proaches to the scattering problem, such as the close-coupling approximation, Born approximation, and variational methods. The session on experimental problems covered the problems associated with charged-neutral, charged-charged, and neutral-neutral particle interactions.

Most of the papers in this volume contain sufficient background material so that they are self-contained and useful for reference. They are well edited, and I noted only a very few typographical errors. Included are contributions from most of the major centers engaged in atomic collisions work in the United States, Canada, the United Kingdom, the Netherlands, France, West Germany, Poland, and the Soviet Union. Unfortunately, owing to its high price, the volume will be inaccessible to the private purchaser, but all laboratory groups working in this area of research will find it a most worthwhile addition to their library collections.

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Genetics

Genetics for the Clinician. C. A. Clarke. Davis, Philadelphia, ed. 2, 1964. xx + 377 pp. Illus. $9.

"Ford has pointed out a close parallel between the behaviour of the chromosomes as seen under the microscope and that of the genes whose action can be inferred by tracing the inheritance of the characters which they control." Thus, we learn on page 1 that the author is not interested in historical perspective.

The first edition of this book, designed to acquaint clinicians and medical students with genetics, appeared in 1962. One might have hoped that the many errors and half truths of the first edition would have been corrected, but most are retained in the second edition. The bands of the giant chromosomes of salivary glands of *Drosophila* are still called chromomeres (p. 2), and DNA still will stand boiling for 1 hour (p. 7). On page 45, mutation is said to lead to abnormal genetic ratios.

On page 50, Clarke makes the following statement: "It is at first sight difficult to understand why a very disadvantageous gene such as that controlling epiloia or achondroplasia remains 'dominant.' One would have expected that the more extreme forms of these diseases would have been selected against and those less severe selected for, which would eventually result in the character becoming recessive." However, there is no difficulty if one does not assume, as Clarke does, that "genes always have more than one effect (pleiotropy)" (p. 49) and that these diseases are polymorphisms maintained by heterozygote advantage.

The following statement is on page 52: "Primaquine sensitivity, as opposed to favism . . . is controlled by a single gene, the effects of which are much more marked in Caucasians than in Negroes and presumably in the latter the gene-complex partially inhibits the action of the gene." By gene-complex is meant the genetic background, but it is now well established that different alleles are involved in Caucasians and Negroes. Furthermore, favism is well established as a single gene effect.

On page 54, assortative mating is given as one situation that upsets the constancy of gene frequencies from one generation to the next as predicted by the Hardy-Weinberg law. On page 103, partial sex linkage in man is discussed as if it were an accepted fact rather than a most unlikely event.

In the first edition, the discussions of nondisjunction ignored the possibility that nondisjunction might occur at the second division of meiosis. The present edition acknowledges the possibility in a footnote (p. 25), but the discussion of recognition of maternal versus paternal nondisjunction (pp. 34 and 35) still assumes that all nondisjunction must occur at the first meiotic division. Thus, we learn that mating of a man with normal color vision to a woman heterozygous for color blindness cannot produce a color-blind offspring who is XXY (Klinefelter's syndrome). However, two such cases are listed in the review of chromosome abnormalities by M. A. Ferguson-Smith (*Prog. Med. Genet.* **1**, 292, 1961).

Clarke uses Haldane's rule as a point of departure in introducing some new material on race crossing (p. 84): "There is a hint that there *may* [italics his] be an excess of women in a population of F. 1. hybrids (Negro × Caucasian) studied by Miller and Harrison (personal communication)." Such an effect would be very interesting, but it should be subjected to careful scrutiny before being included in an introductory book. The use of italics does not relieve the author of this responsibility. Furthermore, the author presents a pedigree of a Caucasian × Chinese mating in which one son (the propositus) died of carcinoma of the rectum at age 24, and one of his sons (by a Caucasian wife) subsequently died of leukemia. It is suggested that genic imbalance due to diverse racial origins of the parents might have been a contributing factor. This cannot be refuted, but the answer will not come from study of haphazardly collected pedigrees, and the inclusion of this pedigree is a great disservice to those who are trying to arrive at correct answers by carefully controlled observations.

I noted many other errors, but their recital will serve no useful purpose. Fortunately, there are several other books from which clinicians and medical students can learn genetics.

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Textbook

Wood and Cellulose Science. Alfred J. Stamm. Ronald, New York, 1964. x + 549 pp. Illus. $15.

Technical books are often written during or at the close of a segment of a career. This one was written between careers. After years of pioneering work at the U.S. Forest Products Laboratory, where he introduced and successfully exploited new approaches to the understanding of the properties of wood, the author, Alfred J. Stamm, turned his generally acknowledged talents for communication to teaching. The book was written to meet the needs for a textbook on the physiochemical properties of wood and related materials. The topics are well balanced between theoretical subjects (such as x-ray diffraction, thermodynamics of adsorption, capillary properties, diffusion, electrokinetics, and molecular properties) and technological subjects (such as dimensional stabilization, drying, preservation, gluing, and sheet formation). The contents of the 27 chapters reflect the author's broad research interests. The literature cited at the end of most of the chapters contain references to his original work, and many of the figures and tables are taken from his publications. Although one normally questions the merit of a book written in

such a seemingly limited manner, I feel that, in this instance, the approach is acceptable and perhaps required owing to the systematic and original research conducted by Stamm during the many years of his first career.

Division of the material into 27 chapters, in a 500-page book, makes for a great proliferation of subject matter. I question the merit of such extreme subdivision since it may tend to obscure, in the mind of students, the continuities and similarities between closely related subjects. Two of the four chapters on adsorption, "Phenomenon of adsorption" and "Thermodynamics of adsorption," could easily and logically have been consolidated into one chapter, and with great gain in clarity. The underlying causes of the processes treated in two other chapters—"Shrinking and swelling of wood" and "Shrinking and swelling of cellulose"—are sufficiently similar for profitable combined discussion.

These minor criticisms should not overshadow the fact that the book is a rich source of scientific and technological information about wood. Stamm has been a prominent contributor to wood science, and one welcomes a book that includes his evaluation of some of its important areas.

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Biologically Active Steroids

Steroid Drugs. vol. 2, *Index of Biologically Active Steroids*. Norman Applezweig. Holden-Day, San Francisco, Calif., 1964. x + 449 pp. Illus. $10.50.

This book continues the task begun by Applezweig in volume 1 (1962)—the task of coding and classifying all known biologically active steroids. Volume 2 lists 1594 new compounds, not included in the first volume, that have appeared in the literature and in United States Patent files during 1961 and 1962. The book is divided into two major sections. In the first Applezweig tabulates biologically active compounds according to their reported activities, both qualitative and quantitative, as the information given in the literature allows. However, in most cases information is minimal, and, furthermore, the author urges caution in accepting the validity of claims for biological activity, especially where these claims have been derived from patents. Five major categories of biologically active substances—androgens, estrogens, progestagens, corticoids, and mineralocorticoids—and eight minor categories—antihormonal, diuretic (antimineralocorticoid), anticancer, active on circulatory system, lipodiactic, active on central nervous system, anabolic, and miscellaneous—are provided.

The second major section comprises a catalog of steroids arranged according to "structural profile." This coding system is the same as that described at length in the first volume. With it the steroid nucleus is numbered in the recommended way and spatial designation of hydrogen atoms and angular methyl groups follows the usual convention. However, in naming the steroid drugs, the author chooses to deviate severely from the rules of nomenclature of the International Union of Pure and Applied Chemistry. It is his view that generally recognized trivial names should be used as a basis for naming their derivatives or stereoisomers, a procedure which tends to eliminate possible ambiguities and to make names more easily interpreted by the medically oriented reader. The structural profile of a derivative combines the trivial name of the parent steroid with numbers of the carbon atoms on which group substitutions have been made. Thus, closely related compounds such as 6-methyl, 6-hydroxy, and 6-halogen derivatives of any particular steroid are grouped together by the system, an aid in determining the effects of group substitution on the biological activity of a given steroid. In the second section, in addition to its structural profile, each steroid is provided with a catalog number by which it can be found in the tables of biological activity, a structural formula and name, its reported biological activity, and a reference either to the literature or to patent files. The third section, which is of minor importance, lists by name and principal producer the commercially available steroid drugs and those under investigation. The book provides a valuable service for those concerned with steroid drugs and the correlation of biological activity with chemical structure.

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Mathematical Physics

Differential Equations of Mathematical Physics. N. S. Koshlyakov, M. M. Smirnov, and E. B. Gliner. Translated from the Russian edition (Moscow, 1951) by Scripta Technica. Herbert J. Eagle, Translation Ed. North-Holland, Amsterdam; Interscience (Wiley), New York, 1964. xvi + 701 pp. Illus. $21.

This excellent book is directed to the student of applied mathematics or classical physics rather than to the student of modern physics. It gives a thorough exposition of second-order partial differential equations which is sufficiently elementary to fit into the advanced undergraduate curriculum of American colleges of engineering. The bulk of the book is divided into three parts, dealing with the theory and applications of equations of the hyperbolic, elliptic, and parabolic type, respectively. The fourth part deals with integral transforms and with electromagnetic theory.

The authors make the following statement in the preface: "Among the applications studied are the vibrations of strings, membranes, and shafts; electric oscillations in lines; the electrostatic problem; the basic gravimetric problem; the emission of electromagnetic waves and their distribution along wave guides and in horns; the emission and dispersion of sound; gravity waves on the surface of a liquid; heat flow in a solid body, and so forth. Solutions are given to both very simple and more complicated problems, making it possible for the reader to master the methods considered in the book and also the physics of the phenomena in question. In almost every chapter, there are problems whose basic purpose is to develop the reader's technical skill.

"Approximate methods for solving problems in mathematical physics are not discussed, since their exposition would require a considerable increase in the size of the book. Also excluded are certain specialized problems (for example, those associated with the physics of atomic reactors) that have arisen only in the last few years."

I did not notice any errors or misprints, except in the last chapter which treats generalized functions (or, as we would say here, the theory of distributions). On page 669, the statement $|g(x) - \phi(x)| < \epsilon$, for $g(x)$ bounded and continuous and for $\phi(x)$ a funda-