Gaspard-Gustave de Coriolis Biography

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Biography

Gaspard-Gustave de Coriolis was a French engineer and mathematician best known for his discovery of the Coriolis effect, or **force**, which has great significance in **astrophysics**, stellar **dynamics**, and the earth sciences, such as **meteorology** and oceanography. Born in Paris in 1792 to an aristocratic family who fled Paris during the French Revolution, Coriolis and his family settled in Nancy, where his father became an industrialist. He attended the Napoleonic École Polytechnique to train as a civil servant and continued his studies at the École des Ponts et Chaussées. After several years in the corps of engineers working in the Vosges mountains, his poor health coupled with financial needs led him to accept a post as a tutor in mathematical analysis and **mechanics** at the École Polytechnique in 1816.

Coriolis published his first major work, "On the Calculation of Mechanical Action," in 1829. In it, Coriolis introduced the terms "work" and "kinetic energy" in their modern scientific meanings. Six years later he published his most famous work, "On the Equations of Relative **Motion** of a System of Bodies." Although what has become known as the Coriolis effect has figured prominently in the study of atmosphere dynamics, the scientific paper grew of Coriolis's research into industrial rotating machines, like water wheels, which were an integral part of nineteenth-century industry and engineering. The Coriolis effect is a theory of relative motion in a rotating **frame of reference**, such as an object moving longitudinally along the Earth's atmosphere. In essence, in addition to the ordinary effects of a body in motion, Coriolis said that another inertial force was acting on the body at right angles to its direction of motion. By adding this extra inertial force to the equations of motion, many atmospheric and oceanographic phenomenon could be explained, such as the curved paths of falling bodies in the Earth's atmosphere and of winds across the Earth. Contrary to popular belief, the Coriolis effect does not explain why water in a sink or toilet flows in different directions depending on whether one is in the Northern or Southern Hemisphere.

Coriolis was known for his ability to unify theory and application. He went on to write "Mathematical Theory of the Game of Billiards," published in 1835. "Treatise on the Mechanics of Solid Bodies" was published posthumously in 1844, one year after Coriolis died in Paris.