

work that would let him examine the technique, its cost, limitations, and the other factors needed to determine whether or not a potential application is really feasible.

The first part of the book, covering 7 chapters and 127 pages, provides some basic material on radioisotopes, their physiological effect, etc. There is nothing particularly unique in this section, as compared to similar sections in many other books already available. Part II of the book describes 261 applications. Since only 133 pages are used to describe these 261 applications, it is clear that most of the descriptions are very brief. The book has a number of illustrations of some interest to American readers, since they show European devices. Almost all of the instruments shown are, of course, from Phillips.

For some reason not understandable to this reviewer, the author has included 12 color illustrations of an individual who suffered a fatal radiation exposure at Los Alamos during a criticality accident. The pictures are under the heading, "Physiological Effects of Ionizing Radiation." As the author mentions, the pictures don't portray the effect of an accident from misuse of radioisotopes in an industrial application, and as far as I know there have been no fatal exposures from radioisotope applications. It seems to me that the pictures are frightening and completely inappropriate.

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#### A FAST-MOVING TARGET IS MISSED

*Title* The Economics of Nuclear Power

*Author* J. A. Hasson

*Publisher* Longmans, Green and Co. Ltd., 1965

*Pages* viii + 160

*Price* \$7.00

*Reviewer* Charles H. Keenan

We will try to be impartial in our review, even though Dr. Hasson lists Yankee as a B W R.

The Economics of Nuclear Power by J. A. Hasson is an intellectual approach to the development of methods for the analysis of the economics of nuclear power costs. The author presents a number of computer techniques for the analysis of nuclear power costs that could be useful in governmental planning. However, from the standpoint of an American reactor operator, the book appears to have little practical value.

The rapid progress of nuclear power techniques has bypassed most of the author's assumptions and unknown factors. For example, the author states "that future nuclear power costs can not be assessed with any degree of measurable probability," and then the author uses the Shippingport Plant figures of 56 mill/kWh as the basis of his calculations. This is rather unfair, since Shippingport was built to prove pressurized-water techniques and to train personnel. It never was intended to be an economic guide post. Today, January 1966 (rather than the author's information of 1962-1964), it is known that in the United States a 500 MW(e) station can be constructed that will generate power at a cost of 5 to 6 mill/kWh. It is also clear that the trend of nuclear power cost in the United States is definitely downward with the only unknown factor being the rate of the trend.

The author spends a great deal of time on the evaluation of government subsidies of nuclear power. Currently, with the amendment of the Atomic Energy Act permitting private ownership in the United States and the apparent end of the AEC Light-Water Reactor Development Program, the United States nuclear power industry is more on its own. Decisions on the construction of nuclear plants are now based on economic factors only, and the individual utility analyzes these factors through the use of standard time-proven procedures.

As an indication of demonstrated reliability and generation, the Dresden Reactor had produced more than 5 BkWh by November 1965, the largest amount from any reactor in the world. The Yankee plant has generated over 5 BkWh at average costs of just under 10 mill/kWh and monthly costs as low as 6.97 mill/kWh.

Nuclear power is certainly a fast-moving target in the 1960's.

*Charles H. Keenan is Vice President of the Yankee Atomic Electric Company. He has been associated with the New England Power Service Company in purchasing, loaned to MIT Radiation Laboratory for administration in Project Cadillac, and later was Assistant Executive Officer for the Committee on Project Research and Inventions at Princeton University. In 1949, he joined the Brookhaven National Laboratory Staff as Administrative Officer for the Cosmotron Project and later served as Purchasing Agent. In 1958, he returned to the utility business as Assistant Vice President of Yankee. He received an AB degree (1937) from the College of the Holy Cross.*

#### PRESTIGE, PROFIT, OR PROFESSORIAL PREDILECTION?

*Title* A Textbook of Nuclear Physics

*Author* C. M. H. Smith

*Publisher* Pergamon Press, 1965

*Pages* xiv + 822

*Price* \$15.00

*Reviewer* David D. Clark