

TWO NEW BIRDS FROM THE MIOCENE OF FLORIDA

By PIERCE BRODKORB

Although a large avifauna is known from Miocene deposits in western North America, only eight species have been described from this epoch in the eastern part of the continent. Four sea birds are recorded from Maryland, and one each is known from North Carolina and South Carolina (Wetmore, 1940). From the Hawthorne formation of the Lower Miocene of Florida a shore bird (Wetmore, 1943) and a chachalaca (Brodkorb, 1954) have been described. To these are added in the present paper a cormorant and a kite. The kite, referable to the Tertiary genus *Proictinia*, further strengthens the already marked resemblance of the Hawthorne fauna to the Lower Miocene fauna of the Great Plains.

Family Phalacrocoracidae
Phalacrocorax subvolans, new species

Type.—Proximal half of right humerus, no. 4500, University of Florida collection, from Lower Miocene at Thomas Farm, eight miles north of Bell, Gilchrist County, Florida. Collected by Robert S. Bader, spring, 1955.

Diagnosis.—Agrees with *Phalacrocorax wetmorei* Brodkorb (1955) in conformation of caput humeri and bicipital crest, but differs as follows: proximal width less; width of shaft less; ligamental furrow shorter and less deep; deltoid crest longer; internal tuberosity sharper and capital groove correspondingly deeper; bicipital furrow wider.

The great width of the bicipital furrow leaves a larger surface for the insertion of *M. coracobrachialis anterior*. This indicates that the present species was a better soarer than either the living cormorants examined or the fossil species in which this furrow has been adequately described or figured. It approaches the condition in the humerus of the darters (*Anhinga*), which customarily soar for long intervals.

Measurements.—Proximal width, 21.5; width through external and internal tuberosities, 20.1; width of shaft, 7.6; depth of head, 7.5; length of ligamental furrow, 10.0; length of deltoid crest, 40.3; width of bicipital furrow, 11.1 mm. Angle formed by external tuberosity and deltoid crest, 130 degrees.

The temporal and geographic distribution of the fossil species of *Phalacrocorax* is as follows:

Oligocene:

- Phalacrocorax littoralis* (Milne-Edwards, 1868). France.
- Phalacrocorax miocaenus* (Milne-Edwards, 1868). France.
- Phalacrocorax marinavis* Shufeldt (1915). Oregon.
- Phalacrocorax mediterraneus* Shufeldt (1915). Colorado.

Miocene:

- Phalacrocorax intermedius* (Milne-Edwards, 1868). France.
- Phalacrocorax praearbo* (Ammon, 1918). Germany.
- Phalacrocorax femoralis* L. Miller (1929). California.
- Phalacrocorax subvolans* Brodkorb. Florida.

Pliocene:

- Phalacrocorax destefani* Regalia (1902). Italy.
- Phalacrocorax idahensis* (Marsh, 1870). Idaho.
- Phalacrocorax rogersi* Howard (1932). California.
- Phalacrocorax kennelli* Howard (1949). California.
- Phalacrocorax wetmorei* Brodkorb (1955). Florida.

Pleistocene:

- Phalacrocorax macropus* (Cope, 1878). Oregon.
- Phalacrocorax pampeanus* Moreno and Mercerat (1891). Argentina.
- Phalacrocorax gregorii* De Vis (1906). Australia.
- Phalacrocorax vetustus* De Vis (1906). Australia.

The size of the new species is less than in *P. marinavis*, *P. intermedius*, *P. praecarbo*, *P. femoralis*, *P. rogersi*, and *P. gregorii*. It is much less than in the giant species *P. mediterraneus*, *P. idahensis*, and *P. macropus*. The new species is larger than *P. littoralis*, *P. destefani*, *P. kennelli*, and the dwarf *P. miocaenus*.

The caput humeri is more rounded and less produced than in *P. littoralis*, *P. miocaenus*, *P. intermedius*, *P. femoralis*, *P. destefani*, *P. gregorii*, and *P. vetustus*. The head is deeper than in *P. kennelli*. The margin of the bicipital crest is smooth, rather than dilated and undulating as in *P. littoralis*, *P. miocaenus*, and *P. femoralis*. The bicipital furrow is wider than in *P. littoralis*, *P. miocaenus*, and *P. kennelli*. The ligamental furrow is deeper than in *P. miocaenus*. The angle formed by the external tuberosity and the deltoid crest is wider than in *P. destefani* (120 degrees) and *P. vetustus* (125 degrees). It is less than in *P. gregorii* (135 degrees).

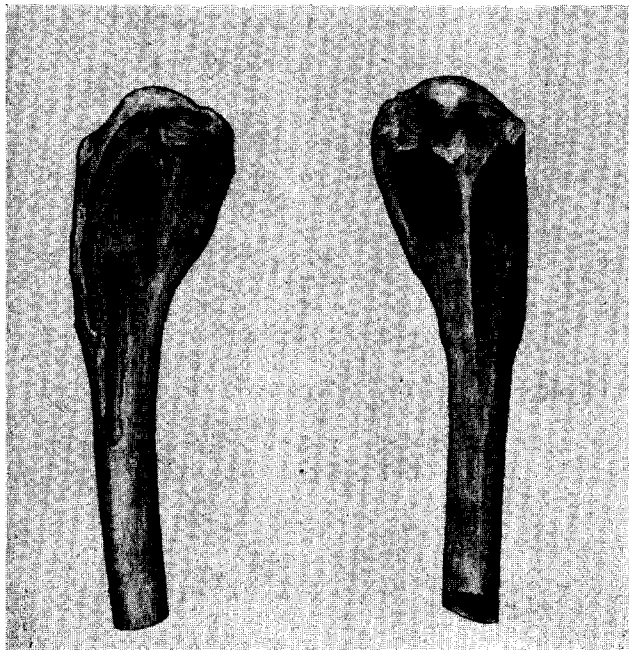


Fig. 1. Proximal half of right humerus of *Phalacrocorax subvolans*.
 × 1. Drawing by Esther Coogle.

Family Accipitridae
Proictinia floridana, new species

Type.—Distal portion of left tarsometatarsus, no. 777, Brodkorb Collection, University of Florida, from Lower Miocene at Thomas Farm, eight miles north of Bell, Gilchrist County, Florida. Collected by P. Brodkorb, March 21, 1954.

Diagnosis.—Agrees in general proportions with *Proictinia efferata* Wetmore (1923) from the Lower Miocene of Nebraska. Differs as follows: distal foramen larger and located lower on shaft; trochlea for digit two less flaring from line of shaft and with its wing produced farther posterior; size smaller.

Measurements.—Dimensions in millimeters of the type of *P. floridana* are followed in parentheses by those of the cast of the type of *P. efferata*. Width through trochleae, 8.8 (9.5); width of shaft through facet for first metatarsal, 5.5 (6.3 approx.); width of trochlea three, 2.5 (2.7); depth of trochlea four, 3.9 (5.1); maximum depth of trochlea two, 4.7 (not available for *efferata*); height of foramen above

intertrochlear groove on anterior face, 1.5 (2.2); height on posterior face, 0.9 (not available for *effera*); vertical diameter of foramen, 1.3 (1.0).

I follow Wetmore in using *Proictinia* Shufeldt as the generic name for the small Tertiary kites. The type of the genus, *Proictinia gilmorei* Shufeldt (1913), is practically a *nomen vanum*, since it was based upon a fragmentary coracoid of an immature bird. Most of the other American accipitrids have been founded on metatarsi, so direct comparison with Shufeldt's species is not possible and the assignment of forms to this genus is by analogy only.

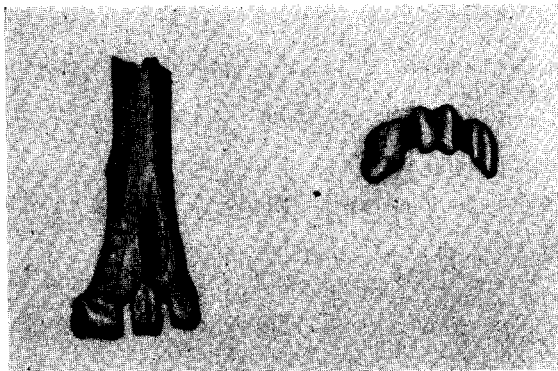


Fig. 2. Distal portion of left tarsometatarsus of *Proictinia floridana*. $\times 2$. Drawing by Esther Coogle.

A cast of the type of *Proictinia effera* (Am. Mus. Nat. Hist. 6299) has been made available through the kindness of Mrs. Rachel Nichols. It is a complete right tarsometatarsus with associated phalanges but not, however, completely freed from the matrix.

The present species is the twentieth accipitrid to be described from American Tertiary formations and the first from east of the Mississippi. With the exception of the species of *Proictinia*, all other American Tertiary accipitrids are so much larger that no comparison is needed.

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