

Topic Page: [Weber, Wilhelm Eduard, 1804–1891](https://search.credoreference.com/content/topic/weber_wilhelm_eduard_1804_1891)

Summary Article: **Weber, Wilhelm Eduard**

From *The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide*

German physicist who studied magnetism and electricity. Working with mathematician Karl Gauss, he made sensitive magnetometers to measure magnetic fields, and instruments to measure direct and alternating currents. He also built an electric telegraph. The SI unit of magnetic flux, the **weber**, is named after him.

Weber defined an electromagnetic unit for electric current which was applied to measurements of current made by the deflection of the magnetic needle of a galvanometer. In 1846, he developed the electrodynameometer, in which a current causes a coil suspended within another coil to turn when a current is passed through both. In 1852, Weber defined the absolute unit of electrical resistance.

Weber was born in Wittenberg, the brother of Ernst Weber, and studied at Halle. In 1831 he became professor at Göttingen; he lost this post after making a political protest 1837, but was reinstated 1849.

At Göttingen, he built a 3-km/2-mi telegraph to connect the physics laboratory with the astronomical observatory where Gauss worked, and this was the first practical telegraph to operate anywhere in the world. Gauss and Weber organized a network of observation stations 1836–41 to correlate measurements of terrestrial magnetism made around the world.

Weber put forward in 1871 the view that atoms contain positive charges that are surrounded by rotating negative particles and that the application of an electric potential to a conductor causes the negative particles to migrate from one atom to another. He also provided similar explanations of thermal conduction and thermoelectricity.

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