

cavities in sections of trees where the entrance faces slightly downward. Nests that deviate are less defensible, may fill with water, and possibly require more energy to excavate, thus decreasing the contribution of such pairs to the gene pool. In this part of Virginia an additional advantage may accrue to those pairs excavating northeasterly oriented nests because of shelter from wind and rain.

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An evaluation of the supposed anhinga of Mauritius.—From the Quaternary deposits of the Mare aux Songes on the island of Mauritius in the Indian Ocean, Newton and Gadow (1893) described a species of small anhinga as *Plotus nanus*, based on a left humerus, a left tibiotarsus, and a fragmentary pelvis, now in the Zoology Museum of Cambridge University. A left humerus lacking the distal end, from superficial black earth near Sirabé (= Antsirabe of modern usage), central Madagascar, was referred to this species by Andrews (1897). Both of these records appear in Brodkorb (1963) under the name *Anhinga nana*. While I have not re-examined the specimens themselves, the illustrations accompanying the descriptions of these bones are more than adequate to establish that all of them are from a small cormorant (*Phalacrocorax*, sensu lato) and not from an anhinga.

Some of the differences between the humeri of anhingas and cormorants were noted by Miller (1966), who, in a similar instance, found a small humerus from

Australia described by De Vis (1888) as *Plotus* (= *Anhinga*) *parvus* to be referable to the modern cormorant *Phalacrocorax melanoleucos*. In anconal view the type humerus of "*Anhinga nana*" agrees with that of cormorants in having the pneumatic fossa deep and extending well under the median crest and internal tuberosity; the olecranal fossa is deep and the entepicondyle distinctly set off from it. In anhingas the pneumatic fossa is shallow and not overhung by the median crest, the olecranal fossa is shallower and merges imperceptibly into the entepicondyle. In palmar view both the type humerus of "*A. nana*" and the referred specimen from Madagascar agree with cormorants in that the ligamental furrow is "longer and deeper and extends transversely to, but is narrowly separated from, the bicipital furrow . . . whereas the ligamental furrow is shorter and deep only medially in anhingas" (Miller 1966).

The tibiotarsus of *Phalacrocorax* differs from that of *Anhinga* as follows: the internal condyle extends much farther distally than the external condyle; the anterior intercondylar fossa is narrow, with the tendinal groove opening in the middle and occupying most of the space between the condyles; the bulge for the groove of *M. peroneus profundus* is larger and extends farther up the shaft; and the fibular crest is longer. In *Anhinga* the internal condyle extends only slightly past the external condyle, the anterior intercondylar fossa is much wider and the tendinal groove opens much more medially, occupying only two-thirds of the space between the condyles; the bulge for the groove of *M. peroneus profundus* is smaller, and the fibular crest is shorter. In all these respects the type tibiotarsus of "*A. nana*" agrees perfectly with *Phalacrocorax*.

The pelvis of *Anhinga* has distinct crests extending anteromedially from the antitrochanter to the median dorsal ridge. These are lacking in *Phalacrocorax* and in the fragmentary type pelvis of "*A. nana*."

In Table 1 the measurements of the syntypes of "*Anhinga nana*" are compared with three specimens of nominate *Phalacrocorax africanus*, a small species of cormorant found in Africa and Madagascar. There is complete agreement except in the second pelvis measurement. Breaking or warping in the fossil fragment might account for this discrepancy, or perhaps I have not taken the measurement in the same manner as Newton and Gadow.

There is no doubt that "*Anhinga nana*" is a cormorant and, with the possible exception noted above, that it is identical in size with *Phalacrocorax a. africanus*. The

TABLE 1
MEASUREMENTS (MM) OF SYNTYPES OF "*ANHINGA NANA*"¹ COMPARED WITH THREE SPECIMENS OF *PHALACROCORAX A. AFRICANUS*

	<i>"Anhinga nana"</i>	<i>Phalacrocorax a. africanus</i>		
		♀ USNM 291775	♀ USNM 291776	♂ USNM 431490
Length humerus	89	85.9	89.2	93.9
Length tibiotarsus	61	60.0	60.8	65.4
"Distance from acetabular axis to anterior end of sacrum"	30	30.1	34.5	33.5
"Distance between ventral inner margins of the acetabula"	14.5	11.8	11.3	10.0

¹ From Newton and Gadow (1893: 289).

Malagasy race *P. a. pictilis* is reported to be larger than the nominate African race (Bangs 1918). It is, of course, possible that the Mauritian bird represents an endemic race, in which case the name *nanus* would apply. Until this can be either demonstrated or disproved, *Plotus nanus* Newton and Gadow should be regarded as an undetermined form of *Phalacrocorax africanus*.

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On the function of the posterior iliotochantericus muscle in young whistling ducks (*Dendrocygna autumnalis*).—Conflicting statements arise as to the action of the posterior iliotochantericus muscle in birds because its insertion has been described as both proximal and distal to the head of the femur, thereby suggesting retraction and protraction of the femur, respectively. Additionally, ro-

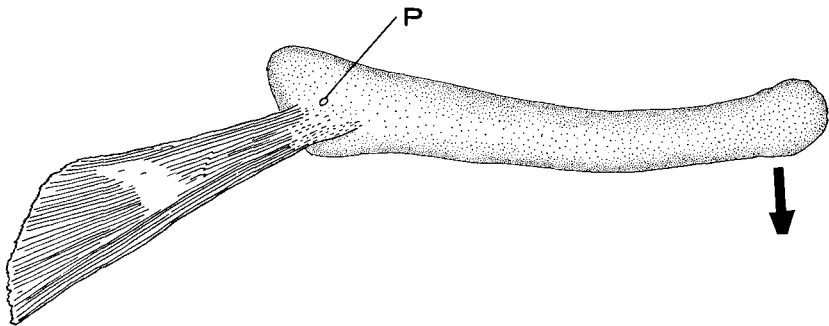


Fig. 1. Lateral view of the posterior iliotochantericus muscle and retracted left femur of a 1-day-old Black-bellied Tree Duck, *Dendrocygna autumnalis*. In this position the muscle can protract the femur (direction indicated by arrow) because of its broad insertion anterior to the pivotal axis of the femoral head (P).