

REMARKS ON THE PIGEON, *OTIDIPHAPS
NOBILIS* GOULD

BY FRED H. GLENNY AND DEAN AMADON

THE members of the family Columbidae have, in general, a normal, U-shaped furcula. Years ago Milne-Edwards (1869-1871) noticed a partial reduction of the clavicles in certain fruit pigeons and wrote "quelque fois même ses deux branches [of the furcula of pigeons] ne se soudent pas ensemble, et sont trop courtes pour se reconstruire sur la ligne médiane, de façon qu'elles sont réduites à l'état de stylets. Cette anomalie existe chez les Trérons, les Carpophages, les Phaenorhines, et les Serrésies." In the accompanying Atlas he figured this condition in *Ducula (Phaenorhina) goliath* from New Caledonia. This drawing was reproduced in Stresemann (1927-1934).

This modification of the clavicles does not seem so widespread as Milne-Edwards implied in the sentence quoted. We found a normal furcula in the following species: *Ducula luctuosa*, *D. bicolor*, *D. aenea*, *D. pacifica*, *D. concinna*, *Sphenurus sphenurus*, *Treron pompadora*, *T. bicincta*, *T. calva*, *T. olax*, and in two or three species of *Leucotreron* but were unable to examine a specimen of *Ducula (Serrisius) galeata* of Nukuhiva Island in the Marquesas. Like *Ducula goliath*, it is a large, insular species possibly of somewhat weaker flight than the majority of the members of the genus and so may very well, as Milne-Edwards stated, have reduced clavicles.

A much greater reduction of the furcula than in *Ducula goliath* was discovered by the senior author while dissecting two specimens of the remarkable New Guinea pigeon *Otidiphaps nobilis* in the collection of the American Museum of Natural History. Dissection of the shoulder joint revealed the presence of a small bone (epicleidium) in close articulation with the medial face (clavicular process) of the head of the coracoid. The epicleidium is reduced and the corpus claviculari, which extends ventrally from the epicleidium for a short distance (2 mm.) is almost entirely lacking. There appears to be no true interclavicular vestige or pons claviculari remaining in the adult bird. What appears to be a minor reduction in the lateral process of the foot of the coracoid produces a less acute angle of the lateral process than is found in most pigeons. Total length of the vestigial clavicle is approximately 4 mm.

The sternum is elongate and somewhat narrower than in most other members of the family. The external-lateral xiphoid processes are long and gently curved (not abruptly angular), and the internal-lateral xiphoid processes are fused with the median xiphoid process

as in other species of the Columbidae. The fenestrae sterni are divided—the posterior fenestrae are small and nearly obliterated. The rostrum sterni is broad, not typically “forked” as in other species of the Columbidae.

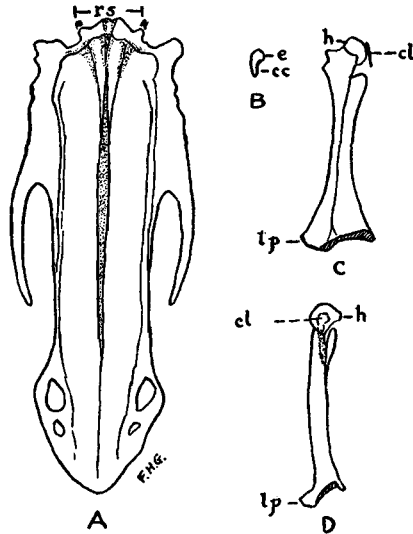


FIGURE 1. Pectoral girdle of *Otidiphaps nobilis*. Approximately three-fourths natural size. A, ventral view of the sternum; B, medial view of the vestigial clavicle; C, ventral view of the coracoid; D, medial view of the coracoid: cc, corpus claviculari; cl, location of vestigial clavicle with respect to the head of the coracoid; e, epicleidium of clavicle; h, head of coracoid; lp, lateral process of foot of coracoid; rs, rostrum sterni.

Unlike other members of the Columbidae thus far studied, specimens of *Otidiphaps nobilis* have a coracoid major and two coracoid minor (sterno-clavicular) arteries. This condition is in contrast with the normal one or two pairs of coracoid arteries present in other species. Furthermore, the origin of the axillary artery from the subclavian artery is such that the coracoid major artery appears to arise almost entirely from the pectoral stem or nearly opposite the site of the axillary artery. This vessel is usually found to arise from the subclavian at a point between the common carotid and the axillary arteries. While a ligamentum aortae is present, no vestige of the ligamentum botalli could be observed.

Otidiphaps nobilis has always been regarded as one of the more aberrant members of the family Columbidae. Heavy bodied, with long, strong legs and feet, a captive specimen observed by Dr. J. P. Chapin walked about, he tells us, more like a partridge than a typical

pigeon. The generic name *Otidiphaps*, bestowed by Gould, meaning "bustard-pigeon" refers to the strong legs and heavy body of this bird. In keeping with its terrestrial way of life, the wings of *Otidiphaps* are somewhat reduced as compared with its bulk as shown by the accompanying table, based chiefly on data from Mayr (1931). In this connection, the area of the wing would be more significant than its length, but we may state from direct examination that the wings of *Otidiphaps* are relatively small as well as short. *Otidiphaps* is not flightless. Rand (*in* Mayr and Rand, 1937, p. 431) observed: "this is a bird of the forest floor where it apparently feeds. . . . It was rather wary . . . flushing with a loud clatter of wings and flying out of sight in the forest."

TABLE 1
BODY WEIGHTS AND WING LENGTHS FOR INDIVIDUAL SPECIMENS
OF CERTAIN NEW GUINEA PIGEONS

<i>Species</i>	<i>Weight</i>	<i>Wing Length</i>
<i>Otidiphaps nobilis cervicalis</i> (♂).....	525 gm.	198 mm.
<i>Otidiphaps nobilis cervicalis</i> (♂).....	475 gm.	187 mm.
<i>Columba vitiensis halmahera</i> (♀).....	450 gm.	230 mm.
<i>Reinwardtoena reinwardtsi griseotincta</i> (♂).....	325 gm.	248 mm.
<i>Columba albertisii albertisii</i> (♂).....	300 gm.	206 mm.
<i>Macropygia amboinensis kerstingi</i> (♂).....	150 gm.	168 mm.
<i>Gallicolumba beccarii beccarii</i> (♂).....	70 gm.	109 mm.
<i>Henicophaps albifrons</i> (♂).....	300 gm.	203 mm.
<i>Henicophaps albifrons</i> (♂).....	344 gm.	194 mm.

The above remarks imply that the loss of the furcula in *Otidiphaps* may be correlated with a weakness in flight. In birds, the principal thoracic support is, of course, supplied by the coracoids, not the clavicles. In some Australian parrots (*Platycercus* and related genera) and in a few barbets, the clavicles are vestigial but flight is, so far as known, normal for the group. On the other hand, loss or reduction of the clavicles often is found in birds that cannot fly, or fly but weakly. Examples are the ratites, the New Zealand Owl Parrot (*Strigops*), the nearly flightless gruiform birds of the family Mesoanatidae of Madagascar, and the dodo (*Raphus*). There is not much doubt, therefore, that a decrease in the size of the clavicles is sometimes one of the eventual anatomical results of a decreased use of the wings. This may well be the explanation in *Otidiphaps*. For a further discussion of this question see Glenny and Friedmann (1953).

The modifications of the clavicles and arteries are not the only distinctive features of *Otidiphaps*. The number of tail feathers,

twenty to twenty-two, exceeds that of any other columbid. The usual number in the family is twelve, or in some species fourteen, while in the Crowned Pigeon (*Goüra*), it reaches sixteen. Also unique is the presence of a row of well defined rectangular scutes down each side of the posterior half of the strong tarsi. Even *Goüra*, with its long heavy tarsi, shows no tendency towards the development of such scutes.

All in all, *Otidiphaps* seems to deserve subfamily rank as much or more than do two genera to which Peters (1937) has individually given this rank. They are *Goüra*, already mentioned, and the Tooth-billed Pigeon (*Didunculus*) of Samoa. The latter is perhaps not as aberrant as once supposed. As for *Goüra*, the wisdom of separating it from the smaller *Microgoura* of the Solomon Islands is dubious.

Otidiphaps has some slight resemblance in color and in the texture of the feathers to *Goüra*. The latter, while equally strong-legged, spends much time in the trees. It has a normal furcula. Whether these genera are related is difficult to say. They are both Papuan and may be allied, though not closely, to each other and possibly to some of the less specialized terrestrial forms found in the same region. We suggest that the unusual characteristics of *Otidiphaps* be evaluated not as a basis for setting it up in a subfamily but rather as an indication of variability in the Columbidae of a degree to justify suppressing the *Goürinae* and the *Didunculinae* of Peters' Check-list. This leaves two large subfamilies, the fruit pigeons (*Treroninae*) and the "typical" doves and pigeons (*Columbinae*), but as Stresemann (*op. cit.*) has emphasized, the former group (and probably the latter) seems to be polyphyletic. It may be advisable to recognize no subfamilies at all in the Columbidae until the group has been thoroughly studied.

One of the two specimens of *Otidiphaps* was collected by Mr. E. Thomas Gilliard, to whom we are also indebted for the weights and measurements of *Henicophaps albifrons* given in the table. Mr. Gilliard also helped with the manuscript, as did Dr. Ernst Mayr.

LITERATURE CITED

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Youngstown College, Youngstown 2, Ohio, and American Museum of Natural History, New York City, December 16, 1952.

NOTES AND NEWS

Through the generosity of Mrs. Tucker, the funds available for the Marcia B. Tucker Award in Ornithology have been increased this year. These funds are used to assist promising young ornithologists in attending the annual meeting of the American Ornithologists' Union. With the increase in funds, the award this year will be extended to two or more people. The amount in each instance will depend upon the distance to be traveled.

Any member may nominate people for this award. Nominees need not be members, but it is hoped that they may intend to present papers at the meeting. Information should include the following items:

1. Name, age, and address of nominee.
2. Education and experience of nominee.
3. Statement by the sponsor about the capabilities, special interests, and financial need of the nominee.

This information should be sent to the Secretary (Harold Mayfield, 2557 Portsmouth Ave., Toledo 13, Ohio) not later than August 1, 1955. The officers of the A.O.U. will serve as a committee to name the awardees.

ARTHUR CLEVELAND BENT'S LIFE HISTORIES OF NORTH AMERICAN BIRDS

Some years ago Mr. Bent, who died on December 30, 1954, arranged with James Lee Peters, at that time President of the Nuttall Ornithological Club, to have that organization agree to sponsor preparation of the remaining Life Histories should such action prove necessary. More recently, Mr. Bent had the Club appoint me Chairman with free hand to choose my own Committee, and in May, 1954, he turned his work over to the Committee. Members are: Mrs. A. C. Bent, Dr. Alfred O. Gross, William G. F. Harris, Dr. Frederick C. Lincoln, Dr. Robert A. Norris, Christopher M. Packard, Dr. Lawrence H. Walkinshaw, and myself. Contributions of material and photographs will be welcome as before and may be sent to the most convenient member of the Committee.

It is hoped the volume on the Icteridae will go to the printer in the spring of 1955. No change in format is planned.

Wendell Taber, Chairman,
Bent Life History Committee,
Nuttall Ornithological Club