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Book Reviews

All Reviews by Dennis W. Cheek

Cheek, Dennis W. (1992). *Thinking constructively about science, technology and society education*. State University of New York Press, $16.95 (paperback), 262 pp. (ISBN 0-7914-0940-6)

A synthesis of literature and thinking regarding STS education in light of curricular and instructional considerations. The second half of the book marshals a wealth of research in fields far removed from STS education; the author believes this research has utility in forging an appropriate and powerful conception of STS curriculum development and STS instruction.

Ferguson, Eugene S. (1992). *Engineering and the mind's eye*. The MIT Press, $24.95 (paperback), 241 pp. (ISBN 0-262-06147-3)

The author, a distinguished historian of technology at the University of Delaware, argues for a deemphasis of the role of the sciences in engineering practice. Building on a wealth of examples from the Renaissance to the present, Ferguson believes that the earlier emphasis in engineering education on engineering drawing resulted in better and more useful products. He comes full circle to argue that engineers need a working knowledge of the non-quantitative dimensions of their endeavors, and that for the sake of us all, engineering schools should incorporate these elements into their curriculum.

Inkster, Ian (1991). *Science and technology in history: An approach to industrial development*. Rutgers University Press, $50.00 (hardcover), 391 pp. (ISBN 0-8135-1680-3)

For many years, Inkster has probed the interactive dimensions of history, the social sciences, and industrial policy. This volume is a mature reflection on the interactions between science, technology and economic development from the eighteenth century to the present. Its focus is primarily on industrialization in the West, Japan, China, and India. The transfer of technology, technological

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diffusion, and the industrial revolution are discussed within the context of actual case studies of particular technologies.

Israel, Paul (1992). *From machine shop to industrial laboratory: telegraphy and the changing context of American invention, 1830-1920*. The Johns Hopkins University Press, $38.50 (hardcover), 251 pp. (ISBN 0-8018-4379-0)

Using telegraphy as his focus, Israel documents how the rise of engineering science and scientific management transformed cooperative shop invention into the familiar industrial laboratories of the twentieth century. He explodes the myth that telegraphy was most strongly influenced by science, and shows how the mechanical shop tradition and its practices shaped the development of the telegraphy industry. Growing corporate control of inventions by the end of the period under study began to change the relationship and led to the electrical industries of telephony and electric lighting.

Lafollette, Marcel C., Jeffrey K. Stine, Eds. (1991). *Technology and choice: Readings fromTechnology and Culture*. University of Chicago Press, $16.95 (paperback), 341 pp. (ISBN 0-226-46777-5)

Technology and Culture is the official journal of the Society for the History of Technology (SHOT). This volume is a collection of fourteen readings from journal articles that appeared between 1966-1989, built around the general theme of choices that have been made regarding the use of various technologies. Key topics that are addressed within these articles include the regulation of private industry, social acceptance of commercial innovation, negative perceptions of technology, women shaping technology and being shaped by it, and cultural and artistic features of technology.

Marcus, Alan I. & Howard P. Segal (1989). *Technology in America: a brief history*. Harcourt, Brace, and Jovanovich, $12.00 (paperback), 380 pp. (ISBN 0-15-589762-4)

Perhaps the best, brief one-volume introduction to this subject in print. Each chapter concludes with a helpful bibliography for further reading. A multipage index makes referencing easy, and delightful photographs complement the text.

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Mokyr, Joel (1990). *Twenty-five centuries of technological change: An historical survey*. Harwood Academic Publishers, $38.00 (paperback), 142 pp. (ISBN 3-7186-4936-5)

Within a very short compass, this book delivers what it promises, combining technological and economic history in a readable synthesis. The survey spans from classical antiquity to the early twentieth century. A concluding essay considers the "historical roots of technological creativity."

Pacey, Arnold (1992). *The maze of ingenuity: Ideas and idealism in the development of technology*. 2nd ed. The MIT Press, $12.95 (paperback), 306 pp. (ISBN 0-262-66075-X)

From cathedrals to star wars, Pacey looks at the interactions of technologies and society over the last thousand years and uses that survey to argue for a more humane form of future technological development. Particular attention is paid to technological developments within Europe and North America since the period of the Industrial Revolution.

Petroski, Henry (1993). *The evolution of useful things: How everyday artifacts - from forks and pins to paper clips and zippers - came to be as they are*. Alfred A. Knopf, $25.00 (hardcover), 288 pp. (ISBN 0-679-41226-3)

Petroski, a civil engineer at Duke University, is the author of the well-known books *To Engineer is Human, Beyond Engineering*, and *The Pencil*. This last effort does in general, what *The Pencil* did with specificity; explain the ways in which social and technical factors combined have produced the amazing artifacts of our manufactured world. The driving force behind nearly all of these inventions and improvements is the failure of existing devices to live up to their promise. The book is a superb blend of history, design considerations, and the biographies of many of the unsung heroes of the technological world.

Rutherford, F. James & Andrew Ahlgren (1990). *Science for all Americans*. Oxford University Press, $9.95 (paperback), 246 pp. (ISBN 0-19-506771-1)

This is a slightly revised version of the AAAS Project 2061 document of the same name. The book is must reading for all who are concerned with basic questions concerning scientific literacy. A draft of the Project 2061

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Benchmarks for Science Literacy is presently circulating within the educational community. It will outline curriculum standards in line with this document.

Schiffer, Michael Brian (1992). *Technological perspectives on behavioral change*. The University of Arizona Press, $29.95, 168 pp. (ISBN 0-8165-1195-0)

The first book of a new series on culture and technology, this is an anthropological view of technological change. The lens for analysis is the "artifact," an object of study with which archaeologists and anthropologists are long familiar. Case studies in architecture, ceramics, and electronic technology, provide a basis for an anthropological understanding of how human behaviors have changed under technological influence.

Weber, Robert J. (1992). *Forks, phonographs, and hot air balloons: A field guide to inventive thinking*. Oxford University Press, $25.00 (hardcover), 277 pp. (ISBN 0-19-506402-X).

In one of the more unusual books about technology, a psychologist probes questions like how the inventors of the sewing needle, the hammer, and the wheel found their ideas. He ends up finding what he believes are some basic heuristics (rules of thumb) that run across the many inventions that have arisen within history. His "archaeology of the mind" effort sheds light on both how we all problem solve and how we might better use our natural creativity.