

CICONIA MALTHA AND GRUS AMERICANA FROM THE
UPPER PLIOCENE OF IDAHO

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RECENT paleontological collecting by Claude W. Hibbard and his field assistants has yielded a large array of avian fossils from Idaho. The specimens reported herein were collected from the Glens Ferry Formation, Twin Falls County, Idaho, and constitute part of the Hagerman Local Fauna, which has been assigned to the Upper Pliocene (Hibbard et al., 1965). The best estimate of the age of this fauna on the basis of potassium-argon dating is considered to be 3.48 ± 0.27 million years (Evernden et al., 1964, p. 191).

Ciconia maltha has been reported previously from the Upper Pliocene of Idaho (Miller, 1944), but the locality from which the specimens were taken, the Bruneau Formation, has more recently been assigned to the Middle Pleistocene (see Malde and Powers, 1962). This species has also been reported from numerous Upper Pleistocene localities (see Brodkorb, 1963). *Grus americana* has been reported from the Glens Ferry Formation (13 miles NW of Grandview, Idaho) on the basis of a tibial fragment (Miller, op. cit.), and from several Pleistocene localities (see Wetmore, 1956).

In the course of this study I examined Recent specimens of *Jabiru mycteria*, *Euxenura maguari*, *Ciconia ciconia*, *Grus americana*, and *Grus canadensis* in the skeletal collection of the University of Michigan Museum of Zoology. A scapula of *Ciconia maltha* from the type locality of Rancho La Brea, and skeletal elements of Recent *Grus americana* were kindly loaned by Theodore Downs of the Los Angeles County Museum of Natural History and Clayton M. White of the University of Kansas Museum of Natural History, respectively. All of the specimen numbers refer to the University of Michigan Museum of Paleontology unless otherwise indicated.

DESCRIPTION OF MATERIAL

Ciconia maltha.

Specimen: Proximal 69 mm of right scapula (UMMP 52540), from the Hagerman quadrangle, SE $\frac{1}{4}$ sec. 29, T7S, R13E, 1,850 feet W and 1,100 feet N of SE corner of sec. 29, elevation 3,125 feet. Measurement: maximum breadth of head, 26.1 mm.

There has been considerable uncertainty in the past regarding the number of species of fossil storks (excluding the Mycteriinae) recorded from North America. Howard (1942) examined all of the then known specimens and concluded that all represented one highly variable species, *C. maltha*. I have examined scapulae from four specimens of *Jabiru mycteria*, a form that closely approximates *C. maltha* in size and in osteological characters, and have found not only variation in size, but also in osteological characters of the scapulae. It is therefore not surprising to find individual bones that do not conform in all details to the presently known specimens of *C. maltha*. The fossil reported herein differs from the scapula of *C. maltha* (Los Angeles County Museum of

Natural History B8120) that I examined and from the description of scapulae of *C. maltha* (Howard, 1942, p. 196) in the following characters: concavity between acromion and glenoid facet slightly deeper, and the depression at the base of the dorsal surface of the coracoid articulation somewhat more depressed. However, both of these characters vary somewhat in the specimens of *Jabiru* that I examined. The Hagerman fossil agrees with the scapula of *C. maltha* in general form, the region of the base of the scapula mesial to the coracoid articulation being straight (in *Jabiru* the same region is well rounded) and coming to an abrupt end at the furcula articulation. This region of the base in the Hagerman fossil and in *C. maltha* is perforated by pneumatic foramina. Scapulae of *Ciconia ciconia* and *Euxenura maguari* are similar to those of the Hagerman fossil and the specimen *C. maltha* in general contour of the basal region, but the depression under the coracoid articulation is absent in *Euxenura* and only slightly depressed in *C. ciconia*. In size, the Hagerman scapula and that of *C. maltha* overlap with *Jabiru mycteria* and are larger than either *Euxenura maguari* or *C. ciconia*. The differences in osteological characters between this fossil and *C. maltha* are not, in my opinion, sufficient to warrant recognition of a new species.

Grus americana.

Specimens: (1) Fragment of proximal 53 mm of left coracoid (UMMP 48927), from the Hagerman quadrangle, SW $\frac{1}{4}$ NW $\frac{1}{4}$ sec. 16, T7S, R13E, elevation 3,025 to 3,100 feet. Measurements: least width of shaft, 13.8 mm; least depth of shaft, 9.4 mm.

(2) Left quadrate minus orbital process (UMMP 52249), from the Hagerman quadrangle, SE $\frac{1}{4}$ SW $\frac{1}{4}$ sec. 5, T8S, R13E, 1,400 feet E and 250 feet N of SW corner of sec. 5. Measurement: greatest distance from squamosal articulation to mandibular articulation, 18.2 mm.

(3) Distal 93 mm of left tibiotarsus (UMMP 52541), from the Hagerman quadrangle, NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 32, T7S, R13E, 850 feet S and 1,100 feet W of NE corner of sec. 32, elevation 3,050 feet. Measurements: depth through condyles, 23.2 mm; width of condyles, 23.0 mm.

(4) Fragment of distal end of right tibiotarsus (UMMP 52238), from the Hagerman quadrangle, NW $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 16, T7S, R13E, 800 feet S and 2,600 feet W of NE corner of sec. 16, elevation 3,010 feet. This bone appears to be that of a large crane but is so fragmentary that specific designation seems inadvisable.

(5) Fragment (155 mm) of proximal end of right tarsometatarsus (UMMP 52242), from the Hagerman quadrangle, SE $\frac{1}{4}$ NE $\frac{1}{4}$ sec. 17, T7S, R13E, elevation about 3,225 feet. No useful measurements could be taken from this fragment.

(6) Distal 51 mm of right tarsometatarsus minus trochleae for digits III and IV (UMMP 52243), from the same locality as UMMP 52242. Measurement: greatest antero-posterior distance through trochlea for digit II, 12.7 mm.

I have examined the following bones of the Recent form: four coracoids, quadrates from one skull, five tarsometatarsi from four specimens, seven tibiotarsi from four specimens, plus six complete skeletons of *Grus canadensis*. *Grus americana*, like *Ciconia maltha*, varies both in size and in osteological characters of bones. All of the specimens reported herein are intermediate in size between the largest and smallest of the Recent *G. americana* that I examined, and are well accommodated into the range of variability of osteological characters. Although the possibility exists that the fossils reported herein do not actually represent the same biological species as Recent *G. americana*, the bones appear to be inseparable from those of the Recent form.

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