

Narrow-billed Bronze-Cuckoo (*Chalcococcyx basalis*). On one occasion last season I came upon two nests on a hill, in adjacent clumps of gorse, one of which contained a Cuckoo's egg and two of the Chat's, while in the other was a well-grown Cuckoo nestling, probably of the same species. This youngster, when hungry (and this is a chronic state with young Cuckoos), kept up the monotonous whining cry which is so well known in the bush. No matter how much food the two birds brought, or how long they worked, he was always ready for more, and still more, which disappeared with alarming rapidity down that cavernous yellow throat. What an amount of insect-life must be devoured by one young Cuckoo in a single day! One of the accompanying photographs shows this young Cuckoo in the nest, with an egg of the foster-parent in the foreground. This egg had evidently been ejected by the young Cuckoo.

When nesting duties are over the White-fronted Chats associate together in small flocks or family parties, which roam the open paddocks in search of insect-life, of which they must in the year destroy an incredible amount. Thus passes a year in the life of one of our most useful birds—so familiar, yet so little known.

New Species of Australian Birds Since the Time of John Gould.

BY GREGORY M. MATHEWS, F.R.S.E.

THE following is of interest as showing the advance in Australian ornithology this century. From Gould's time to the end of 1899, 22 species had been added to the Australian list (see *Austral Avian Record*, vol. iii., pp. 74-77).

The following species had been added to the Australian list from Gould's time to the end of 1899:—*Corvus cecile* (Mathews), Sharpe, "Cat. Birds Brit. Mus.," vol. iii., p. 38 (1877); *Prionodura newtoniana* (De Vis) (1883); *Bowyeria boweri* (Ramsay) (1885); *Orphryzone lorealis* (De Vis), *Sacramela keartlandi* (North) (1895); *Leucotreron alligator* (Collett), *Petrophassa rufipennis* (Collett) (1898); *Oreoscopus gutturalis* (De Vis) (1890).

Of regular Australian visitors or sub-species of extra-limital species we have:—*Mattingleya griseiceps* (Gray), Ramsay, *Proc. Zool. Soc. Lond.*, p. 604, as *Eopsaltria inornata* (1874); *Leptophaethon lepturus* (Daudin), Ramsay, *Proc. Linn. Soc. N.S.W.*, vol. ii., p. 203 (1878); *Stercorarius parasiticus* (Linné), Campbell, "Nests and Eggs Australian Birds," p. 65 (1883); *Virago gibberifrons* (Müller), Ramsay, "Tab. List Austral. Birds," p. 22 (1888); *Lamprococcyx lucidus* (Gmelin), Shelly, "Cat. Birds Brit. Mus.," vol. xix., p. 296, *Chlidonias leucoptera* (Temminck), Saunders, *ib.*, vol. xxv., p. 10, *Reinholdia reinholdia* (Mathews), Salvin, *ib.*, p. 381, as *Puffinus gavia*, *Neonectris griseus* (Gmelin), Salvin, *ib.*, *Rhyacophilus glareola* (Linné), Sharp, *ib.*, vol. xxiv., p. 499

(1896); *Tregellasia leucops* (Salvadori), Hall, "Key Birds Austr.," p. 15 (1899). And the following to the list of birds that have occurred less than three times:—*Procellaria parkinsoni* (Gray), Masters, *Proc. Linn. Soc. N.S.W.*, vol. iii., p. 21 (1878); *Crex crex* (Linné), North, *Rec. Austr. Mus.*, vol. ii., p. 82 (1893); *Pisobia subminuta* (Middendorff), Sharpe, "Cat. Birds Brit. Mus.," vol. xxiv., p. 555, as *Limonites damascensis* (1896); *Querquedula querquedula* (Linné), Campbell, *Vict. Nat.*, vol. xv., p. 150, as *Querquedula circia* (1899).

Of purely Australian species we have:—*Austroturnix olivii* (Robinson), *Eremiornis carteri* (North), *Acanthiza tenuirostris* (Zietz) = *A. iredalei* (Mathews) (1900); *Ethelornis tenebrosa* (Hall), *Corvus bennetti* (North) (1901); *Micreeca brunneicauda* (Campbell), *Magnamytis housei* (Milligan) (1902); *Milligania robustirostris* (Milligan) (1903); *Magnamytis woodwardi* (Hartert), *Colluricincla woodwardi* (Hartert) (1905); *Samuela alisteri* (Mathews), *Geobasileus flaviventris* (Ashby), *Lacustroica whitei* (North) (1910); *Ashbyia lovensis* (Ashby) (1911); *Heteroprion belcheri* (Mathews), *Butorides rogersi* (Mathews), *Geobasileus hedleyi* (Mathews) (1912); *Kempiella kempi* (Mathews) (1913); *Diaphorillas purnelli* (Mathews), *Magnamytis dorothea* (Mathews) (1914); *Meliphaga albilineata* (White) (1917).

Of regular Australian visitors or sub-species of extra-limital species we have:—*Bulestes mentalis* (Salvadori), Campbell, *Bull. No. 2, R.A.O.U.* (1911); *Limicola falcinellus* (Brünnich), Mathews, *Austral Av. Rec.*, vol. i., p. 31, *Subspilura megala* (Swinhoe), Mathews, *ib.*, p. 125 (1912); *Geoffroyus geoffroyi* (Bechstein), Macgillivray, *Emu*, vol. xiii., p. 105, as *Pseudopsittacus macleannani*, *Lorius pectoralis* (Müller), Mathews, *Austral Av. Record*, vol. ii., p. 75 (1913); *Glycichæra fallax* (Salvadori), Mathews, *South Austr. Ornith.*, vol. i., p. 13, as *Macgillivrayornis claudi*, *Erythura trichroa* (Kittlitz), Mathews, *Austral Av. Rec.*, vol. ii., p. 103 (1914); *Eudypetes serresianus* (Oustalet), Mathews, *Emu*, vol. xvi., p. 184 (1917).

And the following to the list of birds that have occurred less than three times:—*Budytes flava* (Linné), North, *Proc. Linn. Soc. N.S.W.*, vol. xxx., p. 579 (1906); *Sphecotheres salvadori* (Sharpe), Ingram, *Bull. Brit. Orn. Club*, vol. xxi., p. 100 (1908); *Aptenodytes patagonica* (Miller), Hall, *Emu*, vol. ix., p. 250, *Fregetta tubulata* (Mathews), *Puffinus lherminieri* (Lesson), Mathews, "Birds Austral.," vol. ii., p. 72 (1912); *Globicera pacifica* (Gmelin), Mathews, *Austral Av. Rec.*, vol. ii., p. 85 (1914); *Pterodroma inexpectata* (Forster), Mathews, *ib.*, p. 125, *Diomedea chionopectera* (Salvin), Mathews, *ib.* (1915); *Zoonava fuciphaga* (Thunberg), Mathews, *Bull. Brit. Ornith. Club*, vol. xxxvi., pp. 77, 92 (1916); *Fregetta tropica* (Gould), Mathews, *Austral Av. Rec.*, vol. iii., p. 96, *Coprotheres pomarinus* (Temminck), Mathews, *ib.*, p. 72 (1917); *Fregata minor* (Gmelin), Alexander, *Emu*, vol. xvii., p. 238 (1918).

In the "Birds of Australia, Supplement 1." I gave the names of

those who had described the species up to the *Passeriformes*. I now give the names of those who have described the species in the *Passeriformes*:—Gould, 123; Latham, 43; Vigors and Horsfield, 17; Vieillot, 12; Mathews, Quoy and Gaimard, 11; Ramsay, 7; North, 6; Gmelin, Temminck, Shaw, and Swainson, 5; De Vis, 4; Gray, Lewin, Lesson, Linné, and White, 3; Ashby, Hartert, Jardine and Selby, Lesson and Garnot, M'Coy, Milligan, Reichenbach, Salvadori, Sharpe, Shaw and Nodder, and Stephens, 2; Campbell, Castelnau and Ramsay, Bechstein, Bonaparte, Daudin, Drapiez, Dumont, Hall, Hartlaub, Hombron and Jacquinot, Iredale, Jardine, King, Kittlitz, Masters, Müller, Paykull, Rüppell, Weatherill, and White, 1 each.

The following list of describers of Australian species includes about 668 species, but is subject to alteration, and is not claimed as final: Gould, 188; Latham, 81; Gmelin, 35; Linné, 34; Temminck, 30; Vieillot, 28; Vigors and Horsfield, 26; Mathews, 16; Gray, 14; Quoy and Gaimard, 13; Lesson, Shaw and Nodder, 9; Jardine and Selby, Kuhl, and Swainson, 8; Boddaert, and Ramsay, 7; North, Shaw, Stephens, and White, 6; Horsfield, 5; Bechstein, Bonaparte, De Vis, Forster, Müller, and Pallas, 4; Collett, Eyton, Lewin, M'Coy, Salvadori, Scopoli, Vroeg, and Wagler, 3; Ashley, Brünnich, Daudin, Dumont, Garnot, Hartert, Kerr, Lear, Lesson and Garnot, Lichenstein, Milligan, Raffles, Reichenbach, and Sharpe, 2; Bosc, Boie, Campbell, Castelnau and Ramsay, Cuvier, Clark, Drapiez, Dietrichsen, Du Bus, Desmarest, Gueldenstadt, Gunnerus, Hall, Hartlaub, Hombron and Jacquinot, Hilsenberg, Iredale, Jardine, Jameson, Jerdon, King, Kittlitz, Masters, Montagu, Miller, Middendorff, Oustalet, Paykull, Perry, Peal, Rüppell, Rothschild, Robinson, Smith, Swinhoe, Salvin, Turnstall, Thunberg, Vigors, Weatherill, Wallace, and White (H. L.), 1 each.

Breeding of Bustards.

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It seems a curious dispensation of Providence that the Australian Bustard (*Choriotis australis*) and the Native Companion (*Antigone australasiana*) should be severely restricted in their egg-producing ability, while other large inland ground-breeding birds, such as the Emu, the Brush-Turkey, the Mallee-Fowl, and the Scrub-Fowl, are all very fertile. In the case of the Emu, and to a lesser extent in the case of the Cassowary (which is protected by its jungle environment), inability to fly seems sufficient reason for prolific breeding, but this consideration does not hold good in regard to the mound-builders. And yet the large clutches of the latter birds' eggs are much more screened than the limited ones of the Plain Turkey. Certainly, at all events, Nature did not anticipate the introduction of the pestiferous fox when fixing the breeding habits of the Bustard.