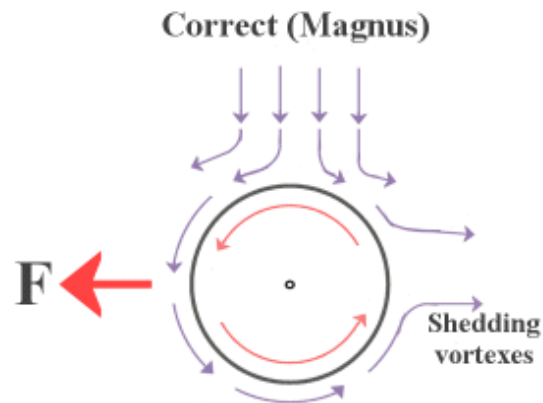
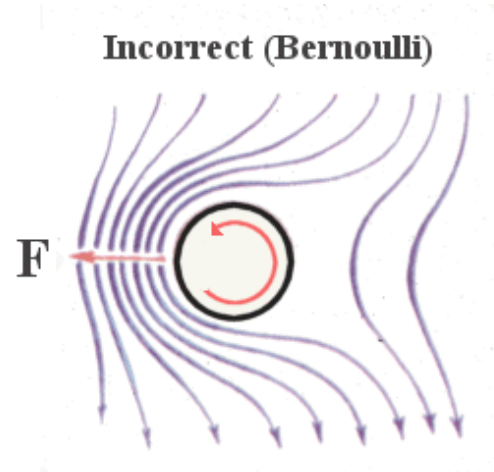
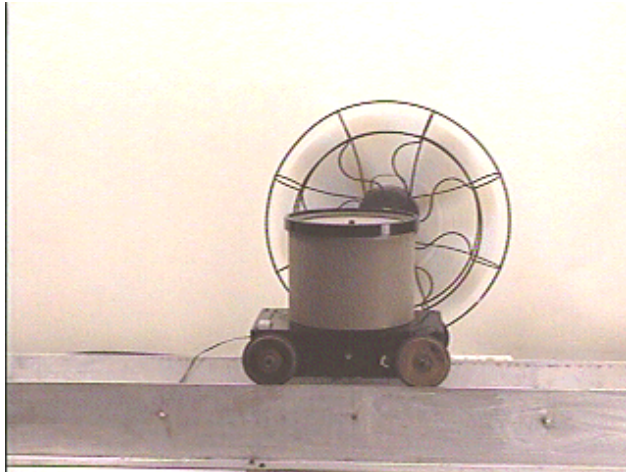


## Answer #220

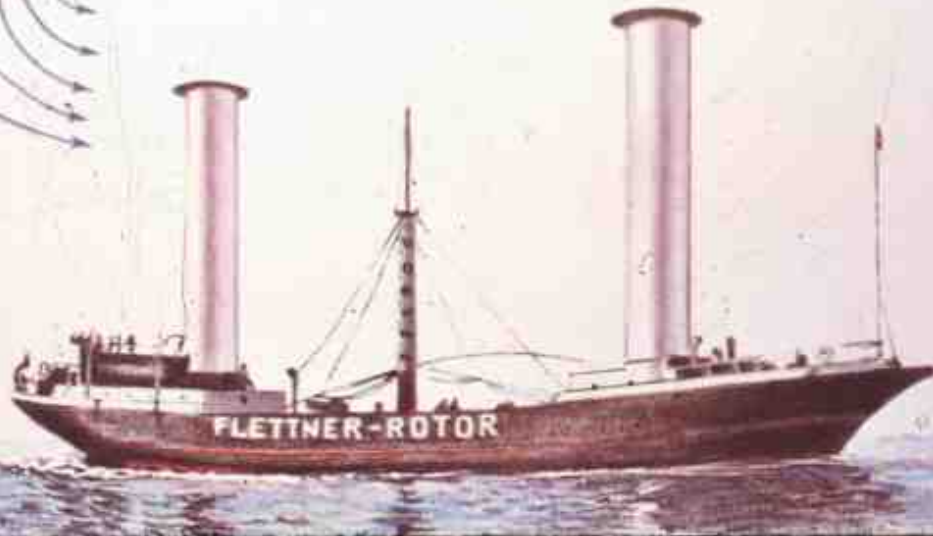
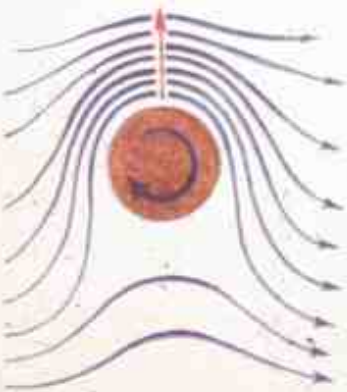
The answer is (b): the cart will move to the left, as seen in a short video by using your mouse to select the [mpeg](#) or [movie](#) format.



This phenomenon, known as the Magnus effect, occurs when air vortices are shed as seen in the diagram at the right above.

This effect has actually been used in what is known as the *Flettner ship*, a ship that uses two large rotating stacks to create its forward thrust, as seen in the photograph below. Note that the explanation in terms of the Bernoulli effect, as seen in the drawing below, is incorrect, although the Bernoulli effect as shown predicts a force in the correct direction.

Spinning cylinders replace sails on Flettner's rotorship. In the diagram a cylinder is seen from above, in a wind stream going from left to right. If it is given a clockwise spin, the difference in pressure on the sides turning with and against the wind will move it in the direction of the arrow. Reversing direction of spin reverses course of cylinder. Ship will turn if cylinders spin in opposite directions.



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For questions and comments regarding the *Question of the Week* contact [Dr. Richard E. Berg](#) by e-mail or using phone number or regular mail address given on the [Lecture-Demonstration Home Page](#).