

Vacuum Bottle Encyclopedia Article

Vacuum Bottle

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

Vacuum Bottle Encyclopedia Article.....	1
Contents.....	2
Vacuum Bottle.....	3

Vacuum Bottle

The vacuum bottle was one of those devices that had applications far beyond what its inventor had envisioned.

Scottish chemist and physicist James Dewar was interested in studying the nature of liquid gases. The biggest hurdle in his work was keeping the gasses cool enough to remain liquid while they were stored in flasks.

In 1872 Dewar hit upon the idea of insulating a flask from the surrounding air by enclosing it in a larger flask and creating a vacuum between the two. The vacuum would prevent the transfer of heat that normally occurred through conduction and convection. To further insulate the flasks, he silvered them. The silver coating would prevent the absorption of radiant energy from the outside or the escape of cold from the inside by reflecting them.

Dewar's invention was a great success, especially when he successfully liquefied oxygen in 1885 and became the first person to liquefy hydrogen in 1898. His original vacuum bottle was made of glass, but later models were made of metal, which was stronger and made larger models possible.

Surprisingly, Dewar did not patent his vacuum flask. It was not until 1904 that Reinhold Burger realized its domestic potential: not only would it keep cold liquids cold, it could keep hot liquids hot. Burger offered a prize for a name and, ironically, thermos, the Greek word for hot, won.

Modern vacuum bottles are constructed with walls of glass or steel; the stopper and internal support are made of cork, which helps to insulate as well. If dropped, the result in the glass lined bottles is disastrous; one or both of the walls of the container could shatter. This destroys the vacuum, allowing air to enter and eliminating the flask's ability to insulate. Today, many vacuum bottles have stainless steel lines, rendering them unbreakable. Their use has extended to decorative carafes and serving pieces useful for entertaining. Vacuum bottles do not "make" the contents objects hot or cold, they merely maintain the original temperature of the contents when put into the flask.