Hermann Johann Philipp Sprengel Biography

Hermann Johann Philipp Sprengel

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

Hermann Johann Philipp Sprengel Biography.....1

Contents.....2

Biography.....3

Biography

Like so many of his contemporaries, Hermann Sprengel worked in Germany at the famous laboratory of Robert Wilhelm Bunsen. Born and educated in Hanover, Germany, Sprengel moved to England in 1859, where he began research in chemistry at Oxford and continued his work at several laboratories in London.

Sprengel's invention of a more efficient vacuum pump in 1865 had far-reaching implications for technological advances in many fields. For example, the vacuum pump was critical to the development of the incandescent light bulb, because early bulbs required a high vacuum to keep the carbon filament from being eaten away by oxygen in the air. As early as 1860, Joseph Swan had developed an incandescent bulb, but the filament would not last long enough for practical use. Years later, Swan learned of Sprengel's vacuum pump from the work of William Crookes, who had found the device essential to his analysis of certain gases. Encouraged by this news, Swan resumed his research, but by that time, Thomas Edison had begun similar work. The two scientists are credited with introducing the incandescent bulb at about the same time, in 1879.

Sprengel's pump made these inventions practical by providing an effective, economic means of producing high vacuums. Sprengel's pump was derived from Johann Heinrich Wilhelm Geissler's earlier version, which Sprengel improved by mechanizing the slow, tedious evacuation process. The invention of the radio, the television, and the digital computer also depended on vacuum technology. Early radios and televisions were constructed with vacuum tubes, also known as thermionic valves. Likewise, the first generation of computers used vacuum tubes, which have since been replaced by electronic components. Sprengel's technology also allowed more rapid progress in the field of atomic physics, which requires high vacuums for the study of small particles.

In addition to the vacuum pump, Sprengel developed a type of explosive that could be mixed at the blasting site, thus reducing the danger of transporting live explosives over long distances.