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AVIFAUNA OF THE PLEISTOCENE CAVE
DEPOSITS OF CALIFORNIA

BY

LOYE HOLMES MILLER

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INTRODUCTION

There is assembled in the collections of the Department of Palaeontology at the University of California an extensive and highly interesting collection of vertebrate remains from the Pleistocene cave deposits thus far known to the state. The material was secured during the exploration of the caves by the immediate efforts of Dr. Wm. J. Sinclair and Mr. E. L. Furlong, working under the direction of Professor John C. Merriam. General accounts have been published by both Sinclair¹ and Furlong², giving the location of the caves, nature of the deposits and lists of determined species. The bird material from these collections forms the subject of the present paper.

OCCURRENCE

The caverns yielding bird remains are three in number. Potter Creek and Samwel caves are in the lower region of the McCloud River in Shasta County, California. Both are limestone caverns of considerable extent. Hawver Cave is in Eldorado County and is likewise of limestone origin. All three localities have present elevations between 1300 and 1500 feet above sea level and lie in the same faunal zone as determined by the distribution of Recent vertebrates. The Pleistocene age of the deposits is indicated by the fact that about thirty per cent of the mammalian species represented are at present extinct. *Elephas*, *Mastodon*, *Euceratherium*, *Megalonyx*, *Equus*, *Camelus*, and *Arctotherium* appear among the genera which are either extinct or are no longer represented in this region. Students of the mammalian fauna consider that the indications point to the greater age of the Potter Creek deposits although, as noted below, the evidence furnished by the avian remains is somewhat to the contrary.

The specimens obtained were in many cases badly fractured

¹ Sinclair, W. J., Univ. Calif. Publ. Am. Arch. Ethn., vol. 2, pp. 1-27, 1904.

² Furlong, E. L., Am. Jour. Sci., vol. 22, pp. 235-247, 1906; and Science, n.s., vol. 25, pp. 392-394, March 8, 1907.

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or were gnawed by rodents before being unearthed, otherwise the preservation is generally good, since the factor of weathering is reduced to a minimum. As suggested by Sinclair, the method of introduction of the bones is not easy in all cases to determine. The great preponderance of birds belonging to ground-dwelling species is at once noticeable. None of these bones occur in their proper anatomical relations in the deposits. This condition suggests that their bodies were either brought in as the prey of predatory forms or else swept in by currents of surface drainage. A number of owls and vultures also occur, both of which groups commonly resort to caverns as places of abode. Their remains, deposited in the outer chambers of the caverns, would readily be swept on into more remote recesses by currents of water. The anserine remains doubtless represent prey carried into the cavern mouth by predatory forms such as the duck hawk (*Falco peregrinus*) which in turn left its bones in a similar position.

RECORD OF SPECIES

CATHARTES AURA (Linnaeus)

The remains representing this species are somewhat fragmentary, yet are in each case perfectly determinable. An ulna, a radius and a metacarpal are practically perfect and agree absolutely with the corresponding parts of the Recent specimens at hand. The single specimen of the species from Samwel Cave is represented by the distal end of a radius only; this part is however markedly different from the same portion of the skeleton in *Catharista*. The fragment is certainly of the genus *Cathartes*, and there appears no reason for considering the species as different from the existing *C. aura*. The manubrial part of a sternum and the distal end of a humerus represent the species in Hawver Cave.

The reason for the greater abundance of the species in Potter Creek Cave is hard to determine. Some local condition must have been the determining factor and not a scarcity of the species in the region of Samwel Cave. The mammalian remains suggest that the Potter Creek deposits represent an earlier time than those of Samwel Cave. *Cathartes* was evidently abundant during

