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.

I. KAPLANSKY

Department of Mathematics, University of Chicago

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.

JEROME ROTHSTEIN

Columbia University

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-