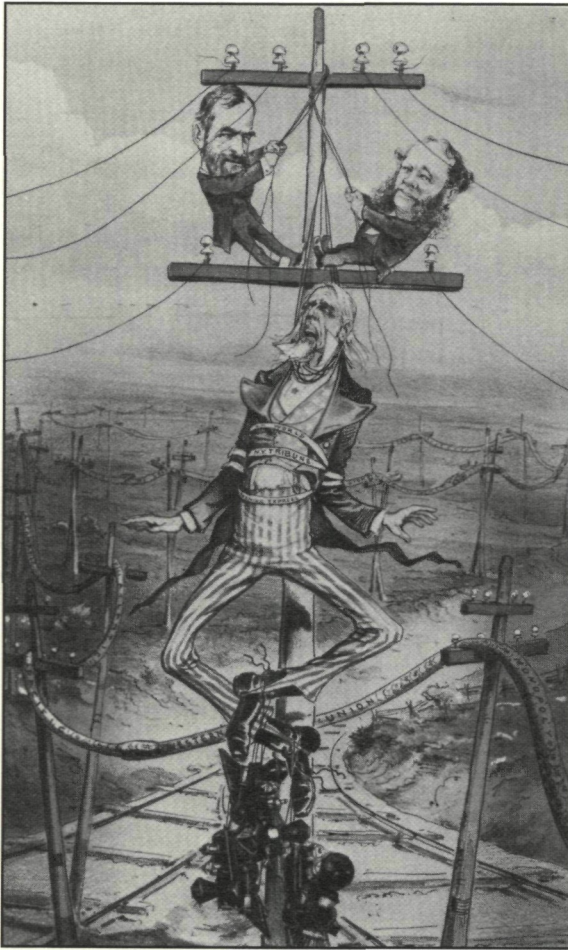


# BUSINESS HISTORY REVIEW

WINTER 2002



A special issue on entrepreneurs, regulation, and technological innovation in America

*Cover: This special issue looks at entrepreneurs, regulation, and technological innovation in the fields of computers, electronics, and telecommunications. The cover cartoon, by Puck's Joseph Keppler, caricatures Jay Gould and William H. Vanderbilt and expresses the antimonopoly sentiment prevalent in the last third of the nineteenth century. Such hostility fueled the movement for the nationalization of the telegraph industry, a movement of great concern to the executives at Western Union. Public sentiment against monopolies was also a factor in tempering the desire of Bell's managers to take over the telegraph industry in the 1880s. For more on this subject, see the article by David Hochfelder in this issue. (Cartoon originally appeared in Puck, 23 February 1881, pp. 420–21.)*



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ISSN 0007-6805

*Periodical postage paid at Boston, Mass., and additional offices.*

# BUSINESS HISTORY REVIEW

Published Quarterly by Harvard Business School  
Volume 76 Number 4 Winter 2002

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The *Business History Review* is published in the spring, summer, autumn, and winter by Harvard Business School and is printed at Capital City Press in Vermont.

- Manuscripts, books for review, commentary, and all editorial correspondence should be sent to Walter A. Friedman at the address below.
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*Business History Review*  
Harvard Business School  
Soldiers Field  
Boston, MA 02163  
Editorial office: 617-495-1003  
Subscription inquiries: 617-495-6179  
Fax: 617-495-0594

- E-mail correspondence and inquiries can be sent to [bhr@hbs.edu](mailto:bhr@hbs.edu).
- Subscription rates for the volume year 2002:

Individuals	\$50.00
Institutions	\$100.00
Students (with photocopy of current student identification)	\$35.00
All subscriptions outside the U.S., Mexico & Canada	\$115.00

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- Notice of failure to receive issues must reach the office no later than six months after the date of mailing. Postmaster: Send address changes to *Business History Review*, Harvard Business School, Soldiers Field, Boston, MA 02163.
- The paper used in this journal meets the minimum requirements of the American National Standard for Permanence of Paper for Printed Library Materials, Z.39.48 and is 50% recycled, 10% post-consumer.
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## Editors' Note

This issue brings together five articles on innovation in telecommunications and computer technology. Written by economists, historians, and specialists in business, the essays range in their subject matter from late-nineteenth-century pioneers in wireless communication to researchers at Xerox PARC one hundred years later. They demonstrate the complex relation between creativity, competition, and growth: How do companies enter high-technology fields? Manage processes of research and development? Compete in industries undergoing rapid change? As the articles make clear, companies had to find ways to harness their inventions. Not only did they have to solve technological problems; they also had to navigate systems of regulation and respond to external events, such as war. This special issue of *BHR* highlights the role of individual entrepreneurs in high-tech industries as they tried to maximize the benefits created by new discoveries. It also reveals how making an organizational change, such as forming a new sales division, or a strategic change, such as applying a mathematical theory to managerial decision-making, enabled companies to prosper.

The first three essays discuss the telecommunications industry. Elizabeth Kruse looks at the early history of radio as it emerged from a period in which there were no legal restrictions on the use of the broadcast spectrum to one in which a system of property rights took hold. David Hochfelder explores the partitioning of the telegraph and telephone industries in the late nineteenth century and the adversarial relations between Western Union and AT&T that followed. And Paul Miranti Jr. investigates how Bell Telephone became more competitive by using probability theory to assess its market growth and traffic management operations.

The final two essays examine the computer industry. Atsushi Akera shows how IBM began to service the burgeoning aerospace industry and other high-tech fields after the onset of the cold war by developing an applied science sales force. Henry Chesbrough analyzes the difficulties Xerox had in exploiting the prolific research generated at its PARC facility.

Readers interested in these subjects might also wish to consult our spring 2001 issue, edited by Richard R. John, on computers and communications networks.

## Contributors

*Atsushi Akeru* is assistant professor in the Department of Science and Technology Studies at Rensselaer Polytechnic Institute, where he studies the social and institutional history of American cold war research. He is currently writing a book entitled “Calculating a Natural World: Computers, Scientists and Engineers during the Rise of American Cold War Research.” Among his prior publications are “Voluntarism and the Fruits of Collaboration: The IBM User Group, Share,” published in *Technology and Culture* (October 2001), and “Engineers or Managers? The Systems Analysis of Electronic Data Processing in the Federal Bureaucracy,” which appeared in *Systems, Experts and Computers*, edited by Agatha Hughes and Thomas Hughes (2000).

*Henry Chesbrough* is assistant professor of business administration and Class of 1961 Fellow at Harvard Business School. He received his Ph.D. in business administration from the University of California–Berkeley in business and public policy. He was a recipient of the Robert Noyce memorial fellowship from the Intel Foundation. He also holds an MBA from Stanford University, where he was an Arjay Miller Scholar.

*David Hochfelder* is assistant editor of the Thomas A. Edison Papers, Rutgers University. His teaching and research interests are in the histories of technology and communications and of the Gilded Age and Progressive Era. He is currently under contract with Johns Hopkins University Press to write a history of the American telegraph industry from the 1830s through World War II. A former electrical engineer, he received his Ph.D. in history from Case Western Reserve University in 1999.

*Elizabeth Kruse* received her Ph.D. in economics from the University of Massachusetts at Amherst in 2002. Previously, she worked in the telecommunications industry as an economic forecaster, where she became interested in telecommunications history and policy. Her current research interests are the creation of property rights in the radio spectrum in the United States and, more broadly, the theory and history of institutional change.

*Paul Miranti Jr.* is professor in the Department of Accounting and Information Systems at Rutgers Business School. He previously served as associate dean for faculty at the business school from 1999 to 2002. He

is the author of *Accountancy Comes of Age* (1990) and a coauthor of *A History of Corporate Finance* (1999). He has completed a book, with Stephen Loeb, on the Institute of Accounts, a transitional professional accounting association based in New York during the late nineteenth century. He is also developing a series of articles on corporate learning and the rise of the operations research discipline at the Bell System prior to World War II.