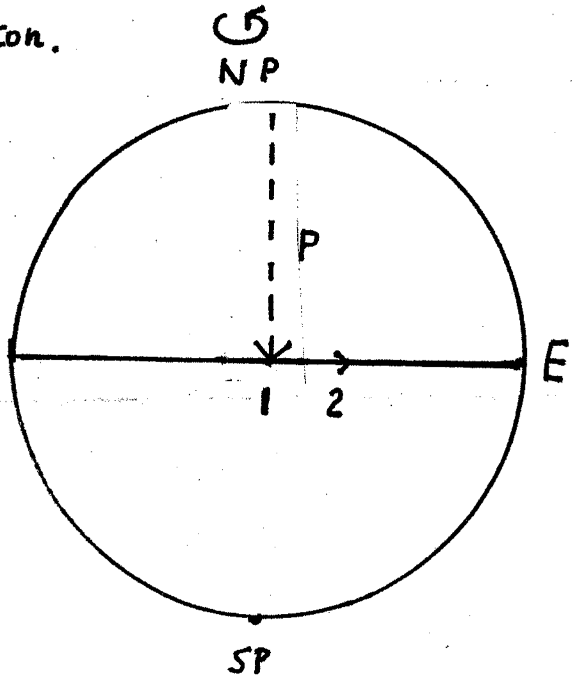
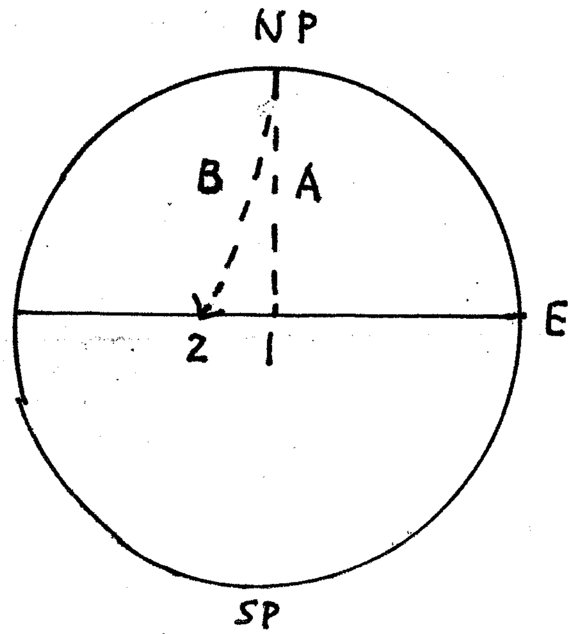
# The Coriolis (Gaspard Gustave de Coriolis) 1792–1843

The Coriolis Effect was enunciated in 1835.

The apparent trajectories of rockets and artificial Earth satellites, plus the characteristics of large-scale wind patterns in the atmosphere of the Earth (as well as ocean currents), can be understood only if the Earth rotates. Our arguments have to be based upon the well-verified dynamical laws of Newton.




Consider a projectile launched from the North pole, to impact at the Equator. On a non-rotating Earth, the projectile would follow a single meridian of longitude during its entire flight. On a rotating Earth, the target moves Eastward at $0{\cdot}46\,km\,s^{-1}$, and the projectile strikes west of the target. The target moves from 1 to 2, as indicated.

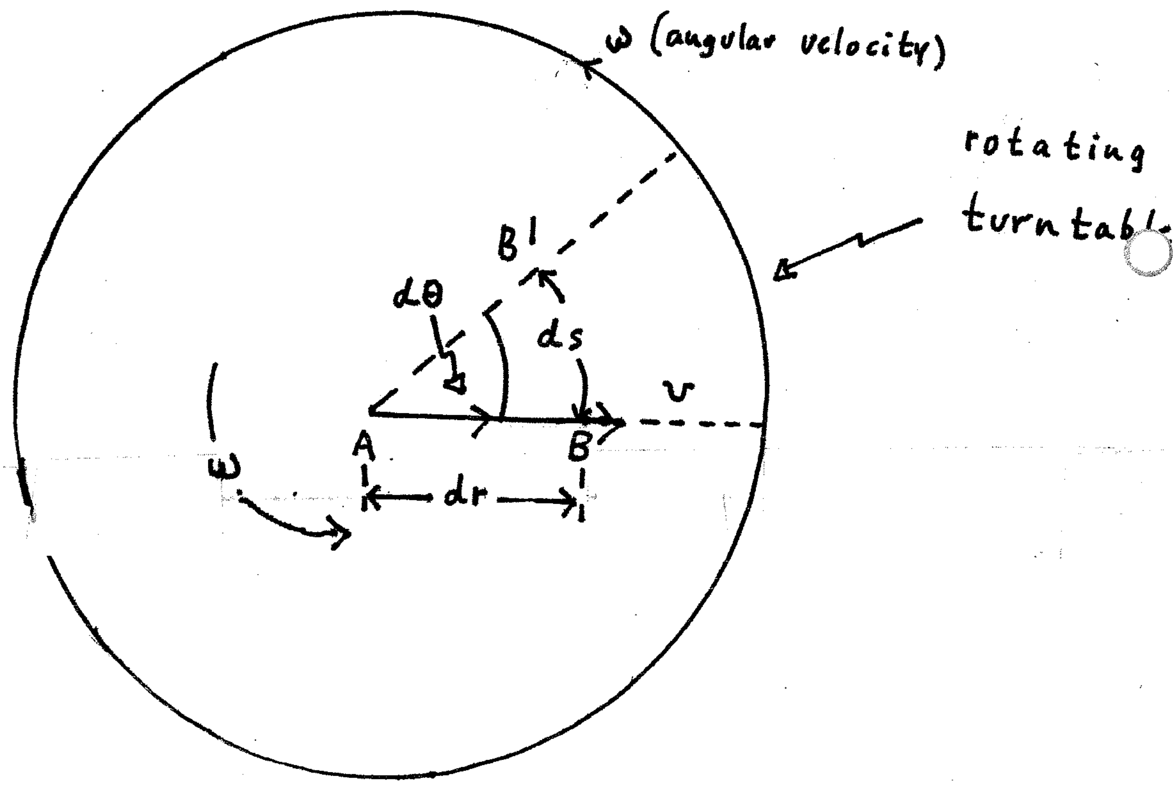
Although the motion of the projectile is due South, it appears to be deflected to the right, with respect to the surface of the Earth. The fictitious acceleration, which produces this effect — the Coriolis Effect — was deduced in 1835.

As seen from the surface of the Earth, the trajectory would be A, if the Earth did not rotate, but is actually B, for the rotating Earth — the projectile is apparently deflected to the right.

By considering a variety of projectile trajectories, it is found that moving bodies always appear to be deflected to the right, in the Northern hemisphere, and to the left in the Southern hemisphere.

The Coriolis Effect is responsible for the characteristics describing the behaviour of the atmosphere: A cyclone is a local counterclockwise circulation of air in the Northern hemisphere (clockwise in the Southern), produced by the Coriolis deflection to the right of air flowing towards the centre of a low-pressure region. An anticyclone arises when air flowing away from the centre of a high-pressure is deflected into a local clockwise circulation, in the Northern hemisphere (counterclockwise in the Southern)

## The Coreolis Effect and the turntable




The turntable rotates at the angular velocity, ω, Which is the same for all objects on the turntable

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Let a body on the turntable move a distance of $dr$, from A to B, at a velocity $v$, during a time interval $dt$.

At the same time, B rotates through the angle $d\theta$ and the distance $ds$ to B'. The body appears to be deflected to its right, relative to the turntable.

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2014, September 6