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,