Book Reviews

David H. Hopper. (1991). *Technology, Theology, and the Idea of Progress.* Louisville, KY: Westminster/John Knox Press:$14.99, (paperback), 153 pp. (ISBN 0-664-25203-6)

Reviewed by Richard A. Deitrich

Technology, Theology, and the Idea of Progress explores the notion that the idea of progress has itself "progressed." Until the Reformation, the idea of progress was primarily spiritual, otherworldly and theological; now, it is predominantly material, this-worldly, and technological in content.

By referencing an expressive assortment of scholarly works, this book has six strongly framed chapters, each of about 20 pages. The chapter headings are as follows: Has Technology Become Our History?, Technology and the Idea of Progress, Disillusion and Power, Technology and Values, Technology and Theology, Summation and Theological Postscript.

In Chapter 1, Hopper asks "Has technology come to embody our chief values – the things we most want out of life? Does it not, in fact, represent our basic commitment?" He is not questioning America only, but all of Western Civilization.

To gain our affirmation the author cogently discusses several technological events such as the Moon landing, the Challenger and the Chernobyl disasters as well as the critique of public education in the A Nation At Risk report of 1972. His conclusion is that the idea of public education for cultural progress championed by people like Jefferson, Mann and Webster (i.e., education for both private virtue and public citizenship) has been supplanted by the idea of public education for technological progress.

Hopper next discusses the cultural idea of progress in Chapter 2. Early on he states his chapter theme:

> Technology did not give rise to the idea of Progress any more than it established the American republic. It certainly helped to broaden support for the idea of providing an abundance of material goods in the nineteenth century, but the formulation of the idea itself was another matter. (p. 33)

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True to his word, Hopper examines the idea of Progress without allowing technology a casual role. He does this by drawing upon what he calls “the pioneering work” of J.B. Bury in *The Idea of Progress*, published in 1920. In an engaging tour through Bury's work, we are led to the conclusion that it was the European Enlightenment – through men like Fontenelle, Condorcet, and Comte – which bore the idea of cultural progress.

However, we are awakened from nodding approbation to Bury's thesis by confrontation with the thesis of Robert Nisbet in his *History of the Idea of Progress*, published in 1980. This sword-crossing sparks delightful and important analysis as Bury's claim of an Enlightenment birth for the idea is challenged by Nisbet's thesis that the idea of progress is even older than classical antiquity.

To resolve this confrontation Hopper refers to an article by George G. Iggers titled “The Idea of Progress in Historiography and Social Thought Since the Enlightenment.” Iggers reaffirms the Enlightenment nativity of the idea of Progress, but criticizes Bury's study as lacking sufficient account of the social and historical factors.

The replacement of the Enlightenment idea of cultural Progress by the contemporary idea of technological Progress is the focus of Chapter 3, Disillusion and Power. Most of the chapter is spent discussing this replacement through examining the thought of Carl L. Becker concerning Progress and the Enlightenment.

At this point Hopper inserts the theme that disillusionment from World War I and the emergence of science-based technology combined to shift the meaning and spirit of the idea of Progress.

The remaining several pages of this chapter are spent elaborating this theme in a stimulating discussion of works by B.F. Skinner, Marshall McLuhan, Seymour Papert, Sherry Turkle, Langdon Winner, Jacques Ellul, and Lewis Mumford, among others. The author closes Chapter 3 with these questions which serve as heuristics for the last three chapters: “What then has become of Progress when the only form in which we have it is technology?” and, “Whither does the pursuit of power lead when it is no longer centered in a stated social goal?”

Hopper prepares us for addressing the above questions by dealing with values in Chapter 4. We begin by examining Jacob Bronowski's argument that the practice of science (which for him includes technology) establishes the “prime values” of civilization. Next, Lyman White, Jr., contra Bronowski, argues that religious values nurtured the growth and spread of science and technology in the Middle Ages; but White is not clear whether religion sustained them into our present century.

From here, Hopper's examination of technology and values continues with Daniel J. Boorstin's notion of technology-fostered republican values, then to

John Kasson's caution concerning the American difficulty with “civilizing the machine.” The final note on technology and democratic values is sounded by Lewis Mumford who warns that the end of modern technology is “to transfer the attributes of life to the machine and the mechanical collective.”

Finally, this initially unfocused but tightly argued chapter closes with a powerful application of Martin Buber's far-reaching fundamental thesis concerning I-Thou and I-It relationships. Hopper uses Buber's insights to establish a reference point within democratic values with which to critique technology.

Chapter 5 addresses one of the questions which ended the third chapter: “What then has become of Progress when the only form in which we have it is technology?” In his first sentence, Hopper confronts us with White's well-known thesis of Judeo-Christian blame for Western society's “exploitative and abusive attitude toward nature.” We then encounter Thomas S. Derr and Lewis Mumford who attempt to counter White's thesis.

After this opening volley, the central player, Paul Tillich, is introduced. The idea of technological Progress is analyzed by Tillich's penetrating notion that "meaninglessness” is the prime malaise of modernity. He sees technological “progress” as in many ways threatening to human freedom, dignity, and meaning.

The author next compares Tillich's insights, with Moltmann's thought. For Moltmann, an important counterpoint to technological “progress” comes from future potentials which constantly transform present and past social realities into “new beginnings.”

Hopper concludes this chapter by offering his own reading of the situation by asserting:

> The challenge to theology of technology's coming-of-age is for theology to affirm its own proper counterproject of life-in-community...it must speak from an isness and not – as Tillich would have it – from an idealistic “valuating sense of essence” or – with Moltmann – from the perspective of some “final hope” (p. 113).

Chapter 6 develops the theme of life-in-community in the author's Summation and Theological Postscript. Hopper begins by voicing strong convictions about his two thematic questions of Chapter 3 (What has become of Progress? and Where does the pursuit of power lead?).

In answer to the question concerning Progress, Hopper's ironic conclusion is this: when the idea of cultural Progress has been sufficiently replaced by the idea of technological Progress, then a point is reached where there is social regress in the face of naked technological power.

In answer to the question regarding the pursuit of power, Hopper pens a powerful theological postscript. Where *does* the pursuit of power lead when it is no longer centered in a stated social goal? With prophetic rhetoric he warns:

> "Progress" once had a goal in human community; but technology has now claimed "progress" for itself and is leading the community ever closer to global death... Meanwhile, the corporate-technological complex moves on to introduce ever new innovations in pursuit of economic advantages and power (p. 126).

This constructive and thoughtful eleven page postscript is the book's tour de force. In it, Hopper exploits a weakness in the idea of technological "progress" and breaches the wall with Calvin and Barth as field commanders.
The above postscript as well as the copious inclusion of well-integrated materials from within the philosophy of technology genre make this book important reading for technology education.

Womack, James, Jones, Daniel, & Roos, Daniel. (1991). *The machine that changed the world*. New York: Harper-Collins: $12.00, (softcover), 323 pp. (ISBN 0-06-097417-6)

Reviewed by Harvey Fred Walker

The automobile industry may appropriately be characterized as having produced machines "that changed the world." While some changes have been positive and some negative, the impact has been truly global in nature. James Womack, Daniel Jones, Daniel Roos, and others at the Massachusetts Institute of Technology (MIT) formed the International Motor Vehicle Program (IMVP) and engaged in a five-year, five-million dollar research project directed at identifying production factors leading to success in the global automobile manufacturing industry. The goal sought by the IMVP was to synthesize success factors, document their effect on organizational operations, and to develop a strategy guiding production of this machine more efficiently. Previous work by the IMVP toward this goal produced, *The Future of the Automobile* (1984), a book devoted to summarizing research on evolving trends and practices in the automobile industry.

The Machine That Changed the World is a well-written book that highlights comparisons and contrasts among automobile manufacturers. The book is written for a general audience interested in the topic of automobile production. Of particular relevance to the technology educator however, is the time frame and scope of the book. A chronological history of global automotive development and manufacture, from the industrial revolution to the present, provides many useful insights to the technology educator. Among the most important of these insights are discussions of the origins and future of manufacturing technology. In addition to high-school, undergraduate, and graduate educational relevance, technology educators would personally benefit from reviewing this material.

The book identifies "lean production" as a technology that is reshaping automobile manufacturing. While lean production may have originated in Japan under the concept of shared destiny, the authors emphasize that it is no longer confined to Japan.

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Lean production, as an emerging technology, is being adopted at varying rates by automobile and other manufacturers of the world. The driving force behind adoption is the need to provide more product variety at less cost with shorter development cycles. The adoption rate of lean techniques, however, differs from organization to organization and from country to country. Particularly noteworthy is that no one country, Japan included, may be characterized as being totally lean.

Lean production strategy synthesized managerial and manufacturing theories used in industry and academia. Primarily, lean production integrated product design, supply, distribution, manufacturing, accounting, marketing, and management under an umbrella of concurrency. Other related topics were identified and discussed in the book, including political, legal, and social concerns. Ironically, many of the theories comprising lean production are currently a part of technology curricula and technology-teacher preparation. The book suggests that an ideal lean production system consists of all members within the system sharing information and resources in a team-oriented, multi-functional environment. The skills and abilities to share and work in multi-functional teams are key underpinnings and goals of current technology education. The authors discuss how an organization may begin the lengthy process of achieving leanness. The process of achieving leanness could be modeled in technology curricula to increase the effectiveness of student preparation for the realities awaiting them in industry.

In retrospect, *The Machine That Changed the World* provides useful insights into integrated product design, supply, distribution, manufacturing, accounting, marketing, management, and concurrency. The insights are particularly relevant to the technology educator when considering their political, legal, and social ramifications. Technology educators, particularly those responsible for teaching manufacturing concepts, will find this book most useful in updating their understanding of current manufacturing technologies.