Bone Flutes and Whistles Found in Ohio Valley Sites

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About fifty specimens of bone flutes and whistles occur in Ohio Valley archaeological sites. They are perforated, open tubes made from bird bones. Table I shows measurements and information which were obtained from archaeological reports. Where precise measurements were not given by the author, they were taken from photographs and have been marked as approximations in the table.

In 1916 Moore (5) included in his report on the Indian Knoll Site in Ohio County, Kentucky, a photograph of a short bone tube with one perforation. Over twenty years later, Webb and Haag (8) suggested that the object might be a whistle. A much more extensive excavation of the site by Webb (7), reported in 1946, revealed a perforated bone tube whose use was very problematical. It was perforated in a peculiar manner; next to the large rectangular opening was a small, transverse hole. A similar specimen, which was, however, engraved geometrically, was found in a shell mound of nearby Butler County. Concerning the perforations, Webb wrote: "This suggests that some shaft with perforated end might have been thrust into the notch, and if a bone pin could have been thrust through the side holes, the shaft might have been held in position. . . . The bones are hollow from end to end, which had led to the suggestion that this tube may be a musical instrument, the side hole being used to attach a mouthpiece." Webb did not seem at all willing to guess the use of these perforated tubes, and perhaps their inclusion in this paper is not justifiable.

The investigation of thirteen Adena and eight Hopewell reports brought no evidence of the use of bone for flutes or whistles to light. Bone tubes were used in Hopewell pan-pipes. If bone flutes or whistles were present in these cultures, they should have been found. While no Adena or Hopewell village sites have been systematically excavated, nevertheless the material taken to build Adena and Hopewell mounds was from their village sites, and this fill should contain a representative amount of artifacts.

It is significant that ninety-four percent of the reported flutes come from sites of the Middle and Upper Mississippi phases which are fairly late. The three previous occurences of the flute or whistle in the Ohio Valley were very questionable. If the flute first appeared in the Middle Mississippi phase in this area, it would be valuable as a diagnostic trait.

From the Middle Mississippi phase, represented by the Angel Mounds Site, Vanderburgh County, Indiana, come two apparently complete,

TABLE I. Summary of Material from the Literature

	Name and location of site	Source	Length in inches	Number of perforations	Shape of perforations	Identification of bone	Remarks
Archaic Pattern	Indian Knoll Site, Ohio County, Ky.	Moore, 1916	2.75*	1	Oval		"Perforated bone tube (whistle) ?"
	Same as above	Webb, 1946	9.9	2	One rectangular, one round	"Ulnae of the Whooping Crane"	Use is dubious
	Shell mound of Butler County, Ky.	Webb, 1946	8.35	2	Same as above	Same as above	Differs from above only in engraving and length.
Middle Miss. Phase	Angel Mounds Site, Vanderburgh County, Ind.		4.125	7	Round	Radius of large wading bird	Produces musical notes
	Same as above		4.063	8	Same as above	Same as above	Same as above
Upper Mississippi Phase		Smith, 1910	4.44*	4		"Bird bones"	One perforation on reverse side from other three
	Same as above	Smith, 1910	5.0*	8		Same as above	One vent is only partly drilled

* The asterisk is used to indicate that the measurement is only approximate.

	Name and location of site	Source	Length in inches	Number of perforations	Shape of perforations	Identification of bone	Remarks
Upper Mississippi Phase	Madisonville Site Hamilton County, O.	Hooton and Willoughby	4.12*	7		"Made from the long bones of birds"	"Flute-like"
	Same as above	Hooton and Willoughby	3.19*	6		Same as above	Same as above
	Feurt Mounds and Village Site, Scioto County, Ohio	Mills, 1917	4.0*	3	Usually round, some are oblong	"Made of the radius of various large birds"	"Whistle-like"
	Same as above	Mills, 1917	4.31*	4	Same as above	Same as above	Same as above
	Same as above	Mills, 1917	3.56*	3	Same as above	Same as above	Same as above
	Same as above	Mills, 1917	3.5*	3	Same as above	Same as above	Same as above
	Same as above	Mills, 1917	2.63*	2	Same as above	Same as above	Same as above

Same as above	Mills, 1917	2.78*	4	Same as above	Same as above	Same as above
Same as above	Mills, 1917	2.5*	2	Same as above	Same as above	Same as above
Same as above	Mills, 1917	3.0*	3	Same as above	Same as above	Same as above
Same as above	Mills, 1917	3.19*	2	Same as above	Same as above	Same as above
Same as above	Mills, 1917	3.19*	3	Same as above	Same as above	Same as above
Same as above	Mills, 1917	3.56*	3	Same as above	Same as above	Same as above
Reeve Village Site, Lake County, Ohio	Greenman, 1935	5.5	3	Round	"Bird bone"	Three musical notes; long axis is curved
Same as above	Greenman, 1935	3.4	4	Round	Same as above	No musical note; long axis is straight
Tuttle Hill Site, Cuyahoga County, O.	Greenman, 1937	4.5*	5			Three holes on one side, two on the other
South Park Site, Cuyahoga County, O.	Greenman 1937	2.0*	4			Three holes on one side, one on the other

perforated tubes. Mr. Black, who is in charge of the excavation of the site, kindly lent me the specimens for study. They are almost exactly the same length, and their curvatures are almost identical. Both produced the same note when blown hard with all the holes open, a C four octaves above middle C.

The study of these two objects has convinced me that certain measurements, observations, and photographs or drawings are necessary or desirable, at least, for inclusion in reports on such material. The measurements are best shown on the photographs or drawings. Length, distances from the centers of the holes, and the range of the size of the holes are all important because they were determined by the manufacturer. A tentative identification of the kind of bones which was used should be carefully made in order to aid any classification that might be attempted in the future.

The photographs or drawings would be most useful if they are full-size; but whatever the scale that is used, it should be used consistently. It has been customary to show the side on which the holes are drilled. The distance between the holes and their comparative size are readily apparent in this view, but these measurements can also be shown on a side view, in which the curvature of the bone over the holes is best seen. The curvature is important because no musical note can be attained from a perforated tube which is straight. Greenman (1) reports finding two bone flutes. "(One) specimen gives no musical note. It is possible that the musical note of the other is due to the fact that its long axis is curved, while that of the smaller one is nearly straight." Mr. Black told me that he considered the possibility of musical notes depended on the curvature of the open tube. Therefore, the side view is more indicative of the present musical possibilities of the object than the top view showing the holes. Of course, the ideal portrayal shows the top and side views, as well as a photograph or drawing looking into the large end. The large end of the bone would indicate whether the holes were made on the flattened side of the bone or elsewhere.

Many sites of the Upper Mississippi Phase contain perforated bone tubes. Smith (6) reported finding about four specimens in a Kentucky site. All stages of the manufacture of whistles were found at this site: natural bird bones, bones with the ends broken off, one bone with seven perforations and another perforation partly drilled, and the finished whistle.

The Madisonville site in Hamilton County, Ohio, which was excavated by the Peabody Museum, contained about twenty "flute-like objects." Willoughby (3) describes them as small. The author states that, "judging from the unbroken specimens recovered, the number of holes range from five to nine, the usual number being five or six. The holes were commonly about one half inch apart, but in one specimen the centers of the perforations are placed about one fourth inch from each other, too near, it would seem, for its successful manipulation by the fingers of an adult."

Another large collection of perforated tubes, this time described as "whistle-like," was found by Mills (4) in the Feurt Village Site in

Scioto County, Ohio. He reported, "The specimens . . . were made of the radius of various large birds such as the eagle, hawk, wild turkey and others; by cutting off the ends, thus leaving a hollow straight cylinder . . . Many specimens . . . were found and several show where they had been marked for drilling. The holes were drilled with a flint drill, and were usually three in number. Now and then one would be found with two holes, and occasionally one with four holes. The holes were usually round, but a number show an oblong hole. Frequently the oblong hole would show that it was enlarged from the round hole by burning. The holes for the most part were bored in a straight line, usually equidistant apart; however one specimen was found where two holes were in line but the center hole was to one side."

Greenman (1) found two tubes made of hollow bird bones, with flute-like stops, in the Reeve Village Site, Lake County, Ohio. The larger specimen has three stops and three tones, "but the number of tones does not correspond to the number of stops. The central stop does not alter the tone, and when it is closed, alone or with either or both of the others, there is no musical note. The notes A, B, and C may be produced respectively by closing the two end stops, then releasing one or the other, then releasing both."

The final site belonging to the Upper Mississippi Phase was also excavated by Greenman (2). He found one perforated bone tube at the Tuttle hill Site and another at the South Park Site. Both sites are in Cuyahoga County, Ohio.

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