differences, the method of integral relations, and the method of characteristics. "Bluntness effects in hypersonic small perturbation theory," by J. P. Guiraud, D. Vallee, and R. Zolver, is concerned with the analogy between hypersonic flow and blast wave. "The stability of parallel flow," by W. H. Reid, includes a discussion of the adjoint Orr-Sommerfield equation. In actual calculation of the inviscid part of the characteristic equation two methods are suggested. One is direct numerical integration of the inviscid equation, and the other is based on transforming it into a first-order Riccati equation and then expanding the solution in powers of wavenumber. "Blast wave theory," by Akira Sakurai, is concerned with perturbation of similarity solutions and its application to explosions, magnetohydrodynamics, and other unsteady phenomena. "Laminar boundary layers on cambered walls," by F. Schultz-Grunow and W. Breuer, is devoted to the effect of curvature on boundary-layer theory. The skin friction and heat transfer, the velocity, vorticity, and shear distributions, and boundary-layer thicknesses are given as functions of curvature and Reynolds number.

Each article contains extensive references. The present volume is recommended as a reference for graduate students and research workers in fluid dynamics. A second volume on cavitation and reacting gases is planned.

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Biochemical Reactions

A carefully composed text on the kinetics of enzyme reactions would be of considerable value to both scientists and students in the biosciences. Unfortunately, Charles Walter's **Enzyme Kinetics: Open and Closed Systems** (Ronald, New York, 1966. 108 pp., illus. $7) is not the text.

A very brief chapter on the concept of a stationary state for open systems and the associated thermodynamics of irreversible processes (after Prigogine) is followed by a chapter on "Stationarity in closed systems" which refers to the steady-state approximations. The author places a great deal of emphasis on the approximate nature of the steady-state equations and warns that the habit of using such approximations may be hazardous to the interpretation of kinetic data. Unfortunately, he offers no prescription for "kicking the habit" and gives no clear indication of how serious the hazard is in practical cases. Indeed, a later and somewhat confusing chapter discusses the steady-state equations for a few mechanisms without further ado.

Other chapters include "Kinetics of the early stages of enzyme reactions," "Labeled reactant distribution," and "Relaxation methods." In all these chapters some rather complicated kinetic expressions are presented, but there is virtually no discussion of the experimental and practical limitations of the techniques and equations. The difficulties which arise with such complicated equations are emphasized by a cumbersome notation and an insufficiency of graphs. Is it not remarkable that a text on enzyme kinetics does not include even one complete graph on the kinetics of an enzyme reaction?

The final chapter, on chemical oscillations, appears to have been added as an afterthought. In contrast with the other chapters, it is not concerned with the kinetics of a single enzyme reaction and there are a lack of equations and an abundance of pretty but largely irrelevant graphs.

The author's paraphrasing of the papers he cites frequently results in cumbersome, misleading, or even incorrect statements. The selection of material—the good as well as the bad—demonstrates neither a critical eye, a comprehensive understanding of the literature, nor any serious attempt to integrate and digest such information. Those interested in understanding enzyme kinetics would do best to spend their money on postage stamps and xerox copies of the original papers.

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Origins of Behavior

Ethology is a method of studying animal behavior that has developed in Europe principally during the last 30 years, although it certainly has its roots in investigations that were carried out around the turn of the century by an American zoologist, Charles Whitman, and by a European zoologist, Oskar Heinroth. During the 1930's and '40's studies of animal behavior in Europe and in the United States were markedly divergent and proceeded with practically no communication between investigators on the two continents. While the European ethologists emphasized the biological bases of behavior, the comparative psychologists in the United States stressed the importance of learning processes, and essentially rejected the notion of genetically based differences in behavior. Thus, upon being introduced to the notions of ethology, the behavioristic psychologists of this country felt that these presented a challenge to their own position, and for a time there were heated polemics on the question of whether unlearned behavior existed. In the last few years, however, there have been many meetings between American psychologists and European ethologists, and many of the original misunderstandings of each other's positions have been resolved. In fact, the relationships between the two disciplines have evolved to the point where there is now developing an extremely useful dialogue.

Animal Behaviour (McGraw-Hill, New York, 1966. 544 pp., illus. $10.50), by the English ethologist Robert A. Hinde, represents an ambitious attempt to integrate the methods and findings of ethologists with those of comparative psychologists, particularly with respect to the question of causation and development of behavior in the individual, a common area of interest of psychology, physiology, and ethology. Hinde's book is of value in pointing out ways in which comparative psychologists may profitably apply biological concepts to their investigations. It is also a good reference source for much ethological work which is not generally known in this country. Many chapters provide good reviews of certain research areas and problems, particularly chapter 7, on orientation, chapter 16, on conflict, chapter 24, on developmental aspects of learning, chapter 27, on evolution and behavior, and chapter 28, on the adaptedness of behavior and its role in speciation.

While Hinde rightly asserts that ethology has an especially important contribution to make to the analysis of learning processes, and fully discusses the aspects of learning investigations to which ethological concepts are relevant, it must be said that, because of his own theoretical biases, he does not present a complete exposition of important ethological concepts. Especial-