LETTERS TO THE EDITORS

The Editors do not hold themselves responsible for opinions expressed by their correspondents. No notice is taken of anonymous communications

Function of the Bower of Bower-birds

THERE exist two widely divergent and irreconcilable theories concerning the nature and function of bower-building in bower-birds (Ptilonorhynchidae). The first, which may be called the traditional view, finds its expression in numerous writings (references in Marshall[1,2]) which describe bower-birds as intelligent and consciously æsthetic (in the human sense of the expressions) in their collection of colourful display-things and in bower-building. This view involves also the stated belief that bowers are built for recreational purposes and are little concerned with reproductive processes, even though the latter may have accounted for the origin of display in the early history of the species.

The second view is that the bower and display-ground form the centrepiece of the male bird's territory, and that to it is attracted a female to which the male displays (sometimes for several weeks) until the environment, and next the female's internal sexual processes, come seasonally to a state appropriate for successful reproduction, after which copulation occurs. Thus, the copulation-date, and hence the ultimate timing of the breeding season, is considered to be controlled by environmental factors operating through the exteroceptor organs of the female.

In advancing the latter hypothesis Marshall[2] has written that it is not yet known what are the events that "cause sudden transference of the physical attention of the male from his display-things to the . . . female which has been waiting alongside for so many weeks".

Observations made by me in the Cordeaux River area, south-eastern New South Wales, on October 2, 1954, perhaps supply these missing data.

A blue-black male satin bower-bird (*Ptilonorhynchus violaceus*) came to its highly decorated display-ground, renovated the bower, painted its walls (with charcoal mixed with saliva) and then flew to a tall *Acacia* tree near by, where he repeatedly produced a long-drawn territorial whistle for about half an hour. A female now came to the bower and, after moving around, went to the central avenue at the entrance facing the display-ground. Here she stood. The male then flew down to the display-ground and began to display (Fig. 1). After a few minutes the female

Fig. 1

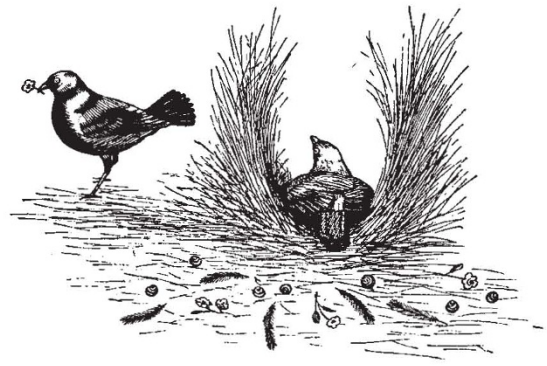

Fig. 2

assumed the peculiar squatting or flattened crouching attitude, shown approximately in Fig. 2. The male now intensified his performance. The female maintained the crouching position for no less than ten minutes, her only appreciable motion being a rotation of the head as her gaze followed the actions of the male. The male displayed back and forth, holding blue flowers in his beak. Then he moved quickly to the front entrance of the bower where copulation occurred, considerably disordering the bower. The male next departed, and then the female disappeared. Twenty minutes later the male returned and renovated his damaged bower.

Although several observers have reported the presence of a single female *Ptilonorhynchus* standing passively watching the displaying male, this appears to be the first occasion on which a female has been seen to strike a special attitude, and the first time, moreover, on which copulation has been observed, although it has been reported at the bower of the spotted bower-bird (*Chlamydera maculata*)[3]. It seems reasonable to suppose that it was the prolonged and peculiar crouching attitude adopted by the female at the bower that released in the male the drive towards coition.

No evidence that polygamy occurs in the above species was obtained. Only one female was seen near the bower; and I have never found more than one nest near a display territory.

A longer account of the present and allied observations will be published in *The Emu*, the journal of the Royal Australasian Ornithologists' Union.

ELLIS MCNAMARA

Cordeaux River,
Mt. Kembla,
New South Wales.

[1] Marshall, A. J., *Biol. Rev.*, **29**, 1 (1954).
[2] Marshall, A. J., "Bower-birds: their Displays and Breeding Cycles" (Oxford, 1954).
[3] Chaffer, N., *Emu*, **44**, 161 (1940).

Aphid Chromosomes

DURING the early years of this century several workers, notably Morgan[1] and Stevens[2], became interested in the chromosomes of Aphididae, mainly in connexion with their studies on the behaviour of the sex chromosomes and on the phenomenon of parthenogenesis. Shinji[3] wrote on the evolutional significance of the chromosomes of the Aphididae. He investigated some thirty-seven species of American aphids, of which the somatic chromosome numbers ranged from six to thirty-eight, and claimed that the