BOOK REVIEWS

DIGITAL IMAGING: CLINICAL ADVANCES IN NUCLEAR MEDICINE. P. D. Esser (ed). New York, NY, Society of Nuclear Medicine, 1983, 304 pp, $25.00 members; $35.00 nonmembers

This book is a compilation of 26 papers from the 1982 Symposium of the Computer and Instrumentation Councils of The Society of Nuclear Medicine. Each paper describes some aspect of digital imaging and discusses recent advances that have occurred over the last several years in this area of rapid growth and increasing technological sophistication. The book is organized into four main sections: "Digital Imaging Technology," "Digital Radiography," "Advances in Nuclear Medicine Data Processing and Instrumentation," and "Advances in Clinical Nuclear Medicine."

The first section covers the internal architecture and design of digital systems, the technical aspects of an optical mass memory, human visual perception, networking and data management systems, and includes a discussion of the requirements of a radiological science group to manage the technology.

The second section deals with digital subtraction angiography and begins with a basic overview of the subject. It includes discussions of image enhancement and of kinetic parameters generated from time-density curves and their potential application to renal function.

The third section covers nuclear medicine data processing and instrumentation. Included are papers on image filtering, a computer-simulated cardiac model for quality control, and the use of array processors for cardiac imaging. Also, in this section there are discussions of programming languages, advanced computer systems, and single photon emission computerized tomography.

The last section is devoted to clinical advances in nuclear medicine. There are several works on cardiac applications covering basic indices of ventricular function, applications of functional imaging, interpolative background correction, automated methods of ventricular wall motion analysis, and quantitative thallium scintigraphy. Also included in this section are papers on single photon emission computerized tomography of the liver, on functional imaging of brain blood flow, and on imaging of the respiratory cycle, and pulmonary functional imaging using krypton-81m.

The book can be recommended to those who wish an update of current work in the field of digital imaging. The chapters run the gamut from practical to philosophical and from basic applications to future esoteric—so there should be something of interest in this book for everyone.

The book probably delivers a well-rounded summary of the current status of digital imaging, but this is an unfocused area of development, which may be frustrating to those looking for clear answers. The field seems almost to be an explosion of high-technology solutions searching for clinical problems and fostering a subculture of those trying to solve the technical problems created by the new technology. They say it is here to stay and it is progress.

DENNY D. WATSON
University of Virginia
Charlottesville, Virginia

NUCLEAR POWER IN AMERICAN THOUGHT, DECISION BOOKSHELF, VOLUME 8. Washington, D.C., Edison Electric Institute, 1980, 84 pp, $2.50, softcover

This book is one of a series on energy-related topics published by the Edison Electric Institute. It consists of four essays discussing the role of nuclear power and controversies surrounding this energy source in America. Unlike most publications on this subject, however, it does not focus on technical issues. The authors include a political scientist, a psychiatrist, and two philosophers, each of whom has established credentials in their field. It is the premise of this book that nontechnical considerations, including ethics, psychology, history, philosophy, politics, and similar humanistic concerns are major issues in the nuclear debate, and these areas are the focus of this book.

In the first essay, "Nuclear Power and Nature: Intellectuals and Engineers," political scientist Andrew Hacker identifies the current controversy over nuclear power as part of an ongoing debate in this country between intellectuals and engineers over the role of technology in our society. He traces this debate to the early days of this country. The principal protogonists at that time were Jefferson, who argued for a rural America, and Hamilton, who favored an industrialized nation. Jefferson's arguments were based on the supposed "moral superiority" of an agrarian lifestyle, whereas Hamilton saw industrialization as the pathway to fulfilling human material needs. The debate eventually was "won" by Hamilton, with the subsequent development of highly industrialized America. Hacker contends that the debate continues today, with antinuclear activities raising the same "moral arguments" against nuclear technology, and in favor of more "natural" sources (solar, wind, etc.) as were first raised by Jefferson. The essay also includes a review of statistics showing the effect of technological development on the changing distributions of occupations and increasing level of education in this country. Hacker notes the irony that the educational and occupational opportunities of "antitechnological" intellectuals were made possible largely by technological achievements of their engineering predecessors in this country.

In the second essay, "Nuclear Phobia: Phobic Thinking about Nuclear Power," psychiatrist Robert DuPont reviews the history of public and media reactions to nuclear power, focusing his attention on the Three Mile Island incident. DuPont defines a phobia as "a fear based on exaggerated, unrealistic danger." Phobic fear is expressed by an endless series of "what if" questions, in which the most frightening consequences of failure or accident are the foci of concern, without regard to actual probabilities and realities.

DuPont characterizes current public thinking about radiation risks as one of phobic fear. He is especially harsh on the media and its treatment of the Three Mile Island incident for promoting this phobia. He feels, however, that the phobia eventually will subside, when the "what ifs" fail to materialize, and when the public comes to recognize and accept the risks of nuclear power in the same context as other, more "familiar" risks of living in a technological society. DuPont notes that greater public familiarity with nuclear technology (e.g., public tours of nuclear-related facilities) will speed this process.