
Review

Reviewed Work(s): *Liberation and Control: The Uses of Knowledge and Power* by David Wade Chambers; *Whither Technology?* by Lyndsay Farrall

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acclaim because of its clarity and comprehensiveness and its merits as a scholarly achievement. Its only weaknesses come out of these strengths: the length and attention to source material overwhelm the nonspecialist trying to gain a feel for the Chinese contributions to the sciences and technology. The abridgment is apparently designed to provide the educated reader with the essentials of the story, and it succeeds admirably. The sheer intellectual force of the original is maintained by generous use of illustrations and Colin Ronan's ability to stay close to Needham's excellent expository style.

The specialist would be interested in knowing what was left out, as the "shorter" version is not half as long as the original. Basically, all footnotes and references to sources, other than to primary sources identified in the actual text, have been cut. Discussions of previous historical treatments of the subjects (e.g., the review of Chinese and Japanese histories of mathematics) have also been cut. However, a good short bibliography is provided. The original is characterized by a plethora of examples of every point. Some of the examples have been eliminated, but just about every topic and subtopic of the longer version has been retained.

As in the longer edition, the most remarkable aspect of the work is the great depth of knowledge of both Chinese and Western science and technology. All of the material is presented with extensive comparisons with the West. This makes the book useful even to those interested mostly in Western history. The book's weakness is the continued use of the Wade-Giles romanization system for Chinese, with the addition of the confusing "h" to replace the " ' " aspiration marker. This was perhaps excusable in the original, since the romanization picture was still unsettled in the 1950s, but since then, Pinyin has been adopted by the Chinese as the standard and is used even in newspaper text in the West. Authors in this field should adopt it as well.

JAMES E. TOMAYKO*

Liberation and Control: The Uses of Knowledge and Power. Edited by David Wade Chambers. Knowledge and Power Series. 2 vols. Warun Ponds: Deakin University Press, 1979. Pp. 159+318; illustrations, bibliography. A\$20.00.

Whither Technology? Edited by Lyndsay Farrall. Knowledge and Power Series. Warun Ponds: Deakin University Press, 1979. Pp. 135; illustrations, bibliography. A\$10.00.

Deakin University in Geelong, a satellite industrial town outside Melbourne, is on the periphery of the periphery. But in the develop-

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ment of teaching materials in the science, technology, and society field, it must be viewed as the center. The university is something of an amalgam of the "redbrick" and "Open University" styles, with its interdisciplinary orientation and commitment to develop "distance education" courses. With Fred Jevons as vice chancellor, there was an early recognition of the special contribution STS studies could make, and a course team was created under the chairmanship of David Wade Chambers, a pioneer in educational innovations in this area. Chambers had been responsible for the creation of an elaborate modular teaching program in the Collaborative Studies in Science and Human Affairs Unit at McGill and Sir George Williams Universities, Montreal, in advance of the SISCON and Open University materials in this field.

The Knowledge and Power team at Deakin has, to date, produced ten teaching volumes. Together they constitute a decidedly introductory-level course designed to be covered in twenty-six weeks by students who, for the most part, will be specializing in other areas of study. While each unit is free-standing and can be used alone, the course team members suggest a sequence, the final two of which are reviewed here.

Each unit has three elements: a teaching guide which leads the student through the topic, pausing regularly to direct him or her to a reading or to an assignment; a substantial anthology of supportive extracts; and an answer guide which offers a variety of suggested responses to the questions raised in the first section. All the volumes are lavishly illustrated, with imaginative layouts, and are intermixed with notes, quotations, and poems. However, they are marred by some sloppy proofreading.

The pedagogical philosophy of the team leads them to make a clear statement of their bias and to encourage students to be conscious of the intellectual dispositions of all the authors they read. Generally, the Knowledge and Power Series authors espouse a critical and participatory technology "line" along with something of a strong program approach to the social construction of knowledge, although the vigor with which they proselytize varies. Nevertheless, a "fair go" is given to all points of view.

Whither Technology? has four sections: "Giant Corporations: Technology in American Industry"; "Technology and Politics"; "Global Futures: The Limits to Growth"; and "Underdevelopment, Development and Technology." The first two were prepared by Lyndsay Farrall, the third by Fred Jevons, and the final one by Robert Waddell. The discussion is centered around J. K. Galbraith's *New Industrial State*, David Dickson's *Alternative Technology and the Politics of Technical Change*, and D. Meadows et al., *The Limits to Growth*. These are supplemented by twenty-one extracts, printed in the unit, which develop the historical precursors to, and more recent developments in, the debates being examined. Some might say the major readings are dated; others would call them classical statements. My experience

is that today's students have never heard of them. How quickly we grow old.

Liberation and Control: The Uses of Knowledge and Power has two volumes: the first contains the study and answer guides, and the second is an anthology of eighty-two readings. The study guide has three sections: "The Ends of Progress" by Chris Ryan and Chambers; "An Energetic Debate: Case Study of the Uranium Mining Controversy" by Jim Falk; and "Risking the Future," dealing with risk assessment, by Richard Gillespie. These are beautiful volumes, with about seventy poems relating to the topics covered. The message that the text delivers is put best by John Henry on page 57: "John Henry told his captain, / 'A man ain't nuthin' but a man, / But before that steam drill beat me down, / I'll die with my hammer in my hand, Lawd, Lawd, / I'll die with my hammer in my hand!'"

Another reviewer (Melvin Kranzberg, *Isis* 73 [1982] 2: 291–92) has expressed concern at the absence of reading selections by professional historians of science or technology, asking: "Don't we have anything to offer?" Some of the preceding units (esp. *On the Social Analysis of Science, On the Philosophical Analysis of Science, Puzzles and Revolutions*) make significant use of readings which are the work of professional historians of science and technology. The point is, of course, that the authors of the texts are themselves professional historians of science applying their skills to selecting and collating contemporary materials and analyzing current issues. The lack of consensus about what constitutes the appropriate dimensions and fundamental knowledge base in the history, philosophy, and social studies of science and technology (including our inability to arrive at a satisfactory name) means that attempts at developing teaching texts will probably be met with limited acceptance. Nevertheless, the two reviewed here make significant contributions and should be considered by everyone teaching in the area.

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The Imaginary Witness: The Critical Theory of Herbert Marcuse. By Morton Schoolman. New York: Free Press, 1980. Pp. xv+399. \$19.95.

Just when some may have thought 1960s antitechnology radicalism was all but dead, along comes this major scholarly study to attempt to breathe new (academic?) life into it. This is more than a study of the intellectual development of the radical social philosopher and New Left ideologue Herbert Marcuse; in the course of his analysis,

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