Becker, Gerry Pomraning, and Weston Stacey in their number, three still young but already distinguished contributors to a deep-welling mainstream of mathematical physics.

Jeffery Lewins

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About the Reviewer: Jeffery Lewins drank at MIT's well in the late 50's, after quite dissimilar employment with the British Army in Korea. He notes the claim of military *engineering (the second oldest profession?) to predate civil, nuclear, or any other form of engineering. The attempt of MIT to turn him into an experimentalist having been one of those better experiments that are valuable for having gone wrong, he returned to military life confident in finding plenty of paper for the theoretician if he could carry around his own supply of pencils in his knapsack. Fifteen years later, after excursions to Germany, the University of Washington, Scotland, and other foreign postings, he returned to London. Here he is again attempting the impossible feat of combining academic study with active service; this time the field of operations—not a battlefield he hastens, in an unquiet age, to add,—is a men and women's student residence for the University where he is Warden, and some peripatetic lecturing in engineering topics around the colleges of the University. The pencil is still there, though in putting down roots (or at least in becoming stationary) it has grown itself a digital and an analog computer; the abiding love of the variational method is there too whenever he can persuade an audience to listen to him.*

Topics in Radiation Dosimetry (Radiation Dosimetry, Supplement 1). Edited by F. H. Attix. Academic Press, New York (1974). 556 pp. $28.00.

This volume is the first in a projected series of supplements to the three-volume second edition of *Radiation Dosimetry*. Additional supplements are to be issued from time to time, as the need arises to update and augment the second edition. It is the desire of the editor and publisher that the second edition of *Radiation Dosimetry*, together with the supplements, provide the most comprehensive reference source available in radiation dosimetry.

Supplement 1, which is 556 pages in length, contains eight chapters, written by different authors. Four chapters cover special topics in dosimetry. M. J. Aitken and S. J. Fleming describe the interesting field of thermoluminescence dosimetry use in archeological dating. They treat the subject in 74 pages of text with 36 figures and four pages of references. The basic principles are explained, and measurement techniques are described. Glow-curve data from a number of samples, including forgeries, are shown and analyzed. J. R. Greening discusses the dosimetry of low-energy x rays—those generated at potential differences of <100 keV and particularly at <50 keV. Measurement of energy fluence, exposure, and absorbed dose are treated. D. Nachtigall and G. Burger cover the use of moderator methods in the determination of dose equivalent in neutron fields. They discuss REM counter techniques, monitor techniques, neutron spectrometry, and instrument calibration. E. Piesch contributes a chapter on radiophotoluminescence dosimetry. His article supplements the basic introductory contribution of J. F. Fowler and F. H. Attix in Volume II of the second edition of *Radiation Dosimetry* and updates the literature. Recent advances in understanding the physics of radiophotoluminescence, particularly as they affect personnel dosimetry, are emphasized.

Three chapters cover special measurement techniques and instrumentation. Klaus Becker presents a comprehensive review of dosimetric applications of track etching. He summarizes procedures for etching materials and counting tracks. Special sections of the chapter are devoted to the use of fission-fragment as well as alpha-particle and recoil-nuclei registration in neutron dosimetry. The article provides a good review of these new techniques and their application to neutron dosimetry. Ten pages of references, principally newer ones, are included. T. E. Burlin discusses vacuum chambers and their use in making radiation measurements. He treats the fundamental processes of electron energy loss, secondary electron energy-angle spectra, and electron slowing-down spectra and develops Greening's theory of the vacuum chamber. The chapter includes sections devoted to the use of vacuum chambers as dosimeters, electron-beam monitors, and energy spectrometers as well as their use for pulse measurements and for interface dosimetry. William A. Glass and William A. Gross contribute a chapter on wall-less detectors. Their use in microdosimetry is based on the need to avoid distortion in the registration of energy-loss events that occur in dual-density systems, such as a solid that contains a gas cavity. Although the design and use of wall-less counters is perhaps not of great practical consequence in the daily business of dosimetry, it is nevertheless related directly to our fundamental understanding of the physics of energy deposition by ionizing radiation.

The remaining chapter, by R. Katz, S. C. Sharma, and M. Homayoonfar, is entitled "The Structure of Particle Tracks." The title is somewhat misleading, since the article is not devoted to this subject *per se*. Except for a very brief description of the delta-ray theory of track structure, which forms the basis of the models developed by Katz and his coworkers, most of the article is devoted to the predicted responses of chemical and biological systems. The chapter provides a comprehensive review of the contributions to dosimetry and radiation biology made by Katz and his collaborators.

The above summary briefly describes the contents of *Topics in Radiation Dosimetry*. Consistent with the three volumes of the second edition of *Radiation Dosimetry* (and the first edition by Hine and Brownell!), the contributions in this first supplement are first class. They are interesting and authoritative, having been written by investigators who have significantly advanced the specialities about which they write. This reviewer recommends this volume to readers of *Nuclear Science and Engineering* who have more than a superficial interest in radiation dosimetry. Based on the quality of this first supplement, he eagerly awaits the second!

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About the Reviewer: James Turner is associate director of the Health Physics Division of Oak Ridge National Laboratory where he has been stationed for more than a decade. Since completion of his graduate studies at Vanderbilt, Turner has acquired much experience in personnel dosimetry. We welcome him again to these columns.