Introduction to the Theory of Finite Groups. Walter Ledermann. Interscience, New York, and Oliver and Boyd, Edinburgh–London, rev. ed., 1953. 160 pp. $1.55.

Group theory has been assuming a role of ever-increasing importance in mathematics. Twentieth-century physics has found group theory to be the appropriate vehicle for the formulation of quantum mechanics. Similar rumblings are beginning to be heard in other scientific disciplines. The need for an introductory textbook on the subject in English is thus indisputable. This modest volume (whose first edition was published in 1949) makes available a systematic detailed discussion, with many examples to illuminate the theory. After mastering its contents, a reader will find it possible to attack with confidence the advanced treatises by Zassenhaus and Kurosh (the English translation of the latter is expected soon).

Three technical points might be mentioned where alternative expositions are possible: the use of double cosets in proving the Sylow theorems; the proof of the Jordan-Holder theorem in a style not susceptible of generalization to infinite groups; and the proof of the basis theorem for abelian groups by factoring out a cyclic summand of maximal order. I am enthusiastic about the third but prefer an alternative route in the first two cases.

This book is a worthy member of the series of University Mathematical Textbooks, and the attractive format is admirable.

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Principles of Automatic Controls. Floyd E. Nixon. Prentice-Hall, New York, 1953. 409 pp. Illus. $9.35.

This book is intended primarily as an undergraduate engineering textbook on automatic control systems. The emphasis is naturally on linear systems. The mathematical level is as elementary as possible, subject to the constraint of introducing and applying Laplace transforms and the Nyquist stability criterion to problems of system design and analysis. The first 11 chapters cover both these topics and their applications in great detail, along with discussions of various types of error compensation and effects of noise and output disturbances. There are additional chapters on useful tools and techniques, such as numerical integration methods, automatic computers, methods of transient response analysis, and nonlinear systems. Six appendixes, mostly mathematical, include a very conveniently organized one of Laplace transform pairs.

The text exudes practicality, abounds in numerical examples, and includes many exercises at the end of each chapter. The arguments are generally easy to follow but require more of a "feel" for engineering than is likely to be given to an engineering undergraduate by first-year calculus, first-year physics, or even a first course in electric circuits (the author assumes the first two and says the last would be helpful but not essential). In my opinion, a student who has not studied alternating-current networks and learned to apply complex numbers with facility would find much of the discussion unmotivated and largely meaningless. The appendix on complex numbers seems pointless, for a reader ignorant of its contents could not learn enough from it to read the book intelligently. Expansion of Chapter 2 to include complex numbers and enough integration in the complex plane to enable the student to grasp the meaning of the Nyquist criterion (if not to follow the derivation in Appendix 6) seems desirable. On the whole, however, the textbook is suitable for senior, and possibly junior, engineering students, if their course sequence is right, or for self-study.

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An Rh-Hr Syllabus. The types and their applications. Alexander S. Wiener. Grune & Stratton, New York, 1954. 82 pp. Illus. $3.75.

Rh-Hr Blood Types. Applications in clinical and legal medicine and anthropology. Alexander S. Wiener. Grune & Stratton, New York, 1954. 763 pp. Illus. $11.50.

These companion volumes have proved to be quite a disappointment. The preface of *An Rh-Hr Syllabus* states that its purpose is to present an up-to-date summary of the subject in a compact, easily understandable form. Instead, one finds a summary of Wiener's contributions to the subject, with his personal views and theories often presented as established facts. The existence of other viewpoints and theories, which happen to be widely held by competent authorities, is either ignored or subjected to ridicule. Those familiar with this field are well aware of two major areas in which differences of opinion exist. The first concerns genetic theory, with Wiener advocating a single locus with eight allelic genes, while the theory of Fisher and Race postulates three closely linked loci with two or three alleles at each locus. Both theories explain the observed facts adequately, and both therefore merit careful consideration until such time as critical data may become available to permit a decision. The second area of difference is the existence of two systems of nomenclature. Wiener designates the Rh-Hr system, which he devised as the "international" system, but the international authority upon which this may be based is unknown to me. The CDE system suggested by Fisher and Race seems to have more currency in international usage.

When a difference of opinion regarding scientific theories exists, a proponent of any theory has every right to present his views in a monograph. However, the disputed area should be clearly defined, and the observed facts and their interpretation should be distinguished. This Wiener fails to do. The statement in the preface, "For readers not specializing in the field, it [the *Syllabus*] contains all the information they re-

quire," is clearly misleading. When a party to a controversy abandons the scientific approach and turns to ridicule of those who do not agree with him, he admits the scientific weakness of his position. Certainly the following quotation (p. 39), aimed at discrediting the Fisher-Race nomenclature, has no place in any serious publication: "To celebrate this occasion, I. M. Jaundiced, a poet residing at 36 Genotype Road, High Titer, R. H., has written a song entitled: 'C, D, E, F—Gee!!'"

In addition to the biased presentations mentioned, one also notes arbitrary changes in nomenclature of the Duffy and Kidd antigens and even in the ABO system, which apparently have no purpose other than to embarrass the CDE system of nomenclature. The clinical discussions of kernicterus and exchange transfusions leave much to be desired and again present opinions as established facts.

The larger volume, *Rh-Hr Blood Types,* consists entirely of reprints of 84 of the 333 papers in the author's personal bibliography, with the addition of occasional explanatory notes. The statement is made that this volume summarizes developments in Rh applications to clinical and legal medicine and to anthropology for the decade 1943–53. To accept this evaluation would be to ignore the work of dozens of investigators who have made important contributions during this period.

These two volumes are recommended only to those who are already familiar with the subjects discussed and who wish an authoritative presentation of Wiener's position in a controversy that is likely to continue for some time.

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Planning Guide for Radiologic Installations. Wendell G. Scott, Chm., Committee on Planning of Radiologic Installations of the Commission on Public Relations of the American College of Radiology. Year Book Publ., Chicago, 1953. xvi + 336 pp. Illus. $8.

As is stated in the preface, this manual is in answer to many requests for authoritative information on the planning of radiologic departments. Under the auspices of the American College of Radiology and the chairmanship of Wendell G. Scott, representatives of radiology, manufacturing companies, the American Hospital Association, and the like were chosen to cover certain fields in which these persons were most proficient. The result is a very carefully worked out compilation of the thoughts of these different authorities.

In studying this little volume, it is evident that in the radiologic medical "workshop," as in every other field of medicine, there must be very marked individualization to fit the particular needs of the institution or physician. No prefabricated set of blueprints will adequately care for any particular local situation. It is clear that the radiologist who is to practice in the proposed new installation must play a large part in the design.

This book consists of 22 sections that deal with all the various phases of radiologic building and planning. Sections are devoted to studying patient-traffic and film- and technician-flow, so that economies of operation may be effected by proper planning. Architectural considerations and protection, along with many "do's and don't's," are scattered throughout. Most of these discussions take up general principles, and the reader can and must adapt these basic fundamentals to the local problem under consideration. Any person who obtains this book with the idea that it is just a set of blueprints is badly mistaken, because this is not its purpose. There is much detail but no detail drawing.

A careful study of this invaluable contribution to radiologic and hospital architectural planning is a must for all concerned in this field.

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Cancer of the Lung: A Symposium. Johs. Clemmesen, Ed. Council for International Organisations of Medical Sciences, Paris, 1953. 210 pp. Illus. $6.

At the symposium in Louvain in 1952, H. L. Stewart (U.S.A.) reported on pulmonary tumors in animals. Levin (U.S.A.), Clemmesen (Denmark), de Muylder (Belgium), Dorn (U.S.A.), and Kretz (Austria) maintained that frequency of pulmonary cancer was mounting, while Steiner (U.S.A.) and Denoix (France) were more cautious and stressed the impact of steadily improving ante- and post-mortem diagnosis of lung cancer upon statistics. Of U.S. towns, London, Amsterdam, Copenhagen, Paris, and Vienna, the last named city—which for many decades has had the highest percentage of necropsies—has the highest recorded mortality from lung cancer. In Vienna, in 1931, respiratory cancer accounted for 15.8 percent (♂) and 2.7 percent (♀) of all fatal cancers; up to 1951 it rose to as much as 31.8 percent (!) and 4.6 percent, respectively. (However, in the age groups below 60, in spite of rising frequency of lung cancer, Vienna's total cancer mortality in 1951 continued the falling trend, which, in Central Europe, started 50 years ago. See *Cancer in Man,* S. Peller, International Universities Press, 1952, page 380.)

In analyzing the reasons for the spread of lung cancer, William E. Smith (U.S.A.) spoke about occupational hazards, Kennaway and Walter (England) about air pollution, and Doll (England), Hammond and Horn (U.S.A.), and Dorn and Levin dealt with smoking.

Smith is inclined to question the radon etiology of lung cancer among miners of Joachimsthal and