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Investigating The Magnus Effect Phenomenon

The phenomenon of moving air over a spinning object has long fascinated scientists. Heinrich Magnus detailed studies of this phenomenon lead it to be called the “Magnus Effect”. The spinning motion of the object increases the velocity of the air flow on one side while simultaneously decreasing the rate of the airflow on the opposite side. These unbalanced forces consequently push the spinning object moving at right angles to the direction of the air flow. The purpose of this project is to investigate how the Magnus Effect could aid the movement of a vehicle along a track. The researcher hypothesizes the following: 1. The rotating cylinder cart assembly will only move along the track when the cylinder is spinning in the air stream. 2. When exposed to moving air a non-rotating cylinder cart assembly will not move along the track. A rotating cylinder-cart assembly which rides on a track was devised to test the hypotheses. Results indicate that the greater the air velocity over a rotating cylinder spinning has a positive effect on the motion of the rotating cylinder-cart vehicle.