

FOSSIL BIRDS FROM IDAHO

BY PIERCE BRODKORB

KNOWLEDGE of the fossil birds of Idaho is exceedingly meager. The only records come from deposits along the Snake River, where single species have been identified from American Falls (Howard, 1942), near Bruneau and Grand View (Miller, 1944), Castle Creek (Marsh, 1870), and near Fromans Ferry (Lindgren, 1900). A somewhat larger avifauna, containing five identified species, was described from the vicinity of Hagerman (Wetmore, 1933). Through the kindness of Claude W. Hibbard I am now able to report on additional material from the last-named locality.

The present collection was made by Dr. Hibbard in Twin Falls County, Idaho, about 2½ miles west of Hagerman. Most of the birds were collected in the NW ¼, SW ¼, sec. 28, T. 7 S., R. 13 E., at an elevation of 3025 feet. A cormorant (no. 33908) and a swan (no. 33894) were collected in the NE ¼, NE ¼, sec. 20, at elevations of 3200 and 3150 feet, respectively.

The fresh water lake deposits along the course of the Snake River have been assigned to every epoch from the Eocene to the Pleistocene, but, according to Kirkham (1931) and Stearns (1936), the deposit at American Falls is Pleistocene, and the other avian localities represent the upper Pliocene. Dr. Hibbard, however, believes that the Hagerman lake beds correspond to the Aftonian (first) interglacial stage of the Pleistocene.

SYSTEMATIC LIST

PODICIPEDIDAE, genus indet.

Right quadrate, Univ. Michigan Mus. Paleo., no. 33912. Nearest *Podilymbus*, but with base of orbital process wider and with its medial side more deeply excavated. If not *Pliodytes* Brodkorb (1953), of which only the coracoid is known, it represents an undescribed genus. Wetmore (1933) recorded from Hagerman the head of a femur of a grebe, likewise distinct from any modern genus. Both specimens are of such size that they may be from the same species.

Phalacrocorax auritus (Lesson)

Distal portion of left carpometacarpus, no. 33908; proximal portion of left scapula, no. 33913. Both elements agree with modern specimens of the Double-crested Cormorant. Wetmore recorded it from Hagerman on the basis of a tarsometatarsus.

Phalacrocorax macer, new species

Holotype. Right carpometacarpus (Fig. 1), lacking metacarpals one and three; Univ. Michigan Mus. Paleo., no. 33918. From Hagerman lake beds, in NW ¼, SW ¼, sec. 28, T. 7 S., R. 18 E., Twin Falls County, Idaho; elevation 3025 feet. Collected by Claude W. Hibbard, August 30, 1956.

Diagnosis. Resembles living *Phalacrocorax auritus* (Lesson) and *Phalacrocorax wetmorei* Brodkorb, 1955, from the Bone Valley Pliocene of Florida, but slightly smaller; cuneiform fossa deep but much shorter, extending proximad only to level of external

ligamental attachment; distal fornix shorter. Length, 67.5 mm.; width of metacarpal II, 4.5; width through trochleae, 5.6; width of distal end, 5.7; distal fornix, 6.0.

Wetmore (1933) reported the heads of two coracoids slightly smaller and more slender than in *P. auritus*. They are thought to represent the species here described.

***Cygnus hibbardi*, new species**

Holotype. Left tarsometatarsus (Fig. 1); Univ. Michigan Mus. Paleo., no. 33894. From Hagerman lake beds, in NE $\frac{1}{4}$, NE $\frac{1}{4}$, sec. 20, T. 7 S., R. 13 E., Twin Falls County, Idaho; elevation 3150 feet. Collected by Claude W. Hibbard, August 30, 1956.

Description. Anterior proximal fossa shallow; peroneal groove shallow; external ligamental prominence reduced; shaft stout, nearly same width throughout, without marked proximal swelling, submedial tapering, or distal flaring; anterior face of shaft with external edge smoothly rounded, nearly straight; internal superior foramen opening on anterior face at level of external foramen; first hypotarsal canal roofed; junction of second and third hypotarsal crests not forming a keel on shaft; third hypotarsal crest reaching level of external superior foramen; fourth hypotarsal crest ending above foramen. Proximal width, 24.0 mm.; width at level of proximal end of tubercles for tibialis anticus, 14.7; width at distal end of tubercles, 12.1; least width of shaft, 10.1.

Diagnosis. Differs from living *Cygnus buccinator* Richardson in being smaller; peroneal groove shallow; internal superior foramen low.

Agrees with living *Cygnus columbianus* (Ord) in size but peroneal groove shallow; shaft stout; internal superior foramen low. In both living species there is a tendency for the fourth hypotarsal crest to send a slight keel above the foramen, and both often have the first hypotarsal canal unroofed.

Agrees in size with *Cygnus paloregonus* Cope (1878) of the Pleistocene of Oregon but differs in having anterior proximal fossa shallow; peroneal groove shallow; external ligamental prominence reduced; shaft stout; boundary between anterior and external sides of shaft without a sharply ridged, curved line; second and third hypotarsal crests not forming a keel on shaft; third and fourth hypotarsal crests not extending beyond foramen. A cast of Cope's type, which is now no. 3552A in the American Museum of Natural History, was supplied through the kindness of Mrs. Rachel H. Nichols.

Referred material. Proximal portion of left femur, with the same catalog number as the type. Differs from *C. buccinator* and *C. columbianus* in having anterior intermuscular line flaring abruptly medially after leaving trochanteric ridge. Agrees with *C. buccinator* in having trochanteric ridge less curved than in *C. columbianus*, with proximal portion of bone thus wide. Femur of *C. paloregonus* unknown. Size intermediate between the two living species. Proximal width, 27.7 mm.; head to trochanteric crest, 24.1; width below head, 22.0; least width of shaft, 12.7; anteroposterior depth of head, 13.3.

Wetmore (1933) recorded from Hagerman some indeterminate fragments of a swan the size of *C. columbianus*, possibly the species described above.

Lindgren (1900:99) reported a fossil swan from near Fromans Ferry, Idaho, as "*Olor*, size of *O. paleocygnus*." This apparently is a *lapsus calami*, for *paloregonus*, as first pointed out by Wetmore (in Hay, 1927:267). The specimen in question is a cervical vertebra, now U.S. Nat. Mus. no. 11608. *Olor paleocygnus* is a *nomen nudum* without any standing in nomenclature.

Anas platyrhynchos Linnaeus

Distal end of right tarsometatarsus, no. 33914. The mallard was hitherto unknown from the Hagerman lake beds, although widely recorded from the Pleistocene of North America, Europe, and Asia.

Bucephala sp.

Distal portion of left carpometacarpus, no. 33921. Larger than the metacarpus of modern *Bucephala albeola* and differing in other details. The only fossil member of this genus is *Bucephala ossivallis* Brodkorb (1955), from the Bone Valley formation, but as only the coracoid of that species is known, direct comparison is not possible.



FIG. 1. Left to right: *Phalacrocorax macer*, n. sp., holotype carpometacarpus, $\times 1$; *Cygnus hibbardi*, n. sp., referred femur and holotype tarsometatarsus, both $\times 0.9$; *Porzana lacustris*, n. sp., holotype humerus and referred coracoid, both $\times 2.7$. Photographs by Robert D. Weigel.

***Porzana lacustris*, new species**

Holotype. Right humerus, lacking the proximal end (Fig. 1); Univ. Michigan Mus. Paleo., no. 33916. From Hagerman lake beds, in NW $\frac{1}{4}$, SW $\frac{1}{4}$, sec. 28, T. 7 S., R. 13 E., Twin Falls County, Idaho; elevation 3025 feet. Collected by Claude W. Hibbard, August 30, 1956.

Diagnosis. Differs from living *Porzana carolina* (Linnaeus), *Porzana guti* (Brodkorb, 1952), and *Porzana auffenbergi* Brodkorb (1954), the latter two both from the Illinoian stage of the Pleistocene of Florida, as follows: entepicondyle straighter, wider, not

coming to a rounded point; ectepicondylar process more rounded and less produced; size larger. Distal width, 6.0; width of shaft, 2.7 mm.

Larger than *Rallus prenticei* Wetmore (1944) from the upper Pliocene of Kansas, besides differing in generic characters. The humerus of *Porzana* differs from that of *Rallus* in having the entepicondyle produced, with a notch separating it from the internal condyle; external condyle scarcely bent.

The new species is much smaller than other American fossil rails.

Referred material. Upper half of left coracoid, no. 33915. This element is tentatively referred, as it comes from a rail of about the same size as the type. It agrees with *Porzana* in having a very wide shaft, but differs in that the brachial tuberosity has even less of an overhanging lip than in *Rallus*.

The fragmentary metacarpal reported by Wetmore may likewise represent the same species.

AGE OF THE HAGERMAN LAKE BEDS

The avifauna of the Hagerman lake beds is now known to include at least 16 species, but unfortunately only nine have thus far been determined at the specific level. These are as follows:

a. Known only from Hagerman: *Pelecanus halieus*, *Phalacrocorax macer*, *Cygnus hibbardi*, *Chen pressa*, *Porzana lacustris*.

b. Known also from Castle Creek, Idaho, and the Bone Valley formation, Florida: *Phalacrocorax idahensis*.

c. Living species widespread in the Pleistocene: *Phalacrocorax auritus*, *Anas platyrhynchos*, *Gallinula chloropus*.

In addition, two grebes, another swan, three more ducks, and a crane have been reported from the Hagerman local fauna, but have not yet been identified. There are, however, indications that at least two members of the undetermined group may be identical with species described from the Bone Valley formation, which is ordinarily assigned to the middle or lower Pliocene.

Living species of birds apparently are absent from deposits before the upper Pliocene (Brodkorb, 1955). As the Hagerman lake beds contain extant species, the maximum possible age of the beds is upper Pliocene.

Among the determined species from Hagerman the proportion of extinct forms (67 per cent) is much higher than that which occurs in late or middle Pleistocene deposits but is similar to the proportion from deposits referred to the upper Pliocene or earliest Pleistocene (Brodkorb, 1955, 1957).

There appears to be a trend toward small size in the Hagerman avifauna, exemplified by *Pelecanus halieus*, *Cygnus hibbardi*, and *Chen pressa*. The data are inconclusive at present, but if this tendency should be substantiated by additional material, it could be interpreted as reflecting the warm climate of a preglacial or interglacial stage through operation of Bergmann's rule.

The evidence at hand thus indicates that the Hagerman lake beds were

formed during either the upper Pliocene or the first interglacial stage of the Pleistocene.

AGE OF OTHER SNAKE RIVER BEDS

The avifaunas from other parts of the Snake River plain are more poorly known than that of Hagerman. The only bird from Fromans Ferry is a swan of questionable determination. The single species from Castle Creek is the extinct *Phalacrocorax idahensis*, which has been recorded from Hagerman and the Bone Valley formation. The only bird determined from Grand View is the living *Grus americanus*, widespread in the late Pleistocene and presently on the road to extinction. The only species identified from Bruneau or American Falls is the extinct stork, *Ciconia maltha*, whose type locality is in the late Pleistocene of California.

Obviously more information is needed, but the presence of late Pleistocene species at American Falls, Bruneau, and Grand View suggests that these deposits may be younger than those at Castle Creek and Hagerman, from which no late Pleistocene indicators are known but which contain at least one Pliocene form.

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