Venturi Tube Encyclopedia Article

Venturi Tube

The following sections of this BookRags Literature Study Guide is offprint from Gale's For Students Series: Presenting Analysis, Context, and Criticism on Commonly Studied Works: Introduction, Author Biography, Plot Summary, Characters, Themes, Style, Historical Context, Critical Overview, Criticism and Critical Essays, Media Adaptations, Topics for Further Study, Compare & Contrast, What Do I Read Next?, For Further Study, and Sources.

(c)1998-2002; (c)2002 by Gale. Gale is an imprint of The Gale Group, Inc., a division of Thomson Learning, Inc. Gale and Design and Thomson Learning are trademarks used herein under license.

The following sections, if they exist, are offprint from Beacham's Encyclopedia of Popular Fiction: "Social Concerns", "Thematic Overview", "Techniques", "Literary Precedents", "Key Questions", "Related Titles", "Adaptations", "Related Web Sites". (c)1994-2005, by Walton Beacham.

The following sections, if they exist, are offprint from Beacham's Guide to Literature for Young Adults: "About the Author", "Overview", "Setting", "Literary Qualities", "Social Sensitivity", "Topics for Discussion", "Ideas for Reports and Papers". (c)1994-2005, by Walton Beacham.

All other sections in this Literature Study Guide are owned and copyrighted by BookRags, Inc.

Contents

Venturi Tube Encyclopedia Article.....1

Contents.....2

Venturi Tube.....3

Venturi Tube

The venturi tube is a flowmeter that allows scientists to measure the drop in air pressure that occurs as a fluid's velocity increases. It was designed by the Italian physicist Giovanni Venturi (1746-1822), but the principles it demonstrates are those of the Swiss mathematician Daniel Bernoulli (1700-1782) as outlined in his book *Hydromachia*.

Venturi's flowmeter is a glass tube with a sloped constriction in the middle. As fluid passes into the tube, it does so at a constant velocity; however, as it reaches the constriction, the fluid's velocity increases. When the fluid reaches the end of the tube the velocity drops again to its initial value. Attached to the tube at three points are manometers (devices for measuring pressure)--one at the tube's entrance, one at the point of constriction, and one at the exit. During the experiment, the manometers will show a drop in pressure at the constriction, caused by the increased velocity at that point. The venturi tube must be designed precisely so that the fluid passes through without becoming turbulent, especially at the constriction point.

The principles involved in the venturi flowmeter form the foundation of hydrodynamics (the movement of water) and aerodynamics (the movement of air). As air passes around the wing of an airplane, the air moving above the wing moves faster than that below. This unequal velocity causes a pressure drop at the top of the wing, creating the lift necessary to become and remain airborne. Fluid-motion pressure drops are also used in the laboratory to simulate vacuums.