Reconstructing an 1832 Boehm Conical Flute: an Interdisciplinary Collaboration

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ABSTRACT

In 1832, flute-maker Theobald Boehm launches a brand new flute after conducting a series of acoustical experiments. The result was a flute with a conical bore, and a revolutionary key-system borrowing the best elements from different contemporary flute-makers to accommodate a complete modification of the instrument’s tone holes. However, he did not patent his 1832 model and “left it free for use and imitation” [1]. This means that despite its short life-span – by 1848 Boehm had already invented the modern flute with a cylindrical bore – and much rivalry from other manufacturers, the 1832 flute was built by many renowned makers until the first decades of the 20th century. Thus, although this instrument – that we named transition flute – was based on a specific model developed by Boehm, there was space for a wide variety of models. The lack of standardization means that when flautists play on transition flutes today, they are confronted to a wide variety of choice as each instrument is different.

When commissioned by musicians to build a transition flute based on the 1832 conical model, the Flutes Roosen workshop was faced with a dilemma as the flutes all varied significantly. The following article shows how the geometrical and acoustic study of four transition flutes allowed us to propose a computer-generated model that simultaneously respected Boehm’s inventions and took into account the variety of models available. Rather than produce an exact copy of one instrument, we opted for recreating a new flute based on acoustic and geometrical measurements of different transition flutes and on Boehm’s desired improvements, detailed in his 1847 Essay on the construction of flutes [1].

REFERENCES