distinction between the weak and strong participles of *salzen* and *spalten*. On the other hand the chapters do not provide a complete treatment of a given grammatical category.

Grammatical exposition follows the traditional pattern, but many of the statements are so casual as to be misleading. Such statements as the following would find little favor with either traditionalists or with "modernists": "The Glottal Stop is the name given to a pause before a German word or syllable beginning with a vowel" (page 1); "In German, as in English, there are only three simple tenses, the Present, Past, and Imperative" (page 12); "All intransitive verbs of motion . . . are conjugated with 'sein' " (page 14).

The 80 pages of German selections, each running to approximately 350 words, seem to me well chosen. The physical sciences dominate this section, however; in 11 pages on bacteriology Cunningham gives a nod to biology.

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Biological and Biochemical Bases of Behavior. Harry F. Harlow and Clinton N. Woolsey, Eds. University of Wisconsin Press, Madison, 1958. xx + 476 pp. Illus. + plates. $8.

This volume, dealing with a symposium held at the University of Wisconsin over three years ago, is more representative of what went into than of what came out of the meeting. The initial papers are presented, some attention is given to the other contributions, and there has been some updating through the inclusion of new references and findings, but the actual exchange that took place at the meeting has, unfortunately, been omitted. The result is a group of 17 chapters, by thoughtful and experienced men in a variety of fields, which run the gamut from moderately detailed reports of an individual's current research, through presentations that epitomize fairly completely the author's work and viewpoint, to broad and penetrating studies that grapple with the fundamental problems of biology and behavior. Incidentally, since "biochemical" is really included in "biological" to the same extent that "physiological" or "anatomical" or "embryological" are, and since only a couple of the articles consider the chemical factors involved, inclusion of *biochemical* in the title gives a slight distortion in emphasis—especially since much important work in the area of biochemistry has been omitted.

Despite such limitations, the volume is an admirable contribution to the growing *rapprochement* in studies of brain and behavior. The authors have written frankly, often self-critically, of themselves and their disciplines; most of them had clearly in mind the objective of arriving at an interdisciplinary understanding (some express marked reservations concerning the effectiveness of interdisciplinary teams in achieving this), and they have brought a wealth of experience and accomplishment to bear on the problems.

Many of the reports are indeed interdisciplinary in that the experiments involve a combination of behavioral and other biological techniques. In accord with the historical development in this area, the correlations are still overwhelmingly between behavior and anatomy, whether such correlations are determined by sectioning and staining or by locating electrical pulses with penetrating electrodes—a technique which Neff and Diamond often find more valuable. But the physiological properties of neurones and their connections may be more important than their locus, and the character of neural events more critical than their site. It is a pleasure to find a psychologist with the courage to eschew bondage to anatomical detail, as does Donald Meyer, in the face of overcommitment to serial sections on the part of so many workers. Perhaps the most completely formulated attack on the problem of anatomical patterns versus physiological states, and of specific connections versus global influences, is given by Roger Sperry in the excellent chapter on plasticity of the nervous system; but many other authors deal with parts of this problem and contribute important facts and interpretations.

Donald Hebb in his summarizing chapter, "Alice in Wonderland, or psychology among the biological sciences," writes with his usual verve and courage. After giving a good thumbnail sketch of the history of psychological thought-fashions (and aiming some good shillelagh blows at contemporaries who neglect the contents of the skull, on the one hand, or the actual performance of the organism, on the other), he takes a thoroughly sound position on the validity of studying phenomena at each level, from the molecular to the organismic or social. I do think Hebb is unduly pessimistic about the application of neurophysiological models to the explanation of behavioral phenomena (my own models are clearly superior to those he seems to be discussing!), but I forgive him for this, because he is so right on other points. He criticizes advisedly the trend toward straight-jacket training of graduate psychology students—apparent especially in the requirement that they "formulate an hypothesis," "design an experiment," and take a course on "how to do research" before they are turned loose in the laboratory.

The really heartening aspect of this volume is that such conferences are being held—that workers are crossing disciplinary lines, first to talk with one another and eventually to work together, even if they do not become masters of all trades or committed to membership in interdisciplinary teams. These are precious beginnings, the rivulets from which will rise great streams of research and application in behavioral science.

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Nouveau traité de chimie minérale. vol. 11, group V, *Arsenic, antimoine, bismuth.* xxxix + 850 pp. Illus. 1958. Cloth, F. 8950; paper, F. 7750. vol. 14, group VI, *Chrome, complexes du chrome, molybdène, tungstène, hétéropolyacides.* xxxix + 1014 pp. Illus. 1959. Cloth, F. 10,700; paper, F. 9500. Paul Pascal, Ed. Masson, Paris.

A review of volumes 1 and 10 of this work appeared in *Science* of 1 March 1957 [**125**, 401 (1957)]; that of volume 3, in the 18 July 1958 issue [**128**, 138 1958)]; and that of volume 4, in the 6 March 1959 issue [**129**, 636 (1959)].

Volumes 11 and 14 follow the format of the previously published volumes of this modern treatise on inorganic chemistry. It is expected that the entire treatise, consisting of 20 volumes, will be completed by 1960.

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Mineralogy and Geology of Radioactive Raw Materials. E. William Heinrich. McGraw-Hill, New York, 1958. xiv + 654 pp. Illus. $14.50.

This book, which offers an encyclopedic coverage of the vast literature concerned with radioactive raw materials, is particularly timely. It is the first of the books that have been published in this field to give an adequate and intelligent résumé of the mineralogy and geology of this important commodity. It will be especially useful for general reference and source material. The coverage of significant source data is nearly complete, and in general a good selection has been made of the evidence and interpretation presented by the original authors. Some bias is evident,

however, in Heinrich's selection of statements favoring his own classification and genetic concepts.

The book is a particularly welcome contribution from the standpoint of the mineralogy (the author's forte) of uranium deposits. The application of data on mineralogic characteristics and geochemical relations to the habits of the deposits and to genetic concepts are developed to some extent, though perhaps one might have expected a more extended treatment.

The author focuses attention on the problems of classification by reviewing in considerable detail previous schemes. He brings to light, through careful reviews, the many conflicting genetic concepts, but more rationalization and development of the evidence are needed in support of his own firm classification. Many readers will still be reluctant, as the author points out, to accept this classification. Most workers have had difficulty with the classification of the "so-called Colorado Plateau type" deposits or "sandstone type" deposits. Heinrich introduces new terminology, "Epigenetic Stratiform deposits in sedimentary rocks," for these deposits, but after the introduction of the term in chapter 10, he fails to use it again in the chapter.

The frequent insertion of references in the text indicates that Heinrich was fully conscious of his obligations to the authors of the source material, but this style of writing often detracts from the readability of the book. The reader's interest might be better sustained had the evidence been predigested to a greater extent, and had the references been more generalized.

The exceptionally long and carefully selected bibliography is an important part of the book and should be of great value as a ready reference for students of these deposits.

The author is to be congratulated for having undertaken and completed the task of compiling the formidable literature on this subject into a book such as this. It is sure to become a best seller in this field.

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The Ecology of Human Disease. Jacques M. May. MD Publications, New York, 1959. xxi + 327 pp. Illus. $7.50.

Ecology, the study of the interrelationships between organisms and their environment, will continue to be of increasing importance in the future advances of medicine. In this first volume of a three-volume work, Jacques May has assembled much interesting information that will prove to be useful as a starting point for further studies in this field.

As a definitive work on ecology of disease, however, I am of the opinion that it falls short of its mark. Perhaps the chief reason for this is that May has tried to extend our limited knowledge on a world basis. As a result, incomplete or dubious information for much of the globe is often compared with better data for the few restricted locations for which the information is more definite.

The compilation thus appears to be sketchy and drawn in such broad strokes that the specific contribution of the ecologic approach often is obscured. In fact, a passage of two pages (pages 30–32) on a more specific situation studied by the author in Viet Nam is much more revealing of ecology as I understand it than most of the remaining 320 pages of the book.

The foreword (11 pages) by Marti-Ibañez sets some sort of standard as an exercise in hyperbole and historical name-dropping.

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New Books

De l'Actinie à l'homme. Études de psychophysiologie comparée. vol. II, *De l'Instinct animal au psychisme humain affectivité et conditionnement.* Henri Pieron. Presses Universitaires de France, Paris, 1959. 264 pp.

Alcohol in Italian Culture. Food and wine in relation to sobriety among Italians and Italian Americans. Giorgio Lolli, Emidio Serianni, Grace M. Golder, Pierpaolo Luzzatto-Fegiz. Free Press, Glencoe, Ill.; Yale Center of Alcohol Studies, New Haven, Conn., 1959. 155 pp. $4.

Antonio Meucci, Inventor of the Telephone. Giovanni E. Schiavo. Vigo Press, New York, 1958. 288 pp. $10.

Area and Power. A theory of local government. Arthur Maas, Ed. Free Press, Glencoe, Ill., 1959. 224 pp. $5.

Australian Road Practice. An introduction to highway engineering. H. M. Sherrard. Melbourne Univ. Press, Melbourne, Australia; Cambridge Univ. Press, New York, 1958. 430 pp. $19.50.

The Bases of Speech. Giles Wilkeson Gray and Claude Merton Wise. Harper, New York, ed. 3, 1959. 575 pp. $6.

Cell and Tissue Culture. John Paul. Livingston, Edinburgh; Williams & Wilkins, Baltimore, Md., 1959. 269 pp. $7.

Child Development. Willard C. Olson. Heath, Boston, ed. 2, 1959. 508 pp. $6.25.

Classical Mechanics. J. W. Leech. Methuen, London; Wiley, New York, 1958. 158 pp. $2.50.

Clay and Clay Minerals. Proceedings of the Sixth National Conference on Clays and Clay Minerals. Monogr. No. 2. Ada Swineford, Ed. Pergamon, New York, 1959. 422 pp. $8.50.

Cryogenic Engineering. Russell B. Scott. Van Nostrand, Princeton, N.J., 1959. 379 pp. $5.60.

Dictionary of Education. Prepared under the auspices of Phi Delta Kappa. Carter V. Good, Ed. McGraw-Hill, New York, ed. 2, 1959. 703 pp. $9.75.

Diseases of Laboratory Primates. Theodore C. Ruch. Saunders, Philadelphia, 1959. 621 pp.

EDTA Titrations. An introduction to theory and practice. H. A. Flaschka. Pergamon, New York, 1959. 138 pp. $6.50.

The Effect of Pharmacologic Agents on the Nervous System. Proceedings of the Assoc. for Research in Nervous and Mental Disease, vol. 37. Francis J. Braceland, Ed. Williams & Wilkins, Baltimore, Md., 1959. 499 pp. $13.50.

Endocrine Control in Crustaceans. David B. Carlisle and Francis Knowles. Cambridge Univ. Press, New York, 1959. 127 pp. $3.75.

Exchange of Genetic Material: Mechanisms and Consequences. vol. 23, Cold Spring Harbor Symposia on Quantitative Biology. Biological Laboratory, Cold Spring Harbor, N.Y., 1958. 449 pp. $8.

Filler Metals for Joining. Orville T. Barnett. Reinhold, New York; Chapman & Hall, London, 1959. 253 pp. $7.

Fringe Benefits. Francis M. Wistert. Reinhold, New York; Chapman & Hall, London, 1959. 155 pp. $3.75.

The Higher Terpenoids. P. de Mayo. Interscience, New York, 1959. 246 pp. $6.

Historical Geography of the North Carolina Outer Banks. Gary S. Dunbar. Louisiana State Univ. Press, Baton Rouge, 1959. 246 pp.

The Life and Letters of Charles Darwin. Including an autobiographical chapter. Edited by his son, Francis Darwin; foreword by George Gaylord Simpson. vols. 1 and 2. Basic Books, New York, 1959. 570 pp.; 571 pp. 2 vols., $10.

Principles of Modern Physics. Robert B. Leighton. McGraw-Hill, New York, 1959. 807 pp. $7.50.

Protection in Diagnostic Radiology. B. P. Sonnenblick. Rutgers Univ. Press, New Brunswick, N.J., 1959. 376 pp. $7.50.

Psychopharmacology. Problems in evaluation. Proceedings of a conference sponsored by National Institute of Mental Health, National Academy of Sciences–National Research Council, and American Psychiatric Association. Publ. No. 583. Jonathan O. Cole and Ralph W. Gerard, Eds. National Acad. of Sciences, Washington, D.C., 1959. 679 pp. $6.50.

Radiographic Atlas of Skeletal Development of the Hand and Wrist. William Walter Greulich and S. Idell Pyle. Stanford Univ. Press, Stanford, Calif.; Oxford Univ. Press, London, ed. 2, 1959. 272 pp. $15.

Semiconductors. N. B. Nannay. Reinhold, New York; Chapman & Hall, London, 1959. 790 pp. $15.

Six-Membered Heterocyclic Nitrogen Compounds with Three Condensed Rings. C. F. H. Allen. Interscience, New York, 1958. 646 pp. $26.