of the role of central receptors in temperature regulation.

The important metabolic role of adipose tissue is completely ignored in the chapter on body weight, and this chapter needs extensive revision to prevent students being left with the dated notion that fat is an inert depot.

Because undergraduate students are not familiar enough with some of the clinical illustrations used in the latter half of the book, these illustrations will not be helpful.

The important concept of homeostasis is often inadequately presented to undergraduate students of biology. With guidance from an instructor who utilizes the best parts of this volume, homeostatic mechanisms can be presented in an interesting fashion. A revised volume based on experience with the present one should prove even more useful.

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The Collected Works of Lord Rutherford

The two previously published volumes of the collected works of Lord Rutherford describe his activity from the beginning of his career to his removal to the Cavendish Laboratory in Cambridge. This volume, **The Collected Papers of Lord Rutherford of Nelson**, vol. 3, *Cambridge* [Interscience (Wiley), New York, 1965. 428 pp., $15], covers the period at Cambridge University. All three volumes were published under the direction of Sir James Chadwick.

Rutherford, for all his self-confidence, may have thought sometimes that his predecessors were Maxwell, Rayleigh, and J. J. Thomson; the latter, in fact, was physically present in the laboratory and outlived Rutherford. The tradition was thus glorious but not easy to continue or to improve. However, Rutherford, 48 years old when he arrived in Cambridge, and at the peak of his powers, was no person to look at the past of his new laboratory. If anything he might have thought of his own incomparable achievements at Manchester.

Appropriately, the volume opens with a reproduction of the famous Bakerian Lecture of 1920, which reviews the past achievements mainly from the Manchester period, describes the continuation of disintegration experiments at Cambridge, and proposes some interesting new ideas and speculations, which were present to Chadwick's mind at the time of the discovery of the neutron.

The papers that follow describe early disintegration work in the spirit of, and with techniques similar to those used in, Manchester. On page 136, we find for the first time, in a paper dated April 1925, the word "proton." We also see the increasing prominence of some of Lord Rutherford's great pupils —for example, Chadwick and Blackett. By 1930, the techniques have begun to change: the linear amplifier of Wynn Williams and Ward, the accelerator of Cockcroft and Walton appear. New faces are seen every year in the group pictures of "Cavendish Research Students" reproduced in the volume; but the hard core of the lab staff does not change, and in the first row we find, for example, in 1932, the year of the discovery of the neutron, J. A. Ratcliffe, P. Kapitza, R. Ladenberg, Professor Sir J. J. Thomson, Professor Lord Rutherford, Professor C. T. R. Wilson, F. W. Aston, C. D. Ellis, P. M. S. Blackett, and J. D. Cockcroft. Anybody who has visited the Cavendish Laboratory will not be surprised that in almost all papers Mr. Crowe is thanked for his technical assistance. Other pictures show a pleasant reunion with some older pupils and friends such as Hahn, Geiger, Hevesy, and Meitner. The picture of the Solvay Conference of 1933 shows most of the protagonists of the post-Rutherford era.

The later papers in the volume, to 1937, the year of Lord Rutherford's nearly sudden death, are concerned with the clarification of the early work on transmutation of light elements. Particularly interesting is the riddle of hydrogen-3 and helium-3, both produced by the D-D reaction. Lord Rutherford did not live to see which one was stable.

The volume is a worthy companion of the first two. It completes the republication of the scientific papers. A fourth volume, which will complete the work, will contain nonscientific addresses, indexes, and other similar material.

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History of Science

How many scholars are willing to admit in print that they had fun working on a book? Marjorie Hope Nicolson says it frankly in the preface to her book, **Pepys' Diary and the New Science** (University Press of Virginia, Charlottesville, 1965. 206 pp., $5), and her readers will share her fun.

Ever since the publication of *Lady Conway's Letters* (1930), and despite heavy administrative duties at Smith College and Columbia University, Miss Nicolson has utilized, in book after book, her mastery of English literature and the world of the later Stuarts. She has been in the forefront of those noting the interactions of the new science of the 17th century on English thought and expression. In this volume, Miss Nicolson, who is now at the Institute for Advanced Studies in Princeton, presents the Page-Barbour Foundation lectures that she gave at the University of Virginia in 1965.

Richly supported by primary material Miss Nicolson writes successive chapters on Samuel Pepys, amateur of science, on the first blood transfusions, and "Mad Madge" and "The Wits." In an appendix she adds a vivid account of Pepys, Sir William Petty, and the "Double Bottom," Petty's scheme for a new kind of ship. Her account of the blood transfusions is notably lucid and full from the point of view of both Pepys and his contemporaries. Throughout the book quotations from ballads, letters poetry, and even doggerel are interwoven with excerpts from the *Diary*. As the latter covers only the years from 1660 to the end of May 1669, she had to use other contemporary records for Pepys' later years. Her emphasis, however, is on that first formative decade of the Royal Society with its assembly of lovers of science, truly amateurs, and the few genuine scientists of that time. She moves among the records of these people with the familiarity gained from years of association with them in her work. Indeed, her zest for the period guides the reader through her narrative with the ease and charm of a hostess introducing a guest to her friends and, as she does so, acquainting him with the reasons for their presence there.

A minor regret is that in issuing the lectures in book form the author has not curtailed the use of a device which her audiences may have wel-

comed but which her reader, well provided with an index, finds wearisome in its reiteration—that of saying "as we shall see later," or "which I shall discuss in another connection," or some similar variant. Whereas these may have whetted the appetite of her audience, to her reader their frequent use is a bit wearing.

Those who know Miss Nicolson's work already will welcome this book, as will all lovers of Pepys' *Diary*. Scholars will find useful not only her footnote record of her research but also her occasional suggestion about where additional work is needed to do justice to some hitherto neglected phase or person in that lively period. Scientists should enjoy reading about the difficulties and the endeavors of their forerunners in the development of the new science. May Miss Nicolson long continue to delight us in further studies with her wit and her scholarship.

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Electron Microscopy

In the spring of 1964 a symposium on quantitative electron microscopy was held at the Armed Forces Institute of Pathology, Washington, D.C. As a result, the participants wrote 50 articles that were published in *Laboratory Investigation* [**14**, pp. 739 to 1340 (1965)]. The same articles form pages 1 to 602 of this book, **Quantitative Electron Microscopy** (Williams and Wilkins, Baltimore, 1965. 615 pp., $12.50), edited by Gunter F. Bahr and Elmar H. Zeitler; I wonder if once around wasn't quite enough? I am not particularly plagued by this offering, some parts of which are thorough, interesting, and well done, or combinations thereof, but by the general concept, "Let's have a symposium! Bring your chapter."

My dyspepsia is real and warranted, having been fed a potpourri called Physics of Image Formation (11 articles), Quantitative Evaluation of Electron Micrographs (15 articles), Chemical Information from Electron Micrographs (4 articles), Negative Staining (3 articles), Adverse Effects of the Electron Beam Limiting Interpretation and Evaluation of Electron Micrography (9 articles), Effects of the Preparation Procedure on the Appearance of the Object in Electron Micrographs (7 articles), and Photography in Electron Microscopy (2 articles).

The quality of the offerings is quite different, but there is just about a chapter for everybody including the morphologist who, by this book, is being made "aware that the information he receives from his pictures is largely dependent on the technical aspects of electron microscopy." What the morphologist obviously needs is a bit of the plasma concept, some plural scattering theory, an equal part of dielectric constant, and eight aberration coefficients that can be reduced to a form

$$z = -R + \frac{x^2}{2R}\left(1 - \frac{C_a}{R}\right) + \frac{y^2}{2R}\left(1 + \frac{C_a}{R}\right) + \left(\frac{1}{8R^3} + \frac{C_s}{4R^4}\right)(x^2 + y^2)^2$$

which "contains only 2 parameters—and not the six other degrees of freedom. . . ." The trouble is that if you can derive plural scattering mathematically, you don't know what a cytosome is. Perhaps the physicist should read Trump and Ericson's excellent chapter on fixation of biological material.

The purpose of the symposium (and of this book) was to define the state of quantitative techniques in electron microscopy. The readers can easily determine the state and the fact that the book is misnamed. You can aggregate and count particles, determine magnification, statistically analyze size distributions, shadow cast, be concerned with contrast or dry mass, or attempt rather primitively to obtain quantitative data from qualitative, largely two-dimensioned micrographs. Even though we consider the book as a whole and accept the fact that each author is serious in his efforts, the volume doesn't hold together intellectually. Luckily, the reader can pay his money or take his choice.

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Biochemistry

During the past decade interest in clinical enzymology has accelerated greatly. In fact it has almost become predictable that any enzyme present in one or more tissues will be searched for and, if found, studied in the serum. Although only several enzyme determinations, such as amylase and the phosphatases, are routinely available in most hospital laboratories, well over two score enzymes of clinical interest have been described. Therefore, a book like **Practical Clinical Enzymology** (Van Nostrand, Princeton, N.J., 1965. 363 pp., $12.50), by J. King, is a valuable reference source for workers who are interested in setting up a particular enzyme method and for individuals who wish to review the literature concerning the clinical usefulness of a particular enzyme determination.

The book contains three chapters (the first three) which discuss in clear and concise language basic information concerning the nature, kinetics, and measurement of enzyme activity. The chapters concerning individual enzymes are divided according to the enzyme classification recommended by the Commission on Enzymes of the International Union of Biochemistry. Detailed assay procedures for 31 enzymes are described. Each of these is preceded by a description of the chemistry of the enzyme reaction and is followed by a review of the clinical uses of the enzyme assay. The book concludes with a good discussion of methods used in the study of isoenzymes and an appendix that provides a description of the preparation of most of the commonly used buffers. The references are complete, and the index is adequate. Some may not agree with the methods chosen by the author for some enzyme assays—for example, the use of phenyl phosphate for the determination of acid phosphatase—or with the complete omission of automated methods. This book is recommended to all workers who are responsible for the performance of clinical enzyme assays.

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New Books

Biological and Medical Sciences

Absorption Spectra of Minor Bases: Their Nucleosides, Nucleotides, and Selected Oligoribonucleotides. Tat'yana Vladimirovna Venkstern and Aleksandr Aleksandrovich Baev. Translated from the Russian edition (Moscow, 1965). Plenum Press Data Division (Consultants Bureau), New York, 1965. 94 pp. Illus. $10.50.

Advances in Biological and Medical Physics. vol. 10. John H. Lawrence and

(Continued on page 1581)