NOTES ON THE TAXONOMY OF VULTURES

DEAN AMADON

During the course of editing and completing a check-list of the order Falconiformes written about 1960 by the late Erwin Stresemann, certain points have arisen pertaining to vultures, both of the New and Old Worlds. The check-list mentioned will be published as part of a proposed revised volume 1 of "Check-list of Birds of the World" by J. L. Peters (1931).

LIMITS OF THE CATHARTAE

The superficial similarity of most vultures led early naturalists to place all of them in a single group. Linnaeus, for example, assigned vultures from both the Old and New World to his genus *Vultur*, and even included the Harpy Eagle in it. The Andean Condor (*Vultur gryphus*) eventually became the type of this genus by "elimination," all the other species having been assigned to other genera. Soon anatomists discovered fundamental differences between the Old and New World living vultures; the latter were separated into a suborder Cathartae, based upon the genus *Cathartes*, that of the Turkey Vulture (*C. aura*). Brodkorb (1964) used a suborder Sarcorhamphi and family Vulturidae for the New World vultures, but the Rules of Nomenclature do not require that priority be observed for names of higher categories and there is no need to disturb the long established names "Cathartae" and "Cathartidae."

The cathartid vultures are very distinct anatomically and whether they belong in the order Falconiformes is uncertain. Brodkorb (1964:251), however, assigned the oldest known fossil bird of raptorial aspect, *Lithornis* of the Paleocene of Great Britain, to the Cathartae. If the group is really so ancient it may be found that the other raptorial birds are related to or derived from the cathartids. Furthermore, the other suborders of the Falconiformes, the Falconae (falcons), Accipitres (hawks) and Sagittarii (secretary-birds) may themselves be of polyphyletic origin. For the time being, it seems best to retain the order Falconiformes as presently understood, with the Cathartae as one of its four suborders.

The affinities of *Lithornis* may be open to question, but apparently true cathartids did exist in Eurasia in mid-Tertiary times (Cracraft and Rich 1972). "New World vultures" thus is not an appropriate vernacular name for the group. One may call its members "cathartid vultures" or, as suggested by Walter Spofford (oral comm.), "condors."

Within the Cathartae, the terrestrial genus *Neocathartes* Wetmore from the Eocene of Wyoming deserves family or superfamily rank. All the other genera may be placed in the Family Cathartidae, with two subfamilies —(1) Teratornithinae for the huge "teratorns" which persisted into the Pleistocene in western North America, and (2) Cathartinae for all the Recent genera and those fossil ones other than the Neocathartidae and Teratornithinae. This arrangement may have to be modified if and when the older fossil representatives of the suborder become better known.

THE GENUS OF THE CALIFORNIA CONDOR

The California Condor was described by Shaw in 1797 as *Vultur californianus*. Lesson set up the genus *Gymnogyps* for it in 1842 but for a time it was called *Pseudogryphus* Ridgway, 1874. In their review of North American birds, Mayr and Short (1970:36) made *Gymnogyps* a synonym of *Vultur*, which otherwise has the Andean Condor, *V. gryphus*, as its only living species. They remarked: "The California Condor seems related, albeit distantly, to the Andean Condor (*Vultur gryphus*). Fossil and extant species of this condor assemblage fall into three groups, presently considered genera (*Vultur*, 1758; *Gymnogyps*, 1842; *Pliogyps*, 1959), but each of these appears to be comprised of but one species or superspecies . . . Allowing a reasonable degree of latitude among congeneric species there seems to be no good reason why these condors should not be considered congeneric."

Pliogyps is based on a Pliocene fossil from Kansas. When describing it, Tordoff (1959) did not consider it close to *Gymnogyps*, for he wrote: "*Pliogyps fisheri* shows no close relationship to any other vulture" and again, of two other fossil taxa, "In any event *fossilis* and *patruus* belong in *Vultur* and are therefore not closely related to *Pliogyps*." Meanwhile another genus *Antillovultur*, described

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from Cuba (see Arredondo 1976), must be considered. It is based on a vulture almost as large as the Andean Condor but apparently with some of the osteological features of *Cathartes*.

Mayr and Short (1970) did not mention the genus *Sarcoramphus* (King Vulture) though that species has often been associated with *Vultur*. Indeed, Coues (1903:721) placed these two genera in a separate subfamily, and the other three Recent genera—*Coragyps* (Black Vulture), *Cathartes* and *Gymnogyps*—in another. This is unnecessary, but there is some reason to think that two natural subdivisions are involved. Baird et al. (1874:336–337) defined the two groups as follows:

(a) "Crop naked. Male with a fleshy crest or lobe attached to the top of the cere. Bill very robust and strong, its outlines very convex; cere much shorter than the head" (*Vultur, Sarcoramphus*).

(b) "Crop feathered. Male without a fleshy crest or other appendages on the head. Bill less robust, variable as to strength, its outlines only moderately convex, cere nearly equal to the head in length" (*Coragyps, Cathartes, Gymnogyps*).

In the same year Sharpe (1874:20–29) had subdivided the cathartid vultures similarly, but actually placed the California Condor in the same genus (then called *Oenops*) with the Turkey Vulture. Sharpe gave one or two other characters for the two subdivisions of the family. Fisher (1942) found some differences in pterylosis between the two condors, e.g., *Gymnogyps* lacks a ruff of downy feathers at the base of the bare neck and has fewer secondaries. There is some variation in the Cathartidae in the number of specialized vertebrae. Friedmann (1950:9–10) wrote of *Cathartes* and *Coragyps*: "Vertebrae as in *Gymnogyps*." This would indicate (as compared with *Vultur*) 4 rather than 3 dorsal vertebrae and 5 rather than 6 coccygeal vertebrae. For cervical vertebrae Friedmann gave: *Vultur* and *Sarcoramphus* 17, *Gymnogyps* 15, *Cathartes* 13, *Coragyps* 14.

Everything considered, I think it best to accept the currently recognized five Recent genera of Cathartidae, at least until further studies have been made. They may, however, be rearranged in the following order: *Coragyps, Cathartes, Gymnogyps, Vultur, Sarcoramphus*, thereby placing *Gymnogyps* between *Cathartes* and *Vultur*.

COMMENTS ON THE GENUS *CATHARTES*

CATHARTES AURA

Wetmore's (1964) revision of the Turkey Vulture (*C. aura*) was based on examination of long series of specimens and comparisons with types. Nevertheless, allocations of individual specimens to one or another of the six subspecies he recognized will continue to present difficulties. The Turkey Vultures of North America, north of Mexico, were all assigned to *C. a. septentrionalis* (type locality, Indiana) until Friedmann (1933) named *C. a. teter* (type locality, California). He found no color differences between the eastern and western birds and based the separation solely upon variation in tail/wing proportions. A few years later I (Amadon 1949) questioned whether *teter* was valid, but likewise did not suggest geographical variation in color. Wetmore (1964) however, separated the western birds (which unfortunately must take the name *meridionalis* applied earlier to a migrant from Colombia, South America) because this subspecies, as compared with the eastern *septentrionalis*, has the "edgings of the lesser wing coverts definitely darker, browner, and somewhat less in extent, so that they are less prominent than in *C. a. septentrionalis*; distal edgings and tips of secondaries averaging very slightly darker; size large, but with the maximum and average less than in *septentrionalis*." To complicate matters regarding the South and Middle American races, *meridionalis* is, at least in part, highly migratory, penetrating well into South America. Though both *meridionalis* and *septentrionalis* decrease in size clinally southward, in the west there may be a step in the cline near the United States-Mexican border, where the migratory *meridionalis* meets the smaller but otherwise identical resident *aura*. Individuals assigned to *C. a. aura* because of small size have been recorded from Brownsville in southern Texas (Brandt 1936) and from southern Florida (Burleigh 1938). Eastern Turkey Vultures (*C. a. septentrionalis*) are less migratory; considerable numbers winter as far north as southern New Jersey, and perhaps none regularly go south of the United States.

Van Rossem (1946) published a note on two Turkey Vultures shot on an islet off the west coast of Mexico with unusually patterned head skin. This suggested that *C. a. ruficollis*, which ranges north to southern Costa Rica, might extend further up the Pacific coast (Wetmore 1964). Thomas R. Howell kindly examined the skin of one of

these two birds, the only one saved, and it does not seem to be the blackish race, *rufi-collis*.

CATHARTES BURROVIANUS

Geographical variation in the Lesser Yellow-headed Vulture is unusual in that the larger race, *C. b. urubitinga*, extends north from Argentina and Paraguay throughout the lowlands of Brazil, the Guianas, Venezuela and Colombia (Wetmore 1964). The smaller, nominate *burrovianus* is found in northwestern South America and in Middle America, where the species extends northward in eastern Mexico to Tamaulipas. The possibility of geographical variation in the color of the unfeathered head should be kept in mind as more information becomes available.

CATHARTES MELAMBROTUS

Wetmore (1964) discovered that the yellow-headed vultures of Amazonia differ in various respects from *Cathartes burrovianus*, and comprise, in fact, a separate species, which he named *Cathartes melambrotus*. Meyer de Schauensee (1966:48), with the concurrence of Eisenmann, suggested that *melambrotus* may be a race of *Cathartes burrovianus*, with the few instances of overlap in their ranges representing wandering or migrating individuals of *burrovianus*. Eisenmann now informs me that after having seen both taxa in the field, he is convinced that *melambrotus* is a good species. Aside from differences in head color, and the wider rectrices, it is a more heavily built bird and it inhabits forest, not savanna. It may be called the "Greater Yellow-headed Vulture."

THE "OLD WORLD" VULTURES

The remaining group of vultures contains 15 living species, all restricted to the Old World. Unlike the cathartid vultures, they are closely related to other birds of prey, and in particular to the family Accipitridae to which they belong. They have sometimes been set up as a separate family, Aegypiidae, but the current consensus is that they comprise at most a subfamily or tribe. The situation is further complicated by the uncertain taxonomic position of *Gypaetus barbatus*, the Lammergeier, and *Gypohierax angolensis*, the Palm-nut Vulture or "Vulturine Sea-eagle." Both of these genera might require tribal status themselves, if indeed the latter is a vulture. Precisely because there are so many genera of uncertain position in the Accipitridae, such as these two, I (Brown and Amadon 1968:19) continue to think that it is premature to recognize formal subdivisions in the family. (I expect the ospreys, *Pandion*, which may be given subfamily status if the current tendency to place the genus in the Accipitridae is followed.)

Because, as noted, the Recent species of accipitrid vultures are restricted to the Old World it is customary to refer to the group as "Old World vultures." But just as with the "New World vultures," the fossil record shows that they once occupied both hemispheres. The New World genera of vultures of the family Accipitridae persisted as late as the Pleistocene in western North America. One might speculate whether these could have been independent offshoots of New World accipitrid stock, but the close resemblance of some of them to the Old World Recent genus *Neophron* (Egyptian Vulture) seems to rule out that possibility (see, e.g., Feduccia 1974). Thus a more precise term for the group is "Accipitrid vultures."

THE GENERA OF ACCIPITRID VULTURES

The Red-faced or King Vulture of India has usually been placed in a monotypic genus and listed as *Sarcogyps calvus*. Delacour (1947: 49) called it "*Torgos calvus*"; thus placing it with the African Lappet-faced Vulture (*Torgos tracheliotus*). White (1951) commented on this as follows: "*Torgos* and *Trigonoceps*: These two monotypic genera of vultures are so close to *Aegypius* that it is difficult to see any justification for continuing to recognize them. They stand close together and form a self-contained group apart from *Gyps*. Delacour . . . has placed *Sarcogyps* as a synonym of *Torgos* and it seems logical to go a step further and place *Torgos* and *Trigonoceps* as synonyms of *Aegypius*." *Trigonoceps occipitalis* is the White-headed Vulture of Africa and *Aegypius monachus* the Cinereous Vulture of Eurasia.

White (in litt.) recently wrote me: "I originally suggested uniting the four monotypic genera of large vultures . . . Later, in 1965, in my African non-passerine check list, I retained *Trigonoceps* as distinct, not from any personal change of opinion, but because many colleagues had misgivings about uniting it with *Aegypius*. I think their misgivings were due to conservatism but I tried to provide a consensus treatment wherever possible." L. H. Brown (pers. comm.) supports White's original decision to unite the three mentioned genera in *Aegypius* and points out that all

are large, essentially solitary, usually tree-nesting vultures that lay a single egg per clutch. All have a heavy, relatively short bill. The head in dorsal aspect is flat and broad; this, with the shorter bill, means that the head and neck do not have the somewhat "snaky" appearance of the griffons (*Gyps*).

The four species under discussion differ, of course, in some respects; for example, *calvus* and *tracheliotus* have wattles on the head while the others do not. But I agree with White that they all seem to be a closely related, and presumably monotypic group of species which may be generically united in *Aegypius*.

In another paper, White (1950) suggested combining two other monotypic genera of vultures, the African Hooded Vulture (*Necrosyrtes monachus*) and the Eurasian and Ethiopian Egyptian Vulture (*Neophron percnopterus*). He wrote: "*Necrosyrtes* is a monotypic genus very close to the also monotypic *Neophron*; differing in more rounded nostril, square not graduated tail of twelve not fourteen feathers, and with downy not feathered hind neck, all of which may be regarded as specific not generic characters." But *Necrosyrtes*, though rather small and weak-billed, is nevertheless closely related to such genera as *Aegypius* and *Gyps*. On the other hand *Neophron percnopterus* is an aberrant vulture; indeed Brown (Brown and Amadon 1968:308) thought that some of its displays suggest relationship to the Lammergeier (*Gypaetus*). It may connect that isolated genus with the more typical vultures. Hence the genus *Neophron* is to be retained. I would now list the genera of accipitrid vultures in the sequence: *Gypohierax*, *Gypaetus*, *Neophron*, *Necrosyrtes*, *Gyps*, *Aegypius*. The first two of these, as noted earlier, may not belong with the group and are thus kept somewhat apart.

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