

A musical survey of the Aurignacian wind instruments from the caves of the Swabian Jura in southwestern Germany

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We cannot eat music, nor does music protect us from the cold or other dangers, nor is music necessary for life. What then renders creating and listening to music so important that it has accompanied our daily life and rituals from 40,000 years ago until today?

Our research strives to provide a building block for understanding this issue, by approaching the origins of music and by exploring the musical possibilities of the world's oldest known musical instruments. This experimental research is based on reconstruction of three wind instruments made from wing bones of swans [1] and vultures [2] and from mammoth ivory [3] recovered from the Aurignacian deposits of caves from the Swabian Jura of southwestern Germany. The instruments date to around 40 000 years ago and were made and played by anatomically modern humans.

We are interested in the sounds produced by the original instruments, the playing techniques, the fundamentals and overtones they provide, and the resulting musical intervals and scales, which could have formed the basis for music at that time. Through comparative musical analyses of various reconstructions, we determined a potential framework within which Aurignacian musicians could have played these instruments. We also consider different social contexts in which music could have been played in the Swabian caves with their exceptional acoustics [4].

Analyses of each reconstruction of the Aurignacian instruments mentioned above, and comparison with the music played on a complete, ca. 15,000-year younger wind instrument discovered in the Isturitz Cave in the French Pyrenees [5], provides important clues to identify the correct end to blow into. These studies also show differences and possible advantages of the younger instrument, as well as overlapping musical intervals in all four reconstructions [6, 7].

The mammoth ivory instrument has been the focus of detailed analyses we carried out by testing eight reconstructions of varying length as notched flutes. This work yielded information on the most probable method of playing the ivory flute and on the original intervals of the instrument. Concurrently, this study led us to question the idea that the makers of the instruments used ivory to extend the low register of the instrument by lengthening the flutes [8]. Further analyses, applying different playing techniques to four reconstructions of identical length, number and size of finger holes, revealed similarities in musical intervals.

The more creative and artistic aspect of the lead author's research is devoted to the task of eliciting music from the reconstructions. In this context she uses knowledge of their musical possibilities and the acoustic conditions of their use (e.g., cave acoustics, surrounding sounds), and possible sources of inspiration during the Late Pleistocene. Even if we can only approximate the musical world of 40,000 years ago without turning off our modern perception of music, our engagement with the musical tradition of a group of Aurignacian anatomically modern humans unites us by way of a jointly experienced a musical moment.

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