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The Belli-Babinet tap: an innovation in pneumatic technology in the first half of the 19th century

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This talk examines the development of the Belli-Babinet tap, a key innovation in pneumatic technology during the 1830s. In 1827, Giuseppe Belli (1791-1860), an Italian physicist then lecturing at the Imperial Regio Liceo of “Porta Nuova” in Milan, published an article in a scientific journal edited in Pavia by Pietro Configliachi and Gaspare Brugnatelli. Belli described a novel and intriguing mechanical solution for double-barreled air pumps in this paper. Belli’s design involved modifying the stopcock at the base of the pump’s cylinders with a special mechanical tap that, when rotated, achieved a “double-exhaustion” effect. The rotation modified the connections between the plate and the two cylinders, allowing the creation of a higher vacuum. French physicist Jacques Babinet (1794-1872) independently proposed the same solution two years later. This innovation, known as ‘Babinet’s tap’, was described in some successful French physics treatises and included in the trade catalogues of most French manufacturers of scientific instruments. As a result, this modification quickly spread worldwide.

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