concerned with liquid metal cooled reactor systems, due to the complication and expense involved. The six appendices give information on steam cycles, Mollier charts, elementary thermodynamics, and turbine characteristics which should be familiar to the well informed college junior majoring in mechanical engineering.

The monograph suffers from attempting to survey a large and important field in a few brief pages. When the author is dealing in a subject with which he is familiar, graphite moderated gas cooled reactors, his presentation is succinct although somewhat superficial. His presentation of steam cycle engineering situations outside the scope of this reactor system should be disregarded.

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Radiation Biophysics. By Howard L. Andrews. Prentice-Hall, Englewood Cliffs, New Jersey, 1961. 328 pp., 105 illustrations, $11.35.

Howard L. Andrews is author of other books and many articles about the biological effects of radiation. As Radiation Safety Officer, National Institutes of Health, and Executive Secretary of the Biological Effects of Atomic Radiation Committee, National Academy of Sciences, he is eminently qualified to write on the subject of radiation biophysics.

In his most recent book, *Radiation Biophysics* he offers a unified account of the physical principles, chemical action, and biological effects of ionizing radiation. Andrews begins with the structure of the atom and proceeds to discuss the various kinds of radiations and how they are produced, the interaction of radiation with matter, methods of dosimetry, chemical effects of radiation, effects on macromolecules, effects on cells, clinicopathological effects, and health protection. Problems and bibliographic references are included at the end of each chapter, and tables of useful physical constants and biological data are appended at the back of the book. Helpful diagrams, formulas, working graphs, and illustrative examples are used generously throughout, and the subjects covered are listed in an inclusive index.

The author's terse, lucid, and engaging style should make the book intelligible to a wide audience of nonspecialized readers. Since, however, none of the subjects is treated exhaustively, the volume should be more useful as a guide to students and others wishing to survey the field of radiation biophysics, than as a reference book for workers in radiobiology, radiology, health physics, and related disciplines. Nevertheless, an unusually broad range of questions is covered coherently and concisely, without sacrifice of objectivity or timeliness, and with creditable accuracy. One might only wish that the author's skill would be applied to an expanded treatment of the same material in later editions.

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Nuclear Reactor Theory. By J. J. Syrett. Simmons-Boardman, New York. 76 pp. $1.95.

This work is a very brief treatment of the subject of reactor theory originally published by Temple Press Limited in 1958 as one of several monographs on nuclear engineering. The material in this monograph was developed from lectures presented by the author to students of engineering and physics at the University of Manchester. The author is a member of the Reactor Division of the Atomic Energy Research Establishment, Harwell.

The expressed purpose of the monograph is to provide an outline of the physics of nuclear reactor design for the benefit of the nonspecialist in the field. It was the author's intent to achieve a light treatment at low cost. Knowledge of elementary calculus and nuclear physics is assumed. The treatment introduces the essential physical concepts and ideas by brief descriptions and discussion, with some use of mathematical analysis to develop the more complicated notions. Concepts and methods used in the reactor theory which were drawn from other areas of physics and analysis are introduced with a simple reference to a classical source.

The text includes chapters on: nuclear chain reactions, diffusion of thermal neutrons, slowing down of neutrons, the calculation of critical size, lattice calculations, reactor operation at power, and types of reactors and fuel cycles. The first four chapters (47 pages), in the order mentioned, are general treatments, with an occasional reference to the relevant properties of natural uranium and graphite systems. In the last three chapters, emphasis is placed on the detailed characteristics of heterogeneous, uranium–graphite, gas-cooled power reactors of the type developed for power stations in the United Kingdom. The individual chapters are divided into sections (varying from 5 to 15), some so brief as to consist of only a few sentences; thus, descriptive passages tend to be extremely short. Many working formulas (relevant to uranium–graphite systems) and recipes are reported.

Of these seven chapters the ones on diffusion and criticality are the most satisfactory. The ideas are developed systematically and the various sections are nicely related. The use of mathematical tools are prevalent here, and this aids in achieving continuity and completeness. The chapter on lattice calculations is very short and involves almost no