

## REMARKS ON THE STREPERIDAE

By G. M. STORR

Interest in this family has been revived by the appearance of a paper on the group by Dr. Dean Amadon (*Am. Mus. Novit.*, 1504; April 6, 1951). By applying modern taxonomic principles the American ornithologist has arrived at a classification differing considerably from that of the *R.A.O.U. Checklist* (1926).

Amadon retains the three genera—*Cracticus*, *Gymnorhina* and *Strepera*, but reduces to eight the fourteen species of that Checklist. The six "little species" eliminated are *Cracticus argenteus* (considered conspecific with *C. torquatus*); *Gymnorhina dorsalis* (with *G. hypoleuca*); *Strepera fuliginosa* (with *S. graculina*); *S. melanoptera*, *S. intermedia*, and *S. arguta* (all with *S. versicolor*).

Most ornithologists will find little to dispute in this simplified classification. Amadon's suggestions on the phylogeny of the family are more provocative, and with some of these I cannot agree.

The essence of Amadon's views is contained in one sentence (p. 15)—"In considering the phylogeny of the species of *Cracticus* it must be remembered that the magpies (*Gymnorhina*) and even the currawongs (*Strepera*) are but specialised derivatives of the butcher-birds (*Cracticus*) and may have replaced the latter in certain habitats."

Fundamentally our respective ideas on the evolution of the present members of the family are quite different. Mine are briefly that *Strepera* is the most primitive genus and that *Cracticus* differentiated from a stock not very dissimilar to present-day *Strepera*, firstly by adaptations to a more predatory way of life, and secondly by those modifications correlated with increasing territory-consciousness.

I find it hard to believe that such generalised forms as *Strepera* have evolved from the Butcher-birds. The latter are, with little doubt, the more advanced with regard to, at least, plumage-patterns and song, and are the more specialised in feeding habits. Perhaps most convincing is the criterion of bill color. In *Strepera* it is black as in many other passerines; on the other hand *Cracticus* (and *Gymnorhina*) have evolved the rare color, for that organ, of blue-grey.

A brief review of the degree of subspeciation in these genera would indicate that far from being replaced by *Strepera*—in southern Australia at least—the two species of *Cracticus* (Grey and Pied Butcher-birds) are comparatively recent arrivals in much of that area.

Within the general area of distribution of a single race (*leucopterus*) of the Grey Butcher-bird, four (or possibly six) subspecies of *Strepera versicolor* have evolved. Some of these races are very distinct, and at least one of them (*centralia*) is an obvious relic from a more pluvial era. It seems, then, that *Strepera versicolor* has had a long and vicissitudinous history in southern Australia.

The Pied Butcher-bird (*C. nigrogularis*) favors a more open habitat than either of the two preceding species, and has therefore less opportunity than *torquatus* of competing with the Currawong. Although it has a wide range in southern Australia, it has only evolved two races (and one of these is "just barely recognisable"—Amadon). This species, too, seems to have undergone comparatively recent range-expansion, a process which is still continuing in south-western Western Australia, according to Serventy and Whittell (*Birds of Western Australia*, 1948).

The group *Cracticus-Gymnorhina* contains four superspecies—*quoyi*, *torquatus* (with *mentalis*), *cassicus* (with *nigrogularis* and possibly *louisianensis*), and *tibicen*. Of these Amadon nominates *quoyi* as the most specialised, apparently from considerations of plumage and supposed habitat restriction. His second argument unfortunately rests on the misconception that the species in Australia is "found only in dense mangroves and other coastal growth." This may be true of Northern Territory populations where, owing to the length and severity of the dry season, development of rain-forest is inhibited. In north-eastern Queensland, however, the species shows just as great, if not greater, ecological diversity than that attributed to New Guinea birds by Mayr (*List of New Guinea Birds*, 1941). In the Cooktown district I have observed *quoyi* in mangroves, dry scrubs, gallery forest, and in rain-forests of both the lowlands and mountains up to

an altitude of at least 2,000 feet. A little further south, F. Hislop also recorded the species from diverse habitats (in North: *Nests and Eggs* . . ., (2), p. 20).

With regard to plumage, *quoyi* has not evolved the comparatively complex patterns of the other species. Its all-black coloration has most probably evolved, as Amadon thinks, directly from a brown plumage which still lingers in the dimorphic race *rufescens*. Birds of the latter plumage phase never appeared rufous to me. In the field their prevailing colors seemed to be various shades of dusky brown, similar to those of young *nigrogularis*. I imagine that the ancestral plumage of *Cracticus* was not unlike this so-called rufous phase.

The songs of the Black Butcher-bird, though sharing those somewhat intangible qualities characteristic of the group, are neither as sustained nor melodious as those of *torquatus*: they fall far short in beauty of the carolling of both *nigrogularis* and *tibicen*. (Anthropomorphic comparisons of song are probably tenuous grounds on which to reconstruct the phylogeny of this genus. With the paucity of skeletal, behavioural and other data, I have felt the need to use that criterion to justify my views, which are probably more intuitive than reasoned.)

The Grey Butcher-bird, as Amadon points out, is absent from Cape York Peninsula, and replaced apparently by *Cracticus mentalis*. While feeling bound to associate these two species, Amadon had some misgivings in that respect because of Thomson's opinion (*Birds of Cape York Peninsula*, 1935) that *mentalis* and *nigrogularis* replace each other in certain areas of the Peninsula. This was not my experience at Laura (60 miles inland from Cooktown), where both species occur together in the drier woodland-savanna. *Mentalis* is much the smaller of the two, and is in most respects reminiscent of *torquatus*.

In *Cracticus* we have various plumage types, ranging from unicolorous in *quoyi* to a bold black and white pattern in *nigrogularis* and allies. I interpret these plumages as progressive stages in the evolution of the later members of the genus.

In the past a population of pre-*Strepera* is isolated (probably in tropical Australia or New Guinea). It tends towards a more predatory life, and is modified accordingly. Competition is primarily inter-specific and

selection-pressure is directed almost solely towards increased predatory efficiency.

By the time the *quoyi* stage is attained, *Cracticus* has found and exploited with success a field previously untapped by an Australian passerine. From here on competition is largely intra-specific and, as is usual in monogamous species, this is expressed in increasing territorialism. As several behaviourists have pointed out, territory-holding, to the obvious advantage of the species concerned, is mainly a matter of bluff. For maximum effect the birds must be conspicuous in both song and color.

In *torquatus* we find the first adaptations in this direction, which is carried still further in *mentalis* by the elimination of most of the grey from the plumage. The last phase is reached with the ancestor of the Pied Butcher-birds and Magpies. These birds exhibit the loudest and most melodious songs and the boldest plumage-patterns of the *Cracticus-Gymnorhina* branch. Increasing conspicuousness in both superspecies is reflected in their parallel trend towards dorsal whiteness and ventral blackness.

It can be inferred from the foregoing that I regard the Pied Butcher-birds as being more closely related to the Magpies than they are to the other Butcher-birds. I do so because I have been long impressed by their general similarity, in particular of plumage-pattern and song.

I do not discard entirely the possibility that the Magpies evolved from an earlier stage of *Cracticus*: similar mutations can arise in related organisms, and in this genus in particular, where the plumage-patterns can be attributed with some evolutionary significance, the convergence of two stocks is not inconceivable.

I prefer, however, to regard the Magpies as a branch of the pre-*cassicus* Butcher-birds that have taken to a more terrestrial existence. In much of northern Australia a slight deterioration in rainfall would probably result in the replacement of woodland-savannas by grasslands. This is possibly what happened in the not-so-distant past when a population of ancestral Pied Butcher-birds was gradually trapped and isolated from its kin. The alternative to adjustment to the changing conditions was extinction. That the pre-adaptation of these birds to a grassland environment and a diet largely of insects

captured on the ground was possible was due to the fortunate accident that their immediate ancestors were not compelled to overspecialise either as predators or in habit preference. Since the advent of European settlement the Magpies have demonstrated their adaptability by making further adjustments (mainly psychological) so successfully that they now prosper better than ever in the man-made habitats of farmlands.

Even if the Magpies are a more ancient group than I imagine them to be, there are no real grounds for separating them generically from the Butcher-birds. Those who maintain the distinction rely on characters for the "genus" that are solely correlated with the species' adaptation to a terrestrial existence. It may have been useful, but certainly not natural, to oppose three species of *terrestrial* "Butcher-birds" against four species of *arboreal* Butcher-birds.

If *Gymnorhina* is held to be monotypic, even less cause will be left in favor of the

use of that name. Amadon was almost convinced that the Magpies were conspecific, but finally followed tradition in separating the black-backed from the white-backed forms.

Let us consider the two races *leuconota* and *tibicen*. South Australian specimens are essentially alike in all their measurements. No one has yet recorded any differences in behaviour (including song), and they have shown equal adaptability in their great population-increase in farming lands. Indeed only a *single* character will serve to separate these forms. Few birds are as familiar as the Magpies to farmers and the public generally; yet I have never met the layman conscious of the fact that two varieties are involved. More important still is the apparent indifference of the Magpies themselves; indiscriminate mating is indicated by the numerous hybrids evident wherever the two forms make contact. Could any species be erected on more flimsy grounds?