

states:—"The shoulders are furnished with a small or long spine." In the *Birds of Australia*, Vol. I., pages 247-255, Mathews discussed this bird very fully, and concluded that it must be referred to the genus *Porphyrio*. In the *Australian Avian Record*, Vol. II., pages 15-16, Iredale endorsed this view from his examination of the unique specimen in the Vienna Museum, which is believed to be the one from which the figure in White's Journal was drawn. Neither of them, however, mentions the spur on the wing. If it was present it would surely constitute a character entitling the bird to be placed in a genus by itself. If it is not present in the Vienna bird, how can its representation in the figure and its mention in the description be accounted for? Mathews begins his account by stating that "probably as much has been written about the 'White Gallinule' as any bird." That being the case, probably others have noted the spur on the wing. But as none of the works quoted by him, other than White's Journal, is accessible to me, I draw attention to the point.

Singular Nesting Sites of Birds of the Nullarbor Plain.

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While on a collecting expedition on behalf of the Trustees of the Australian Museum in 1921, Mr. J. H. Wright and I were stationed at Ooldea, on the Trans-Australian Railway. Ooldea is situated on the eastern edge of the vast Nullarbor Plain, which the train enters immediately west of the station, and traverses for about three hundred miles.

During our stay of several weeks, we made many excursions into the plain in search of birds and mammals of any description. Scattered over the plain within a radius twelve miles west of Ooldea, are slight depressions, which have the appearance of shallow lake beds, where the soil is softer and the low monotonous blue bush gives place to thick, rank grasses and clumps of stunted scrub. These depressions, "dongas" or "dongholes," as they are called, though only watered in times of heavy rain, must seem havens of refuge to the animal life of the plain, which we found, to our relief, prone to congregate in them. Indeed the struggle for existence and accommodation must be extremely keen, as the following notes will indicate.

Perhaps the most interesting denizen of the plain is a species of "Stick-nest Building Rat" (*Leporillus conditor*)—Gould—specimens of which were first secured by Sturt on the

Lower Darling in 1844. These rats* are in the habit of constructing cone-like nests of sticks which are often closely interwoven with the trunk and limbs of a stunted bush when suitable shrubs are available, the whole forming quite a massive stronghold against the strong winds, dingoes, and other enemies.

Upon nearing one of the dongholes, many of which had several stick nests in them, we saw a Hawk rise suddenly from a low bush. Closer inspection proved the bush to be the support of a typical rat's nest (Plate 33), with a neat depression at the apex, which housed three eggs of the Striped Brown Hawk (*Ieracidea berigora*). The association was truly a strange one, and it is difficult to imagine what pact or understanding brought about an *entente cordiale* between these apparently ill-matched householders.

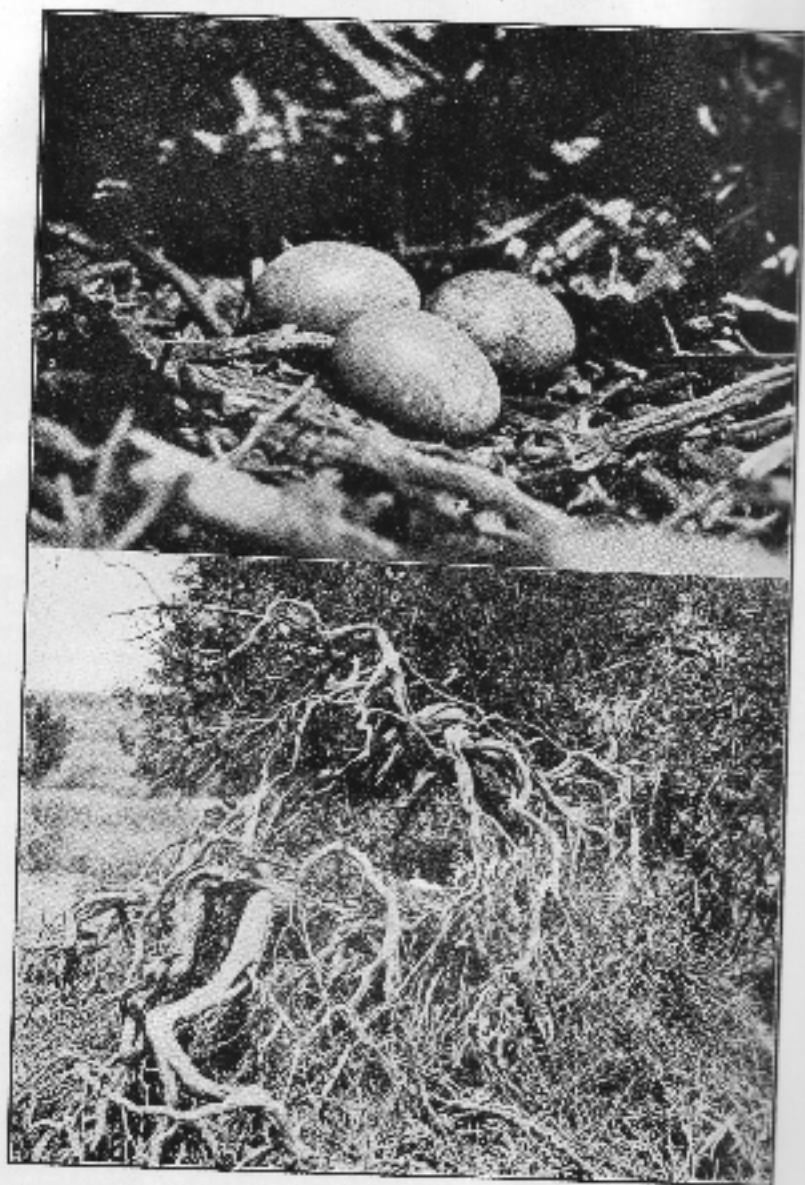
Bones littered within the rat's nest suggested a tendency to a meat diet on their part, and most rats are partial to birds' eggs. On Lord Howe Island, for instance, the depredations of the common introduced rat (*Rattus rattus*) have almost exterminated the valuable and interesting bird fauna. There the rats eat both the eggs and young of insectivorous birds, so that many hitherto harmless insects have become pests. A notable instance of this is the Scolytid Beetle (*Dryocoetes dactyliperda*), which bores through and destroys a considerable percentage of the exportable Kentia Palm seeds, upon which the islanders are largely dependent.

On the other hand, there are many records of the penchant of the Striped Hawk for a quadruped diet, such as small rodents and marsupials, and one might reasonably suppose that this Hawk would, under ordinary circumstances, be very partial to the rats for food.

Though it has often been noted that the Hawk in question occasionally uses the old nest of another Hawk or Raven, this instance of a Hawk utilising the nest of a mammal must be as unique as are the stick nests of the rats themselves.

Whatever may be the explanation for the apparently mutual understanding between the Hawks and rats of the one nest, no such truce exists between the Delicate Owls (*Tyto alba*), and rats living on the Nullarbor Plain. The Owls make their homes in the limestone caves or "blowholes" which honeycomb the plain. Though the openings of these blowholes are sometimes too small to allow a man to enter, they usually open out into a fair-sized chamber, from which small crannies are given off; their name is derived from the surprisingly strong wind, often redolent of stagnant water and drying owl pellets, which blows up from the crannies and out through

*A detailed account of the interesting stick-nest building rats of Australia may be found in my "Revision of the genus *Leporillus*," in the Records of the Australian Museum, XIV., 1, 1923, pp. 23-38, pls. V.-VI.



Upper: Eggs of Striped Brown Hawk (*B. striata*).

Lower: Nest and eggs of Striped Brown Hawk on the nest of the Stick-nest Rat.

Photos, by E. L. G. Doughton, B.A., O.B., Sydney.

the openings above. According to popular local report, the air is at times drawn strongly inward, the reversed direction of the draught being attributed to the action of the tides, some sixty miles away.

These Owls must constitute an even more dreaded enemy of the rats than the dingoes which traverse the plains at certain seasons, but which would be unable to tear apart their strongly woven fortresses. One can picture the Owls with soft, almost noiseless flight, swooping down out of the desert night, and clutching up some hapless rat busily engaged upon a foraging expedition or in house repairs.

Indeed, great numbers of indigenous rats and mice must be consumed, as we found Owls roosting in many of the blow-holes, and collected a good many of their castings, the majority of which contained complete skulls of the Stick-nest Rat. Variety is lent to the menu by the smaller species of rodents and marsupial mice, skulls of which were found in a number of the Owl-pellets examined.

Thirty Owls have been introduced to Lord Howe Island during 1923 by the Island Board of Control, to assist the campaign against rats, and already there are definite signs that the birds are destroying rats. Owls are frequently seen and heard about the island and its homesteads, and pellets containing rats' skulls have been found, proving that the birds are at work.

Twelve miles westward of Ooldea the dongholes gradually disappear, and the landscape at Fisher, about forty miles farther on, is very flat and fairly well covered with bushes, which are only about knee-high. These bushes are too frail to support birds' nests of any dimension, nor do they supply adequate builders' material for the rats' self-contained flats, and so the residences of the latter change to low heaps of sticks over rabbit warrens.

In this locality the birds are hard put to find suitable nesting sites, a problem which was solved at Fisher, where we were camped, in a novel manner by pairs of Striped Brown Hawks and Short-billed Crows (*Corvus bennetti*).

The single line system of the Trans-Australian Railway does not necessitate a continuous set of signal posts, which are limited to several at either end of the sidings. Each pair of birds had chosen the top of a signal post, at the junction of the arm, for a building site, and as the signals were never operated, the trains only stopping to drop such important things as stores and collectors, the birds raised healthy families, and voted their home site a signal success.

In conclusion, I wish to express the thanks due to my friend, Mr. J. R. Kinghorn, Ornithologist of the Australian Museum, who kindly gave his expert assistance in the identification of the birds noted above.