abouts. A fact worth recording is that Crakes are partial to ripe blackberries, and I have flushed them from the tops of low, tangled masses of the brambles when the plants were covered with fruit, in early autumn.

Two seasons' experiences among the Spotless Crakes seemed to indicate that three eggs form the normal clutch; four is an exceptional number, and frequently only two are laid. The heavy, continuous spring rains of last season (1915), as already stated, delayed the nesting, but larger clutches were observed Among those noted were several nests containing five eggs, and in three cases six formed the clutch. Of these latter, one clutch contained a double-yolked egg. Would the clutch otherwise have been seven? There is much variation in the eggs, and to a certain extent the colours harmonize with the surroundings of the nest. I have seen one clutch of a uniform pale green colour, and the nest was hidden under a luxuriant growth of summer grass growing in a hollow of the creek's bank, and was made of the same material. When rushes and reeds form a decaying, matted mass, the eggs laid in nests thereon are a darker brown, and not attractive in appearance. Again, where the surrounding herbage and grasses are more open, with shafts of sunlight filtering through, the markings on the eggs laid in these sites resemble those of our Large-billed Ground-Thrush (*Oreocincla macrorhyncha*). Some of the specimens have a brown cap on the larger end. Variations exist in the shape also. Many of the eggs are round and chubby; others elongated and swollen.

Studying Spotless Crakes, one suffers discomfort and disappointment. But how quickly one forgets the long hours of wading, or standing knee-deep in mud, the sharpness of the frosts in the early morning, and the frights with snakes, when a nest is found or the birds are seen!

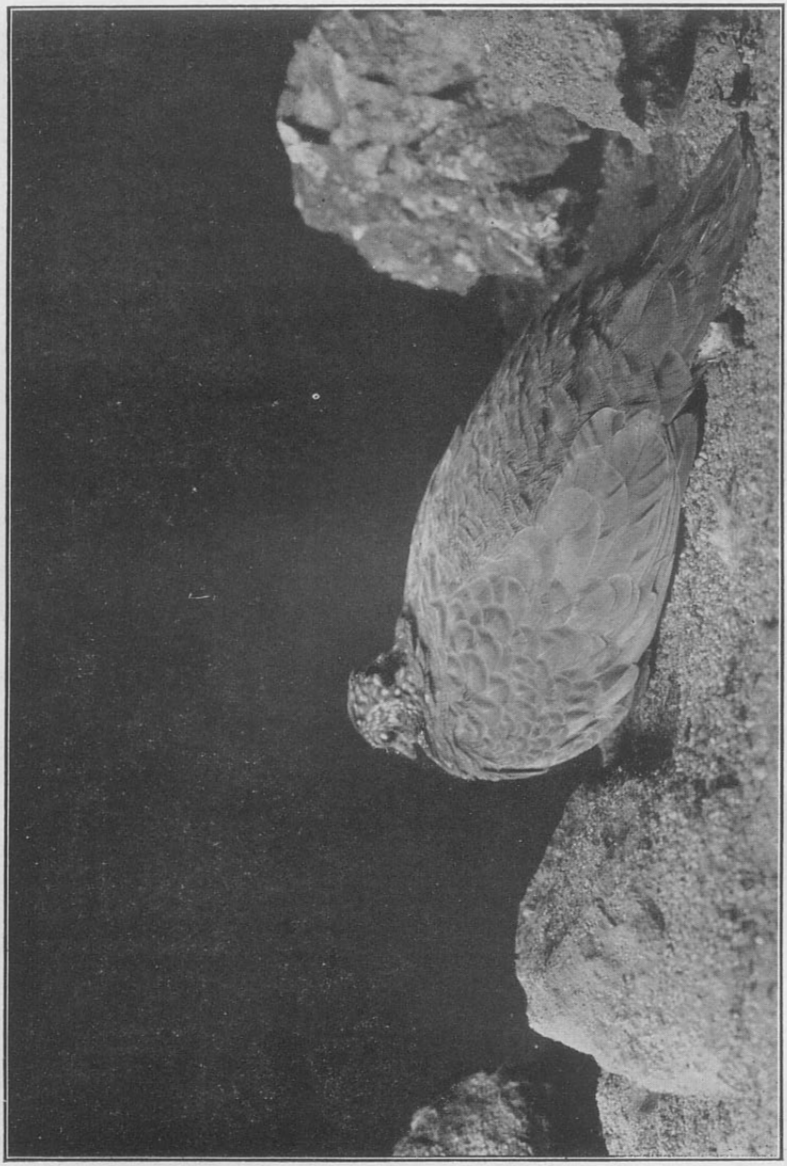
Birds in Melbourne Zoological Gardens.

BY D. LE SOUËF, C.M.Z.S., THE DIRECTOR.

AUSTRALIAN Honey-eaters are comparatively easy to keep in captivity provided that they have suitable food, and we find them quite hardy in our large flight aviary (50 feet x 25 feet x 30 feet high). Despite the number of birds in it (about 100), both the White-naped Honey-eater (*Melithreptus lunulatus*) and White-plumed Honey-eater (*Ptilotis penicillata*) bred last year and reared their young. As is well known, many birds, especially Finches, have, when in aviaries, a habit of pulling other birds' nests to pieces and building their own with the material stolen, but with Honey-eaters this does not seem to occur often. In the same aviary the Pied Grallina (*Grallina picata*) also builds its mud nest, and successfully rears its young.

In the young White-naped Honey-eater the top of the head

PLATE XII.



Chestnut-quilled Rock-Pigeon.

FROM A PHOTO. BY D. LE SOUËF, C.M.Z.S., R.A.O.U.

is green, and it is some months before it gradually becomes black, but the young White-plumed Honey-eaters are practically like their parents when fully feathered. It is interesting to note how much longer some birds take than others to assume the fully adult plumage. We know little about this matter, mostly on account of not making the best of our opportunities when we have them, and lack of observation. The beautiful dark blue plumage of the male Satin Bower-Bird (*Ptilonorhynchus holosericeus*) is a case in point; the facts were first ascertained from observation of birds in the Melbourne Zoological Gardens. Then, again, there is the Pacific Gull (*Gabianus pacificus*), which takes about four years (at present I am not certain as to the exact time—it may be a little longer) to attain the fully adult plumage. It is curious to note that in the young birds the feet and eyes are brown, like the plumage, and the beak whitish, and dark at the end; but the adults have the beak and eyes bright yellow and the legs whitish-yellow. These birds are not content with changing the colour of their feathers only. Again, in many of the Albatrosses the beak is almost black in the young birds, but changes to whitish later. The Straw-necked Ibis (*Carphibis spinicollis*), when young, has the top of its head covered with small blackish feathers, but in about three or four years these are all moulted, and the bare black skin shows instead; light-coloured lines appear later across the top of the head, and give the appearance of cracks in the skin.

In the flight aviary a pair of Yellow-breasted Shrike-Robins (*Eopsaltria australis*) live in company with the Honey-eaters, but woe betide any other bird of the former species that may be put in; the male Robin dashes at it at once, and the newcomer is usually soon killed. The Yellow-breasted Shrike-Robin is far more pugnacious than the Honey-eaters, frequently driving them away from their feeding dishes. The Honey-eaters do not seem to treat newcomers so harshly, but they are bad enough. Wood-Swallows (*Artamus sordidus*), Blue Wren-Warblers (*Malurus*), and White-browed Scrub-Wrens (*Scricornis frontalis*) live peaceably, possibly because they have plenty of room and cover. Most of these birds object to strong wind, and are usually to be found on the sheltered side of the aviary. In hot weather they are all very fond of bathing, and fly to and fro through the fine spray of the fountain, or else sit on a branch where the water can fall on them, and become nearly drenched.

When the Gardens were first formed, more than fifty years ago, Nankeen Night-Herons (*Nycticorax caledonicus*) used to camp during the day in the large eucalyptus trees (*E. rubra*), and they and their descendants have continued to do so ever since. The birds probably breed in the tall trees on the Murray swamps in New South Wales, therefore during the nesting season only the young birds of the last season are here, and the young males have not got their adult plumage. Directly the Garden bell rings, and the visitors depart, these birds fly down to the Gull and

water-fowl enclosures, and hunt round for scraps of meat that may be left; they are very tame. In the Cairo Zoological Gardens I noticed the same thing; there the Nankeen Herons (*N. griseus*) roost all day on the trees in the Gardens, and at night go to the Nile swamps to feed. Our birds usually go to the low-lying grounds and shallow water near West Melbourne; they leave the Zoo just at dusk.

The graceful Pied Grallinas, which assemble in flocks during the winter, come from the districts around Melbourne into the Zoological Gardens in the evening to roost, about an hour before the Herons leave. Two pairs of wild Grallinas have for years nested in the Zoo, but each pair has its own restricted area. The same applies to two pairs of White-backed Magpies (*Gymnorhina leuconota*), except that these birds have a battle royal should one pair seek to poach on the other's ground. On several occasions pinioned Magpies were liberated in the Gardens, but they were all attacked by wild birds sooner or later, as they unwittingly trespassed on their area. They seemed to be frequently getting on the prohibited ground of one pair or the other, and found it a difficult matter when they were attacked by the wild birds. As they could not fly away, they simply lay on their backs and fought with beak and claws, often effectively.

Three pairs of Black-and-White Fantails (*Rhipidura motacilloides*) nest in the Gardens, also many pairs of White-plumed Honey-eaters, and these, also, each have their separate parts. All these birds drive away their young as soon as they are able to look after themselves; therefore our wild breeding stock never increases.

In the Gardens there is a Queensland Cassowary (*Casuarius australis*), which, when about seven years old, laid two eggs. Before that it had always been regarded as a male bird, but the male and female are practically identical in appearance. The same applies to the Emu, but the male Emu drums and the female makes a grunting noise, whereas Cassowaries are very silent birds, and one cannot, therefore, easily identify the sexes by the sounds uttered.

Camera Craft Notes.

Pardalotes Before the Camera.—We have obtained a large number of photographs of the Red-tipped Pardalote (*Pardalotus striatus*). There must be very few families of these birds from Greensborough to Eltham and back to Preston, Victoria, which do not remember some annoying experiences of bird-photography. We have often found a pair nesting in the same place year after year, and some of them must now associate cameras with nest-building.

Usually, when we have met with scant success elsewhere, we use the latter part of the day at one of the Pardalotes' nests we