but not unduly abstract fashion. The book should be easy reading for anyone with a good background in calculus and, perhaps, a few topics in advanced calculus.

The exposition begins with the most elementary considerations and develops into a clear and well-motivated treatment of expansions in Fourier series, general orthogonal expansions, operations with Fourier series, convergence and summability of Fourier series, double Fourier series, Fourier integrals and transforms, Bessel functions and Fourier-Bessel expansions, the eigenfunction method, and the application of the latter to boundary value problems. Although only the Riemann integral is employed, the book emphasizes the basic role of absolutely integrable and square integrable functions. Nowhere, however, does the analysis become so heavy-handed that it spoils the essential simplicity of the treatment.

One of the outstanding features of the book is the large number of excellent and refreshing problems, for most of which hints and solutions are furnished in the appendix. This feature makes the book exceptionally valuable for self-study.

An Introduction to Fourier Analysis, by R. D. Stuart, was written mainly for students of science and engineering and "full mathematical rigour has not been attempted." It is my belief that a genuine understanding of and insight into the theoretical aspects of Fourier series and integrals is not provided by this exposition as it is by that of Tolstov. There are numerous places where the reader of Stuart's book will be left with false impressions by such things as faulty definitions, poor choice of words so that conditions which are only sufficient appear to be stated as necessary ones, failure to state the assumptions made in certain derivations, and so on. See, for example, the definition of "piecewise continuous" functions, the statement concerning Dirichlet's conditions, and the evaluation of coefficients on pages 11–13.

In spite of its quite inadequate treatment of the mathematical preliminaries (which may perhaps be blamed on the pressure of space in such a small volume), the book contains a most valuable collection of applications to modern and vital physical problems that are of interest to scientists and engineers. The chapters on the analysis of transients, circuit analysis, and wave motion are particularly commendable.

It seems appropriate to suggest that Stuart's book will be a valuable complement to Tolstov's book for those interested in the type of application described above.

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Notes

Techniques and Analysis

This second edition of Werner Holzbuck's **Instruments for Measurement and Control** (Reinhold, New York, 1962. 398 pp. $10) is, like the first edition, a descriptive book for plant process engineers and technicians engaged in traditional civilian industry. Much of the detailed discussion has been rewritten, several measurement techniques have been added, and a few have been deleted, but the general organization and content remain unchanged. It still contains little or no discussion of the physical principles or of the limitations of the techniques described and no discussion of the special needs of the increasingly important space and nuclear industries.

The book consists of three distinct and nearly independent parts, without formal division among them. The first part describes automatic and manual techniques for measuring and recording the following quantities, with a chapter devoted to each: temperature; moisture content; pressure; flow, both fluid and solid; liquid level; density; viscosity; and angular speed. The second part (one chapter) is a discussion, entitled "Analysis," of methods of chemical analysis, usually for one component only, of gases and liquids by means of a single measurement such as heat of combustion, thermal conductivity, change of volume, and refraction index. The determination of some other material characteristics, such as *p*H, dielectric constant, and flash point are also discussed. In the third part, the following topics are described, each in one chapter: controller action; electric controllers; pneumatic and hydraulic controllers; time function controllers; and final control elements, especially valves.

The book is not intended to be a complete catalog of the techniques used in process control; but to omit the pulse generator-electronic counter method of measuring angular speed, which was briefly described in the first edition, is surprising, particularly in view of the subsequently developed digital recorders that are suitable for use with these counters. Holzbuck's discussion of the transducer technique of measurement and transmission, particularly of pressure and flow, could also profitably be expanded.

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New Books

Mathematics, Physical Sciences, and Engineering

Diffuse X-ray Reflections from Crystals. W. A. Wooster. Oxford Univ. Press, New York, 1962. 211 pp. Illus. $5.60.

Elements of Mathematical Statistics. J. F. Ratcliffe. Oxford Univ. Press, New York, 1962. 212 pp. Illus. $4.

Fifty Years of X-ray Diffraction. P. P. Ewald, Ed. Oosthoek's, Utrecht, Netherlands, 1962. 726 pp. Illus.

Geometric Transformations. I. M. Yaglom. Translated from the Russian by Allen Shields. Random House, New York, 1962. 140 pp. Paper, $1.95.

Hyperconjugation. Michael J. S. Dewar. Ronald, New York, 1962. 190 pp. Illus. $6.

Instruments for Measurement and Control. Werner G. Holzbock. Reinhold, New York, ed. 2, 1962. 398 pp. Illus. $10.

Nomography and Empirical Equations. Dale S. Davis. Reinhold, New York; Chapman and Hall, London, 1962. 269 pp. Illus. $8.

Perturbation Theory and the Nuclear Many Body Problem. Kailash Kumar. North-Holland, Amsterdam; Interscience (Wiley), New York, 1962. 243 pp. Illus. $9.75.

The Problem of Induction and Its Solution. Jerrold J. Katz. Univ. of Chicago Press, Chicago, 1962. 138 pp. $3.75.

Shock Waves in Chemistry and Physics. John N. Bradley, Methuen, London; Wiley, New York, 1962, 383 pp. Illus. $11.

Study Guide for Basic Concepts of Physics. Arthur Beiser and Germaine Beiser. Addison-Wesley, Reading, Mass., 1962. 128 pp. Illus. Paper, $2.25.

Study Guide for the Mainstream of Physics. Arthur Beiser and Germaine Beiser. Addison-Wesley, Reading, Mass., 1962. 174 pp. Illus. Paper, $0.95.

Synthesis of Optimum Nonlinear Control Systems. Harry L. Van Trees. Massachusetts Institute of Technology Press, Cambridge, Mass., 1962. 111 pp. $4.

Thorpe's Dictionary of Applied Chemistry. vol. 5. Jocelyn Field Thorpe and M. A. Whiteley. Wiley, New York, ed. 4, 1962. 633 pp. Illus. $20.