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ARCHÆOLOGY AS AN AID TO ZOOLOGY.*

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INTRODUCTION.

The important bearing of palæontology on zoology has long been recognized by zoologists, but it is not so generally known that archæology also can give valuable aid to zoology. To the archæologist, however, the saving of the bones and shells of animals found in the course of his explorations of the graves, mounds, shell-heaps and village sites of prehistoric man, is important principally because it is by means of them that he learns something of the kinds of animals used for food, and what animal bones were used as material for artifacts, by prehistoric people. For a long time some archæologists did not seem to see any further use for such findings, but all now realize how important it is for them to collect all bones of animals, not only for their own purposes, but for the zoologist's also. So much of the earlier archæological exploration, too, was conducted in a profuncatory manner with a view more to secure rarities than anything else. To the mere relic seeker, especially, animal bones are useless rubbish, and it is surprising that even those from whom better work could have been expected seldom collected these bones unless they showed evidence of workmanship.

In nearly every prehistoric site explored by the archæologist animal bones and shells are more or less numerous, but they are found less frequently in graves and mounds. The Roebuck prehistoric village site, near Prescott, Ontario, explored by the writer for the Geological Survey, Canada, in 1912 and 1915, yielded a large number of shells of fresh-water clams and animal bones, of which about six barrels were collected. From the Baum village site, in Ross county, Ohio, twenty barrels full of bones were sent to the museum of the Ohio Archæological and Historical Society in Columbus. One can get an idea from this of the large accumulations of shells and bones sometimes found.

The bones of nearly all the larger animals used as food are found. The presence of the smaller birds and such animals as mice, shrews, moles, and bats, which were probably not used as food at all, is most often not due to human agency, especially where the entire skeletons are present. Mere absence of the bones of a certain animal from shell or refuse heaps, however, does not necessarily mean that its flesh was excluded from the aboriginal menu. Its bones may have been so small as to disappear, or they may have been gnawed to pieces by the aboriginal dog. Some taboo prohibiting the eating of the flesh of certain species may account for the absence of the bones of other animals.

Some of the bones may owe their preservation to the fact that they were buried in refuse heaps composed mainly of wood ashes. Another factor which probably accounts for the excellent preservation of some is that most of them had been boiled with the meat on them, thus possibly eliminating nearly all the animal matter which might cause decay. A few owe their preservation to partial carbonization. The shells of fresh-water clams found in the refuse in some places are invariably fresh looking with the epidermis intact and the inside surface still retaining its pearly lustre.

One has to contend with several difficulties in determining the species of animals to which many of these bones belonged. Many of them have been reduced to indeterminate fragments, possibly in order to extract the marrow and also to make them of a size small enough to go into cooking pots. Others have been fashioned into various implements and ornaments; although as in the case of awls, enough of the original shape of the bone sometimes remains to enable one to identify the species of animal to which it belonged.

As to the probable age of the sites where these bones are found, it will perhaps be unnecessary to say that where no relics of the white man occur, they may be all the way from three hundred to five hundred and perhaps more years old. Algonkian sites in Ontario, and probably in central New York

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