

Vernier Encyclopedia Article

Vernier

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A vernier is a two-part scale that measures angles and lengths in small divisions. It consists of a large stationary scale used to measure in whole numbers and an attached small movable scale used to measure in fractions, often to .001 in. (.025 mm).

This device bears the name of its inventor, French engineer and soldier Pierre Vernier (1584-1638). The son of a lawyer, who was probably also an engineer, Vernier early learned to survey with the measuring devices of his time, such as the astrolabe of Portuguese Nunez Salaciense (1492-1577). Made up of fixed concentric scales, astrolabes were difficult to construct and use. Instrument makers had to measure and engrave accurately the degrees. The user had to calculate to arrive at the correct measurement. Invented in 1631, the vernier was much simpler in concept because it allowed the user to measure in small increments without calculating.

The vernier was ahead of its time for in the seventeenth century survey instruments were not precise enough to require the detail that the vernier could provide. It was not until the mid-1700s that it came into regular use. Today the vernier is a standard part of surveying equipment and is built into such implements as microscopes, micrometers, theodolites, and transits. The vernier is valuable wherever extremely small measurements are needed, as in surveying where error multiplies with distance.