Metronome Encyclopedia Article

Metronome

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Metronome

Usually housed in a hollow, pyramid-shaped box, metronomes visually and aurally register the tempo (speed) of music. The standard metronome consists of a pivoted pendulum with a fixed weight below and a sliding weight above. The beat to be indicated may be altered by moving the upper weight; the device ticks with the movement of the pendulum, faster or slower as the sliding weight is moved lower or higher. A number scale shows how many oscillations per minute will occur when the sliding weight is moved to various points on the pendulum.

Early "metronomes" include the seventeenth-century *chronometre*, which varied to produce up to seventy-two separate speeds; a pendulum device invented in 1756 by Robert Bremner to standardize the tempo of church music and a metronome-like instrument using a bell and clock hammer that was devised in Germany.

Although originally attributed to Austrian physician Johann Nepomuk Maelzel (1772-1838), today's metronome was actually developed by Dietrich Nikolaus Winkel (1776-1826), a German-born master organ builder living in Amsterdam. Musically and mechanically proficient, Winkel built the first compact, accurate metronome incorporating a pendulum. His device was a one-square-foot, hinged box that contained an adjustable, double-weighted pendulum kept moving by an escapement (a notched wheel that controls movement) that was itself driven by a small weight on the end of a cord wrapped around a drum.

Winkel showed his invention to Maelzel, who in turn demonstrated it to his friend Ludwig van Beethoven (1770-1827). Maelzel knew that the great composer was interested in increasing the accuracy with which his music was played. Indeed, Beethoven became the first composer to include metronome markings in his scores; the beat of one of the movements in his Eighth Symphony was supposedly inspired by a metronome. Maelzel, who was well-known for disreputable practices, commandeered the metronome as his own invention, acquiring a patent for it in 1816 and establishing a factory for its manufacture.

A pocket-sized metronome, Pinfold's Patent Metronome, which had a pendulum that could be reeled up like the modern tape measure, became popular during the nineteenth century. The advent of electronic technology in the twentieth century allowed for the development of extremely small, highly accurate metronomes that are capable of beating complex musical time signatures and that do not have to stand on level surfaces.