tion." The chapter on radiation effects and radiation measurement contains sections on ionization, luminescence, photographic effects, discoloration and extinction, and photoconductivity. X-ray, fast-electron, and γ- and β-dosimetry are discussed in the chapter on dosimetry, together with dosimetry of internal isotopes and neutrons. The chapter on radiation protection includes a section on the rather standard health physics problems as well as a section on raising radiation resistance of biological systems by chemical means. Under diagnosis and therapy, there is a discussion of conventional x-ray therapy as well as therapy with ultrahard x-rays, electrons, and some heavy particles. There are also basic chapters on radiation and matter, and on the production and characteristics of x-rays. The final chapter treats the application of radioactive isotopes in medicine and biology, including radioactive indicators and isotope therapy.

It is interesting to note that this book discusses the concept of "ion dose" which is used in Germany, but not in many other countries. Several references are made to recent reports by the International Commission on Radiological Units and Measurements (ICRU), which do not include this concept. ("Ion dose" is defined in reports of the German standards committee on radiology.) The book includes a good but brief discussion of the similarities and differences between "ion dose" and "exposure" as defined by ICRU.

The book is well illustrated with pertinent photographic material. The numerous graphs and tables are intended to give a concept of the magnitudes of the physical quantities discussed, and they are likely to be valuable for the reader's own scientific work as well. A number of the concepts presented in the body of the book are amplified and, in some cases, derived in the 70-page appendix, which also contains supplementary formulas and sample calculations. In addition, there are seven pages of English-to-German translations of technical terms.

The bibliography, with 1000 references, is conveniently and usefully organized according to subjects. There is a subject as well as an author index.

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Feldafing Summer School

Circadian Clocks. Proceedings of the Feldafing Summer School, September 1964. Jürgen Aschoff, Ed. North-Holland, Amsterdam, 1965. xx + 479 pp. Illus. $15.

Looking for an expensive new conversation piece? If most of your colleagues are nonbiologists, then this volume, with its whimsical jacket motif of Disneyesque rodents meditating on an hour-glass and its stark title *Circadian Clocks*, is just the thing to brighten up your coffee table.

The initiated may also find some delights within, especially the thoughtful essays by Victor Bruce on the significance of mitotic rhythms *vis à vis* circadian rhythms, by Ludger Rensing on ontogenetic timing and circadian rhythms, by Felix Strumwasser on circadian rhythms in a single neuron, and by J. W. Hastings and Alex Kenyan on some molecular aspects of circadian systems.

One of the most valuable contributions is the short "circadian vocabulary" compiled by Aschoff, Klotter, and Wever; still it is somewhat surprising to find that such fundamental hardware as *clock, calendar*, and *escapement* are not in the list. About the remainder, one may say that the old war horses wrote dutiful papers, that for the most part they "belong" and are fit to be consulted here like so many miscellaneous entries in an unabridged collection. But because of this, the biologist who has grown accustomed to the novelty and the richness in the display of critical issues in the earlier Gatlinburg and Cold Spring Harbor volumes and who knows his Bünning (*The Physiological Clock*, 1964), with its singular verve and broad scholarship, will feel somewhat cheated. In view of the summer school's stated aim to stimulate students, one also asks where (apart from a few already cited) were all the bright Young Turks? Discussions after the papers would have been most helpful, else these papers could as well have been published in the open literature (and some in more expanded and advanced form have already been so published!). Time for a new journal?

The editor deserves credit for holding down the number of typographical errors of the sort that one expects in a work such as this in which French and German papers have been translated into English. More disturbing than the errors is the poor quality of the reproduction of graphs and figures—some are reduced in size to the point of illegibility. All things considered, especially the volume's high cost and its small quantity of new information, the heuristic intent of the Feldafing Summer School might have been better accomplished had its faculty invited an editor who is familiar with popular science writing to sit in—perhaps someone from the *Scientific American* or the *Life Science Library* series. At this stage of the game, we should all have profited from such a volume, professionals, old prophets, and proselytes alike.

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Mathematics

Functional Analysis. Albert Wilansky. Blaisdell (Ginn), New York, 1964. xviii + 291 pp. Illus. $9.50.

Functional analysis, which entered adolescence with the publication of F. Riesz's classic book in 1913 and began adulthood with the appearances of Banach's treatise (1931 and 1932), is now in a portly and fatherly, but still active and occasionally nimble, middle age. In this setting Wilansky's book may be regarded as a careful and expertly organized primer designed to instruct the grandchildren, newcomers to the family, and interested visitors in elements of the household's organization and accomplishments. "Primer" is not pejorative here; this text is an excellent introduction, with its only prerequisite a modest amount of advanced calculus and its intention that of serving seniors and beginning graduate students.

The first eight chapters, totaling 135 pages and ending with Banach and Hilbert spaces, deal only with linear spaces having metric topologies; they form an excellent introduction to such spaces for anyone who does not wish to tackle Bourbaki, or Dunford and Schwartz, or Kelley and Namioka. The remaining six chapters are less classical; they begin with nets and end with local convexity, duality, and Banach algebras. The "three fundamental principles of functional analysis"—Hahn-Banach, uniform boundedness, and the closed graph theorem—occur on pages