

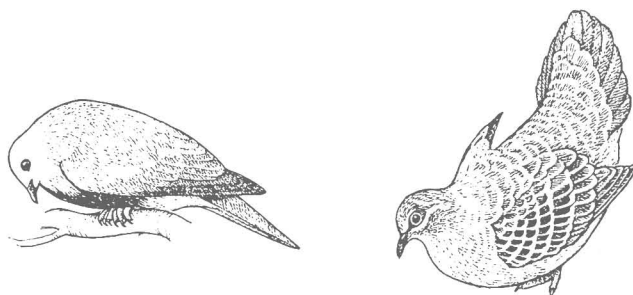
## Bowing on the bough

Anybody who has walked through our cities knows that Australia has a lot of pigeons. The grey birds of the city, enjoyed by people who sit in parks and detested by cleaners of the outsides of buildings, came to Australia with European colonizers.

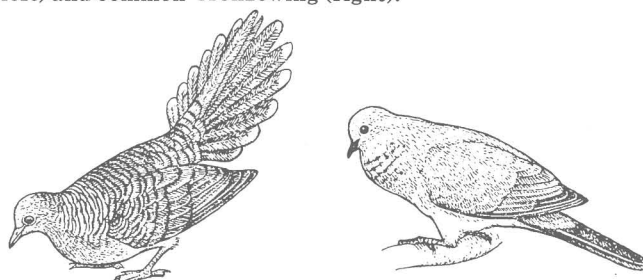
There are also a lot of pigeons in the bush. Australia has 24 native species, and only three that have been introduced. Some of the natives, notably species that live in rainforests, are birds of most distinctive colour and sound. The wompoo pigeon, for example, is a large green bird with grey head, purple breast, and yellow abdomen, and its loud bubbling call is a familiar sound in tropical rainforest during the dry season.

Just how the various species are related to one another is a subject of considerable interest to ornithologists, and the relationships of some species are obscure. Species have been grouped mainly according to similarities and differences in physical features, but studies of behavioural differences can also throw light on the relationships.

The Chief of the CSIRO Division of Wildlife Research, Dr Harry Frith, has replaced one wall of his office with a glass panel, and behind it is a large, heated, well-planted aviary. With microphones in the aviary and a movie camera in his office, he has observed there



Low points of the very different bows of the wompoo pigeon (left) and common bronzewing (right).



Low points of the bows of the bar-shouldered dove (left) and the Senegal turtle-dove, a pigeon of the *Streptopelia* genus (right). The displays of the bar-shouldered dove do not support the argument that it should be classified as a member of this genus.

the behaviour of all Australian pigeon species. He has used these observations to amplify information gained in the field.

Dr Frith has been particularly interested in the bowing displays of pigeons. These can have either sexual or aggressive functions; in some cases they have both. Observations indicate that the ways pigeons bow are among the behaviour patterns most typical of particular species. Dr Frith was interested in establishing similarities between the bows of different species within groups of pigeons.

He found, for example, that the bowing display of the wompoo pigeon is similar to that of the other Australian members of the same genus

(the black-banded, red-crowned, and purple-crowned pigeons). The bird adopts an upright posture, the neck and breast are slightly inflated, and then the body is swung downwards until it is inclined at about 20° to the horizontal. The bill is pressed towards the breast, and the tail is raised very slightly from the position it held in the upright stance.

Movement from the high point to the low point is slow, taking between 1.2 and 2.2 seconds.

The bronzewing pigeons have a quite different bowing display. The head and breast are lowered, the wings are half spread and tilted forward, and the tail is raised and fanned. The movement is rapid, occupying from high

point to low point less than 0.2 seconds. Again, the displays of different members of the group proved similar.

Dr Frith concludes from his observations that display postures can provide useful clues to relationships between pigeon species. For example, the plumage, geographic distribution, call, and flight of the bar-shouldered dove, a member of the native genus *Geopelia*, are similar to those of introduced pigeons of the *Streptopelia* genus.

However, their bowing and other displays set the birds apart. The displays of the bar-shouldered dove are quite different from those of *Streptopelia* species, but very similar to those of the other members of the *Geopelia* genus.

These displays suggest a relationship between the *Geopelia* species and American doves of the *Scardafella* genus. So do close similarities in plumage and habits between the two genera.

The possibility of a relationship is generally disregarded, and the similarities attributed to evolutionary convergence between two isolated groups of birds. Dr Frith concludes, however, that 'if all of these similarities are due only to convergence, then it is certainly a remarkable case'.

Some display postures of Australian pigeons, H.J. Frith. *Ibis*, 1977, 119, 167-82.