views that will appeal to the specialist rather than expositions for more general consumption. More or less in order of increasing specialization, they are: "Radio observation of meteors" (J. A. Davies), "Intensity variations in cosmic rays" (D. C. Rose), "Radio-wave propagation" (R. L. Smith and D. C. Rose), and "Negative ions" (L. M. Branscomb).

Now some concluding comments: A volume organized around a single theme can certainly play a most useful role. But, in my opinion, the results would be much more valuable for the regular subscribers to these volumes if the theme remained within the area normally covered. Cross-fertilization is an admirable goal, but it might be better for all concerned to leave this task to the several excellent publications that are exclusively devoted to it.

KEES BOL
Gordon McKay Laboratory, Harvard University

An Introduction to Automatic Digital Computers. R. K. Livesley. Cambridge University Press, New York, 1957. viii + 53 pp. Illus. + plates. $1.75.

This book provides a first, quick look at the digital computer, so that an engineer or scientist can make a rough appraisal of the value of using one in his work. The reader is expected to have no specialized knowledge of the field.

The emphasis is on the applications that can be made of an automatic digital computer and on what a person does in order to use it. The question of what is inside the machine is treated only to the extent necessary to provide enough background information to make the rest of the book intelligible to a scientifically inclined person.

In the first 13 pages the reader learns to program a simplified stored-program machine. This chapter can be merely read and it will seem plausible; but if the reader goes through the examples in detail and works the suggested exercises, he will learn what a stored program really is. It is well known that programming is learned best by doing rather than by reading. However, the more casual reader will find that he does not have to do the exercises in order to understand the rest of the book.

The next chapter treats input, output, and storage of numbers, so that one gets a rather good idea of how it is possible for a machine to do the things discussed elsewhere in the book. Then the subject of programming is considered in a qualitative, over-all way. Finally there is a discussion of what problems have been solved by machines, and of future prospects.

The principal shortcoming of the book is that the author does not seem to realize how good our modern machines really are, how bright the prospects for the future seem, and how deep an understanding of programming has been gained. This can probably be explained by the fact that he has been associated with the rather small machine at Manchester University rather than with the hundreds of much more powerful machines now in operation in the United States. The book is based on a set of lectures that were designed to acquaint people with this machine and with the general subject.

For example, he says, ". . . machine-produced programs take longer to run and use more storage space than the equivalent human product. . . . It does not seem likely . . . that machines will ever be able to carry out the broader aspects of programme design." However, modern automatic programming techniques often produce a better program than even very good human programmers, unless the human beings spend an uneconomical amount of time on the project. We have already done what Livesley predicts will never happen.

Then he says, ". . . the speed of a computer is 100 to 500 times that of a human being equipped with a desk calculator." There are hundreds of installed machines with a speed of 10,000 to 50,000 times that of a human being with a desk calculator. In the engineering stage are machines that are 100 to 1000 times again as fast.

With the exception of the overly conservative appraisal of achievements and prospects, the book is excellent, and it deserves to be read.

NATHANIEL ROCHESTER
Research Center, International Business Machines Corporation

New Books

Naven. A survey of the problems suggested by a composite picture of the culture of a New Guinea tribe drawn from three points of view. Gregory Bateson. Stanford University Press, Stanford, Calif., ed. 2, 1958. 331 pp. $6.

Russia, the Atom and the West. George F. Kennan. Harper, New York, 1958. 125 pp. $2.50.

Psychotropic Drugs. S. Garattini and V. Ghetti, Eds. Elsevier, Amsterdam, 1957 (order from Van Nostrand, Princeton, N.J.). 620 pp. $19.50.

An Introduction to the Theory of Random Signals and Noise. Wilbur B. Davenport, Jr., and William L. Root. McGraw-Hill, New York, 1958. 402 pp. $10.

The Physical Chemistry of Electrolytic Solutions. Herbert S. Harned and Benton B. Owen. Reinhold, New York; Chapman & Hall, London, ed. 3, 1958. 836 pp. $20.

A Guide to Archaeological Field Methods. Robert F. Heizer. National Press, Palo Alto, Calif., ed. 3, 1958. 171 pp. $5.

Annual Review of Entomology. vol. 3. Edward A. Steinhaus and Ray F. Smith, Eds. Annual Reviews, Palo Alto, Calif., 1958. 526 pp. $7.

General Geology Laboratory Workbook. Physical geology and historical geology. Geology Department Teaching Staff, University of Texas. Samuel P. Ellison, Jr., Ed. Harper, New York, 1958. 295 pp. $3.75.

College Plane Geometry. Edwin M. Hemmerling. Wiley, New York; Chapman & Hall, London, 1958. 319 pp. $4.95.

Alcohol and the Jews. A cultural study of drinking and sobriety. Charles R. Snyder. Yale Center of Alcohol Studies, New Haven, and Free Press, Glencoe, Ill., 1958. 226 pp. $5.

A Primer for Coronary Patients. Robert J. Needles and Edith M. Stoney. Appleton-Century-Crofts, New York, 1958. 191 pp. $3.75.

Types of Graphic Representation of the Periodic System of Chemical Elements. Edward G. Mazurs. The Author, La Grange, Ill., 1957. 158 pp.

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Elements of Water Supply and Waste-Water Disposal. Gordon Maskew Fair and John Charles Geyer. Wiley, New York; Chapman & Hall, London, 1958. 622 pp. $8.95.

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Chemistry Problems in Jet Propulsion. S. S. Penner. Pergamon, New York and London, 1957. 408 pp. $12.50.

Basic Feedback Control System Design. C. J. Savant, Jr. McGraw-Hill, New York, 1958. 434 pp. $9.50.

National Symposium on Vacuum Technology Transactions, 1956. 10–12 Oct. Hotel Sheraton, Chicago, Ill. Edmond S. Perry and John N. Durant, Eds. Pergamon Press, New York and London. 234 pp. $12.50.

Reaching Delinquents Through Reading. Melvin Roman. Thomas, Springfield, Ill., 1957. 140 pp. $4.50.

Principles of Economic Policy. Kenneth E. Boulding. Prentice-Hall, Englewood Cliffs, N.J., 1958. 448 pp. $7.95.