on the fact that each of the contributors is an active worker in the field and presents his data.

There are few papers in this volume which show the primate used instead of another animal that would have given equally valid and predictable results; in the majority of papers, the comparative aspects are emphasized, whether the comparison is of one primate with another or of a primate with a nonprimate and whether drug metabolism or psychopharmacology is being discussed. This is a recurrent theme in the otherwise diverse papers.

Probably the characteristic of primates that is most attractive to those of us whose ultimate aim is the extrapolation of findings to our own species is their varied and extensive behavioral repertoire. For this reason the largest section of the book (184 pp.) is concerned with neurophysiological and behavioral studies. The behavioral aspect has not been neglected in other sections, however, for biochemical derangements can be correlated with behavior as they are manifested in human disease conditions. Similarly, where behavior is the disturbance of primary interest, as in drug abuse, biochemical events are sought to mirror these changes. The animal-drug interaction occurs at many levels, and it is nice to see that most of these contributors recognize the integration of one physiological system with another.

As is common with books of this sort, each presenter provides his tables and graphs in his own form, and as usual some are less well constructed than others. The only other comment to be made is that some of the questions asked from the audience could have been edited out as superficial and noncontributory. By the same token, however, the record is certainly complete.

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Molecular Data on Enzymes

Enzyme Handbook. THOMAS E. BARMAN. Springer-Verlag, New York, 1969. 2 vols. xvi + 928 pp. $19.50.

The *Enzyme Handbook* is a two-volume collection of data on 1300 enzymes organized in numerical sequence according to the classification of the International Commission on Enzymes. With varying degrees of completeness it provides information on the equilibrium constant, molecular weight, specific activity, specificity, Michaelis constants, inhibitors, and light absorption and references for enzymes cited in the literature up to early 1968. It probably is the most exhaustive listing of known enzymes. As is pointed out in the foreword, "It would be foolish to hope that a handbook of this kind will provide all the information about enzymes which different specialists would wish to find." The futility of this hope is proven adequately. At best the handbook is a good though somewhat dated source for review articles and special information on particular enzymes. There are 14 pages of superfluous introduction, which could have been replaced easily by a single-page description of the format. The only physicochemical property listed is molecular weight. This is available for less than half of the enzymes, and for many of these the method and conditions of determination are either totally or partially omitted. The rest of the enormous quantity of data is kinetic information. The information is very heterogeneous, ranging from a simple statement on specificity for a number of enzymes to a single Michaelis constant (conditions not given) to a selective list of 19 (out of at least 100 known) substrates for chymotrypsin A complete with k_0's and K_m's to a list of 30 substrates for D-amino acid acetyltransferase with relative velocities. The light-absorption data refer only to the substrates, not the enzymes. No assay methods or isolation procedures are listed, and in many instances essential cofactors or coenzymes have not been mentioned.

Perhaps the most important consideration regarding a compilation of this sort is whether or not the data that have been selected are reliable and representative. This reviewer noted several errors of omission and commission concerning certain enzymes with which he is most familiar. No attempt was made to ascertain the extent of such shortcomings, and they might be fortuitous. Nevertheless, they indicate that one must view the data with certain reservations.

The handbook can be helpful to a sizable number of readers. For beginners it would certainly be a convenient starting point for collecting references, and for veteran enzymologists it is the best listing of enzymes available. Since it is already out of date with regard to many of the citations and may be under revision for a second edition, it might be worthwhile considering a loose-leaf version in the style of the Worthington or Boehringer manuals, which are more informative though obviously limited in scope.

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Resonances in Nuclei

Shell-Model Approach to Nuclear Reactions. CLAUDE MAHAUX and HANS A. WEIDENMÜLLER. North-Holland, Amsterdam; Interscience (Wiley), New York, 1969. xii + 348 pp., illus. $16.

In the past five years the shell-model approach to reaction theory has revived interest in this area of both atomic and nuclear physics. Wedding the shell model for bound states and the distorted-wave Born approximation for reaction amplitudes, this approach provides a new insight into the origin of resonances in both atoms and nuclei. Resonances are attributed to the decay of discrete states of an independent-particle Hamiltonian. These states are formed by exciting two or more particles to bound orbitals whose total excitation energy exceeds the binding energy of a particle in the ground state. The residual two-particle interaction enables these states to decay by particle emission, but their transient existence is reflected in resonances in elastic and inelastic processes.

A large number of papers have developed these ideas, clarified various new concepts associated with this approach, such as "doorways," developed techniques for handling difficulties introduced by narrow single-particle resonances, and presented the results of calculations. In this monograph the authors undertake to review this work and to give some assessment of it. Almost every significant paper on the subject has been referenced and their bibliography lists every citation of each paper. Nevertheless the bulk of the material in the monograph is taken directly from the authors' own papers. The reader is therefore well advised to remember that this is a book in which the judgments and conclusions are closely related to the authors' own research.

Topics include various formulations of the shell-model approach, approximation schemes for solving the equa-