three island forms of Emus about which I have given detailed accounts of all we know in my 'Birds of Australia,' Vol. I. The nomenclature then accepted needs emendation, however, and the following names I believe to be more accurate:—*Dromiceius novae-hollandiae diemenensis*, Le Souef (Tasmania); *Dromiceius peroni*, Rothschild (Kangaroo Island); *Dromiceius minor*, Spencer (King Island)."

Attached to Spencer's *D. minor* is a footnote in which Mathews says:—"As I am not convinced that the bones named *minor* by Spencer are the same as the bird figured by me (plate 4 in my 'Birds of Australia'), I name the latter *Dromiceius spenceri*, nom. nov." ["A Reference List to the Birds of Australia," Greg. M. Mathews, "Novitates Zoologicae," January, 1912, pp. 175-6.]

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