

The Bends

Phillips
The Bends

**Compressed Air
in the History of
Science, Diving,
and Engineering**

John L. Phillips, M.D.



"Phillips takes an interesting
socio-scientific approach in this readable
book. He tells the fascinating story of
decompression sickness well."

—Peter B. Bennett, Divers Alert Network

"Not only a scholarly look at decompression sickness but also a delightful romp through the history of science. The book is a rich lode of scientific history."

—Eric P. Kindwall, M.D.,
Medical College of Wisconsin

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Compressed Air in the History of
Science, Diving, and Engineering

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With the invention of compressed air in the 1840s, human divers could enter previously inaccessible deepwater environments, and engineers could design underwater mines and monumental bridges that had never been possible before. But a painful, sometimes fatal illness—decompression sickness, or the bends—mysteriously afflicted many of those who used compressed air. This book is a wide-ranging history of the wonders compressed air brought about and the suffering its unknown hazards inflicted. John L. Phillips explores the intertwining roles of science, technology, engineering, medicine, and politics in the invention of compressed air, the recognition and identification of decompression sickness, and the hundred-year-long process of learning to understand and treat the bends.

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The book begins with an overview of the biology and chemistry of respiration and a discussion of the steam engine that could generate compressed air. Drawing on previously unpublished letters, diaries, and notes, Phillips recounts the early uses of compressed air, the first observations of decompression sickness, the growing awareness of the bends during construction of the Brooklyn Bridge, and efforts to understand the pathophysiology of the illness. He then considers employee health and safety issues, the science of diving today, and human limits to exploring the oceans' depths. In the history of compressed air and its illnesses, Phillips finds important lessons for dealing with other diseases yet to be confronted in the modern world.

John L. Phillips, M.D., is a fellow in urologic oncology at the National Cancer Institute, NIH.

Jacket illustration: Life File/Dave Thompson

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