

New York Times Science

## Flutes Offer Clues to Stone-Age Music



Daniel Maurer/Associated Press

By JOHN NOBLE WILFORD

At least 35,000 years ago, in the depths of the last ice age, the sound of music filled a cave in what is now southwestern Germany, the same place and time early Homo sapiens were also carving the oldest known examples of figurative art in the world. Music and sculpture — expressions of artistic creativity, it seems — were emerging in tandem among some of the first modern humans when they began spreading through Europe or soon thereafter. Archaeologists Wednesday reported the discovery last fall of a bone flute and two fragments of ivory flutes that they said represented the earliest known flowering of music-making in Stone Age culture. They said the bone flute with five finger holes, found at Hohle Fels Cave in the hills west of Ulm, was “by far the most complete of the musical instruments so far recovered from the caves” in a region where pieces of other flutes have been turning up in recent years.

A three-hole flute carved from mammoth ivory was uncovered a few years ago at another cave, as well as two flutes made from the wing bones of a mute swan. In the same cave, archaeologists also found beautiful carvings of animals.

But until now the artifacts appeared to be too rare and were not dated precisely enough to support wider interpretations of the early rise of music. The earliest solid evidence of musical instruments previously came from France and Austria, but dated much more recently than 30,000 years ago.

Although radiocarbon dates earlier than 30,000 years ago can be imprecise, samples from the bones and associated material were tested independently by two laboratories, in England and

Germany, using different methods. Scientists said the data agreed on ages of at least 35,000 years.

**Comments: Pay attention to the introduction of the essay.**