social interactions with the observers. The latter provide measurable evidence for the kind of role the observers actually succeeded in playing in the Midwest Field Station.

Since the book contains such a wealth of material, I can only point out what seems salient to me. Others may select different aspects as salient for them, such as parent-child relationships. This book possesses value for a variety of scientific disciplines. Its value for psychologists and sociologists should be obvious. Natural scientists might be curious to compare the concepts and methods of this sample of psychological ecology with those of their disciplines. Educators should find in it a gold mine of ideas for studying, evaluating, and comparing schools. Psychiatrists might profit from it, not only for what light it sheds on the constituents of a mentally healthful (or unhealthful) life for children, but also for its applications to the study of hospital milieus. Above all, it may be read for its intrinsic value—for its wealth of scientific concepts and methods and for its portrayal of the naturally occurring behavior of children in their real worlds.

JACOB S. KOUNIN
College of Education, Wayne University

Income of the American People. Herman P. Miller. Wiley, New York; Chapman & Hall, London, 1955. xvi + 206 pp. $5.50.

Historically, the U.S. Census Bureau has attempted to interpret its statistics either in separate monographs or as prefaces to the volumes of statistics. Perhaps the most brilliant of these interpretations is that of Walter F. Willcox, following the 1900 census. Following the 1950 census a series of such analyses was planned by the Census Bureau in conjunction with the Social Science Research Council and the Russell Sage Foundation. This study by Herman Miller, who is an employee of the Census Bureau, is one of the first to appear in this series.

"This is a book about people and income. . . . The primary aim . . . is to indicate the relation between the amount of income received by individuals and certain social and economic characteristics like geographic location, occupation, color, education, etc. The study also includes an analysis of the changes in income distribution which have taken place in the U.S. since the depression of the thirties, as well as an evaluation of the data which provide the basis for the findings" (p. ix). Some of the specific topics covered include: Analysis of the over-all income curve; role of geographic location and color; income differences attributable to occupation; age as a factor in income distribution; income and family status.

Most of the data analyzed are from the 1940 and 1950 censuses and from the annual reports on consumer income as obtained via the Census Bureau's monthly sample survey. The author has done an excellent technical job of handling these diverse statistics; for example, his analysis of the distribution of income, showing that the over-all skewed curve is the result of combining a number of component curves, each of which tends to be fairly symmetrical, is of the highest order of professional competency.

This technical proficiency, unfortunately, has not been combined with a very imaginative approach to the subject matter. The census monographs supposedly were to be broad in scope: ". . . broad exploration of new questions suggested by the new information, as well as narrowing the elements of doubt and controversy on old questions" (p. vi). Instead of such a comprehensive approach, the material has been presented in the traditional census manner. Not only have many highly relevant questions not even been asked, but of those that have been asked many have not been adequately answered, because advantage was not taken of the vast quantities of data available in the census files.

As an example of the kind of question not even asked, consider our current problem involving the shortage of certain classes of professional and skilled workers. To what extent, if any, does this shortage reflect the failure of our society to pay these people an amount commensurate with the importance we have ascribed to their occupations? As another example, after producing good evidence that income differentials probably narrowed since the depression of the 1930's, Miller devotes a chapter to "Factors related to recent changes in income distribution." Nowhere in this latter chapter, however, is the question even raised concerning what the influence of labor unions may have been. Even if no answer could have been provided, the question should have been raised as evidence of awareness of one of the important elements in our current life.

As an example of an inadequate answer, we should note the chapter on "Income and family status." Comprehensive cross-tabulations of the data collected by the 1950 census would have provided many answers about the "working wife" that could not be obtained by merely looking at the marginal distributions obtained from the small annual sample surveys of income (which, incidentally, have high sampling variability). The student who is not an employee of the Census Bureau can raise questions, but he does not have easy access to the vast quantities of unused data that are available in the files of the Census Bureau; he is dependent, then, on the Census Bureau for either the basic statistics or the analyses.

A. J. JAFFE
Bureau of Applied Social Research, Columbia University

American Men of Science. A biographical directory. vol. II, *Biological Sciences.* Jaques Cattell, Ed. Science Press, Lancaster, Pa., and Bowker, New York, 1955. 1276 pp. $20.

The appearance of the second volume of the ninth edition of the biographical directory, *American Men of Science—Biological Sciences,* on schedule, will please all who have occasion to verify the names, current addresses, or research specialties of United States and Canadian scientists working or teaching in such areas as "zoology, botany, medical research and affiliated fields." The format is similar to that of volume I, *Physical Sciences,* which was published in the spring of this year, but it is not identical. About 25,000 biographies are included, and there are some 5000 additional references, principally to biochemists and biophysicists who elected to be listed in volume I. There are also a few instances when the reader is referred to the eighth edition of 1949. These sketches, added to the nearly 44,000 in volume I, total 69,000, and it is estimated that when the third volume on the social sciences appears early in 1956, no fewer than 95,000 individuals will be listed in the directory—almost twice the number in the previous one-volume edition. Apparently the same abbreviations and sequence of data on each sketch are consistently employed, and the editor, Jaques Cattell, is the same as for the eighth edition. If the standards for inclusion in this ninth edition are also unchanged, it follows that the number of scientists in North America has virtually doubled within the past 6 or 7 years.

As before, with the exception of four pages devoted to procrastinators, the biographical sketches are in one alphabetical sequence (except that, unlike the telephone directories, the "Macs and Mc's" are commingled and all precede Macy and Mad-), two columns per page, in typescript, reduced and printed by offset. In contrast with the eighth edition, a good grade of white paper is used and the attractive dark blue cloth binding with a scarlet and gold panel on the spine seems to be much stronger. The physical weight is not inconsiderable; most secretaries will need to use both hands in using these volumes. Those looking up a scientist among the 5000 whose biographies appear in volume I may be annoyed, especially if that volume, which also costs

$20, has not been purchased. With a slightly greater reduction in type size, three columns per page, and thinner paper, a combined single volume might have been feasible; or, if not, three somewhat thinner volumes encompassing all names would have been more desirable than the present division by disciplines. This basic fault, however, should not detract from the unquestionable value that this standard directory of American science has and the editor and all concerned are to be congratulated on their thoroughness, high degree of accuracy, and adherence to their printing schedule.—R.L.T.

Transistors and Other Crystal Valves. T. R. Scott. MacDonald & Evans, London; Essential Books, Fairlawn, N.J., 1955. xvi + 258 pp. $7.20.

Scott's book offers an organized review of nearly 300 papers that are related to transistors. Although it contains little that is new, it provides a readable introduction to the subject, including considerable historical background.

The author's style is quite informal, and it is clear that he is writing for an engineering, rather than a scientific, audience. Considerable attention is devoted to a comparison of various commercial rectifier and transistor types and to discussions of their construction and operating characteristics. Almost every statement is documented by a reference to the large bibliography. The text includes a generous assortment of formulas and curves that describe the semiconductor phenomena under discussion.

The opening chapters describe the evolution of semiconductor work and review the principles of rectifier and transistor operation. A chapter is devoted to methods of making p-n junctions and the manner in which they function. Operating characteristics of various kinds of junction devices are presented and discussed. The text then gives a discussion of point-contact devices, followed by short sections on performance and circuitry. The chapter on the design and construction of high-frequency transistors includes discussions of unipolar devices and negative resistance diode amplifiers. After a review of compound semiconductors and a look into the future, the book concludes with one appendix on the band theory of semiconductors and another on testing techniques.

In a survey work of this kind, it was surprising to find that several important contributions were unmentioned; Kroemer's drift transistor and the photoelectromagnetic effect are examples. Moreover, there is a fairly liberal assortment of minor errors. Since this book gives only superficial treatment to transistor technology, it probably will be of limited value to most specialists in the field. On the other hand, it will be welcomed by newcomers who wish an opportunity to become acquainted with transistors without being required to struggle through the mathematical detail that is found in more advanced textbooks.

R. N. HALL
General Physics Department,
General Electric Research Laboratory

New Books

Fundamentals of Qualitative Chemical Analysis. Semimicro method. Roy K. McAlpine and Byron A. Soule. Van Nostrand, Princeton, N.J., ed. 4, 1956.

Elements of Quantitative Analysis. Theory and practice. Hobart H. Willard, N. Howell Furman, and Clark E. Bricker. Van Nostrand, Princeton, N.J., ed. 4, 1956. 576 pp. $5.85.

A Paris Surgeon's Story. Charles F. Bove with Dana Lee Thomas. Little, Brown, Boston, 1956. 306 pp. $4.50.

The Microbe's Contribution to Biology. A. J. Kluyver and C. B. Van Niel. Harvard University Press, Cambridge, Mass., 1956. 182 pp. $4.

The Marine and Fresh-Water Plankton. Charles C. Davis. Michigan State University Press, East Lansing, 1955. 562 pp. $10.

Temperatur und Leben. H. Precht, J. Christophersen, and H. Hensel. Springer, Berlin, Germany, 1955. 514 pp. DM 78.

Précis de Gérontologie. Léon Binet and Francois Bourlière. Masson, Paris, 1955. 554 pp. Paper, F. 3800; cloth, F. 4500.

Sites of Infection. Unstable areas as sources of parasitic diseases: schistosomiasis and fascioliasis. Alan Mozley. Lewis, London, 1955. 86 pp. 9s.

Fluidization. Donald F. Othmer. Reinhold, New York; Chapman & Hall, London, 1956. 231 pp. $7.

Comparative Endocrinology of Vertebrates. pt. I, *Comparative Physiology of Reproduction and the Effects of Sex Hormones in Vertebrates.* Memoirs of the Society for Endocrinology No. 4. I. Chester Jones and P. Eckstein, Eds. Cambridge University Press, New York, 1955. 253 pp. $8.50.

Mysterious Waters to Guard. Essays and addresses on anaesthesia. Wesley Bourne. Thomas, Springfield, Ill., 1955. 398 pp.

Immunology and Serology. Philip L. Carpenter. Saunders, Philadelphia–London, 1956. 351 pp.

The Nature of Hypnosis. Paul Schilder. Trans. by Gerda Corvin. International Universities Press, New York, 1956. 204 pp. $4.

Preventive Medicine in World War II. vol. III, *Personal Health Measures and Immunization.* Ebbe Curtis Hoff, Ed. Office of the Surgeon General, Department of the Army, Washington, 1955 (Order from Supt. of Documents, GPO, Washington 25). 394 pp. $3.25.

Applications of Spinor Invariants in Atomic Physics. H. C. Brinkman. North-Holland, Amsterdam; Interscience, New York, 1956. 72 pp. $3.25.

Modern Surveying for Civil Engineers. The practice of surveying, estimating and setting out works of all kinds, including chapters on modern photographic and aerial surveying as applied to engineering enterprises. Harold Frank Birchal. Philosophical Library, New York, rev. ed. 2, 1956. 524 pp. $15.

Thinking about Thinking. Merl Ruskin Wolfard. Philosophical Library, New York, 1955. 273 pp. $5.

An Index of Mineral Species and Varieties Arranged Chemically. With an alphabetical index of accepted mineral names and synonyms. Max H. Hey. British Museum (Natural History), London, ed. 2, 1955. 728 pp. £3.

Races and People. William C. Boyd and Isaac Asimov. Abelard-Schuman, New York, 1955. 189 pp. $2.75.

Der Bodenfrost Als Morphologischer Faktor. Josef Schmid. Hüthig, Heidelberg, Germany, 1955. 144 pp.

Neurologic Examination of the Dog. With clinicopathologic observations. John T. McGrath. Lea & Febiger, Philadelphia, 1956. 181 pp. $5.

Advances in Electronics and Electron Physics. vol. VII. L. Marton, Ed. Academic Press, New York, 1955. 527 pp. $11.50.

Information Theory in Psychology. Problems and methods (Proceedings of a conference on the estimation of information flow, Monticello, Ill., 5–9 July 1954, and related papers). Henry Quastler, Ed. Free Press, Glencoe, Ill., 1955. 436 pp. $6.

The Science Book of Space Travel. Harold Leland Goodwin. Pocket Books, New York, 1955. 213 pp. $0.35.

Blood Group Substances. Their chemistry and immunochemistry. Elvin A. Kabat. Academic Press, New York, 1956. 330 pp. $8.

Geriatria Gerontologia Vejez. José Froimovich S. The Author, Laboratorio Medicina Experimental, Valparaiso, Chile, 1955. 356 pp.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Modifications of Pattern in the Aortic Arch System of Birds and Their Phylogenetic Significance. Proceedings of the U.S. National Museum, vol. 104. Fred H. Glenny. 1955. 97 pp. *Three Miocene Porpoises from the Calvert Cliffs, Maryland.* vol. 105. Remington Kellogg. 1955. 54 pp. *Smithsonian Institution, Report of the Secretary and Financial Report of the Executive Committee of the Board of Regents for the Year ended 30 June 1955.* Publ. 4230. 1956. 173 pp. *Synonymical Notes on Neotropical Flies of the Family Tabanidae (Diptera).* Misc. Coll. vol. 131, No. 3. G. B. Fairchild. 1956. 38 pp. Smithsonian Institution, Washington 25.

Canada, National Research Council Review, 1955. N.R.C. 3678. National Research Council, Ottawa, Canada, 1955. 268 pp. $0.75.

Johns Hopkins University, Annual Report of the President, the Faculties, and the Administration, 1954. Johns Hopkins University, Baltimore, Md., 1955. 184 pp.