

help to bring out the validity and the limitations of these and other principles concerning the distribution of musical birds.

I shall be sad when I can no longer hear the Olive Whistler, Grey Thrush, Crested Bell-bird, Magpies, and the others, but ever grateful indeed to all those who have helped to make it possible for me to hear them at all.

Choosing the Nest Site

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Mr. P. A. Bourke's brief article in *The Emu*, vol. 52, p. 254, on the behaviour of a pair of Spotted Pardalotes (*Pardalotus punctatus*) near Wallsend, prompts me to record some observations made in my garden this year.

Early in October I noticed a pair of Spotted Pardalotes on a clothes line near a low retaining wall in which the stones are placed in such a manner that they provide numerous openings suitable for nesting sites. The male bird flew down to one of the openings where, with head turned sideways, it assumed a tense attitude and gave a 'ticking' call. I did not time this call, but it was prolonged and consistent with the times recorded by Mr. Bourke. It was obviously an invitation to inspect. The female, however, flew away, but there were signs next morning that the birds had returned to the spot and done some excavating.

On the third morning, when I went to remove portion of a large compost heap, the male bird alighted near a small opening in it and again gave the 'ticking' call, while the female moved about in a branch overhanging the heap. She did not respond while I was there, but a tunnel about six inches long was excavated that day during my absence.

Two days later I heard this unusual call and observed the male bird perched in the same tense attitude at the opening below a large brick incinerator—a ready-made but far too capacious 'burrow'! He disappeared through the opening for a few seconds and then flew out, but repeated the call and inspection a few minutes later. The female did not appear to be interested.

Last year a male Spotted Pardalote gave the same sustained call before inspecting several holes in a brick wall in my bush-house, the female 'investigating' one of them while I was there, and one or both birds doing some tunnelling in three holes during the day and then deserting them.

These four observations, in addition to the one I recorded previously in *The Emu*, seem to indicate that the male Spotted Pardalote takes the initiative in selecting a

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site, that the selection is frequently experimental in the sense that some work is done and then abandoned, that a site with an opening is the most attractive, that a distinctive call is associated exclusively with the procedure, and that the site is subject to the approval of the female. Bird calls serve many functions, but this appears to be a rare record of consistent use of a special call for the essential pre-nesting activity of choosing a nest site. Obviously, there is wide scope for similar records, and although the element of chance must play a large part, bird observers may add considerably to our present knowledge if the subject of site selection is kept well in mind when the breeding season is imminent.

As an example of the kind of direct observation that can be made, I quote the following field notes, kindly made available to me by Mr. K. A. Hindwood, on the behaviour of two pairs of Leaden Flycatchers (*Myiagra rubecula*).

Locality: Roseville, Upper Middle Harbour, Sydney.

14/10/1939: Male bird calling in large *Angophora lanceolata* tree. Saw him on dead branch under a living branch, which seemed to me an ideal nesting place. Male calling and remaining in one position on branch. Could hear another bird calling, single harsh note (? female), some distance away. Male left dead branch and flew to a sapling where he gave a double harsh note. Semi-crest raised, body rigid, bird appeared to be excited. In some 45 minutes time the male again visited the same spot on the dead limb and called, apparently to the female. Male gave various notes and appeared to be trying to get the female to come to the selected spot. Male would vibrate his tail exceedingly quickly and at times spread it fanwise, his semi-crest raised, and he was calling a lot. Male squatted on limb and sometimes touched it with his bill. Female not seen closer than 30 yards from the dead limb. She would answer the male with a single harsh note. Climbed to limb but no sign of cobweb or nesting material.

15/10/1939: 10 a.m. Birds calling in area.

10.45 a.m. Male seen at nesting site as 14/10/1939. He came three times with cobweb in about five minutes. Female came once with nesting material. Note.—Nest eventually completed, eggs laid, etc. Nest about 40 feet from the ground.

Same locality. 13/10/1940: 7.5 a.m. Male and female watched in mangroves. Female flew to a dead branch under a living branch and squatted on it. Shortly after the male squatted on the same branch in the same place. Apparently the birds were on a tour of inspection looking for a suitable nesting site.

20/10/1940: 10.40 a.m. Female seen in forest above mangroves feeding. Later she flew down to the mangroves. Male calling in mangroves.

11.15 a.m. Saw female on same dead branch on which she squatted on 13/10/1940. Nest partly built, basal portion only (photographed). Watched her bringing nesting material and building; also male. Nesting site approximately five feet from ground (mud) and only about 18 inches from water during normal tide. Note.—Nest eventually completed, eggs laid, etc.

Distinctive behaviour at a nesting site may be typical of numerous species, and detailed observations like Mr. Hindwood's would help to classify it eventually in terms of ceremonial patterns. After all, the nest is the focal point of a bird's domestic life, and the site is so significant that one might almost expect the general territorial behaviour, so ably studied by Howard, Nicholson, and others, to include some special 'ritual' in the actual choice of it.

Buxton, who has monographed the Redstart (*Phoenicurus phoenicurus*) in the New Naturalist Series, describes elaborate displays by the male bird before the hen will enter the nest hole, and comments on the fact that he chooses the site for the nest even although he does not help to build the nest. In numbered nest-boxes that were provided he would flash his white frontal patch in and out of the hole "too fast to count", or fly in and out without perching on the box, the effect being "to draw attention to the nesting-hole by signalling either with the conspicuous white frontal patch or with the red rump and tail".

Stuart Smith, in his monograph on the Yellow Wagtail (*Motacilla flava flavissima*) contributed to the same series, states that he has often seen hen Yellow Wagtails, with males in attendance, 'prospecting' for nesting sites. The hen bird makes the final choice, and the parts played by cock and hen birds in the choice of site and nest construction "vary from species to species, although in most birds the hen plays the major role". This author offers the very interesting suggestion that if we had more intimate details of the behaviour of other less common birds "it might well be that a general survey would reveal that the selection of the nest-site has a ceremonial significance of considerable importance in the general phase of nuptial display".

Ennion, in his 'Field Study Book on the Lapwing (*Vanellus vanellus*)'—a ground-nesting bird—gives a detailed account of the 'scraping' of the male bird and states that the "ceremonial scrape is the forerunner of the nest".

I mention these special studies of three different European birds because they reveal so admirably the continuous and comprehensive kind of field work needed to accumulate the details of bird biographies. The simple purpose of this brief and inadequate article is to stimulate interest in a phase of bird behaviour that has been largely overlooked or neglected even so far as our commonest species are concerned. To trace the factual pattern of this pre-nesting behaviour requires concentration and patience, and it offers fruitful opportunities to those students of bird life who are conscious of their 'amateur' status, who cannot go far afield in search of uncommon birds, but who can record accurate observations of familiar birds in the garden or the nearest patch of bush.