Persian Ney Headjoint for Modern Boehm Flute

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The Persian ney is an end-blown conical flute with a cylindrical bore at its entrance. The musician places the ney mouthpiece against the teeth and the tongue is used to form an air jet that impinges on the edge of the flute tube. The result of this unique interdental embouchure is a distinctive rich, airy timbre over which the player has a great deal of control using both tongue and upper lip. It also allows control of the pitch by a whole tone up and down, accommodating the microtonal pitch demands of Persian music. The traditional Persian ney has six tone holes and a range of about two octaves, with five different playing registers. By contrast, the modern Boehm flute has a cylindrical body and a tapered headjoint that is side-blown, with a chromatic scale over two and a half octaves. A new mouthpiece-headjoint has been designed that uses the embouchure of the Persian ney but fits the body of the Boehm flute. To achieve good playability in the low register, a headjoint taper sets the ratio of the first two mode frequencies 30 to 50 cents wider than an octave. Tuning in the third octave is improved by a sudden expansion in the mouthpiece, the equivalent of the embouchure-to-cork shunt volume of the Boehm headjoint. The resulting instrument has the sound and flexibility of the ney but the chromatic scale and range of the Boehm flute.