novic, H. E. Zimmerman, H. E. Gunning and O. P. Strauss, R. Dessauer and J. P. Paris, and O. L. Chapman, respectively, have effectively written the last six chapters.

A second volume is promised almost immediately with others to follow. For volume 1, the editors have succeeded in securing authors thoroughly familiar with their fields. Subsequent volumes will be awaited with great interest.

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Evolution

The Process of Evolution. Paul R. Ehrlich and Richard W. Holm. McGraw-Hill, New York, 1963. xvi + 347 pp. Illus. $8.95.

Evolution. Jay M. Savage. Holt, Rinehart, and Winston, New York, 1963. viii + 126 pp. Illus. Paper, $1.25.

It is surprising how similar two very different texts can be. In both of these books evolution is discussed as a process of gene frequency change. Both authors present a strong interest in herpetology, which has led to a relative abundance of examples from a usually neglected field. These authors are based in California, and maps of that state are common and references to its backwoods require a greater knowledge of local geography than one might expect of students in other parts of the country. Both books tend to refer the student to other texts rather than to original papers. There is a tendency to state opinions and theories as if they were facts, and this is coupled with inadequate references to source material. The inquisitive reader often has no place to turn for enlightenment.

Ehrlich and Holm have written a reasonably good text on the process of evolution. Their book will probably be used in advanced courses but it was intended for a more general audience. Therefore, it contains an extensive exposition of genetics and an introduction to cytology, which, together, occupy about one-third of the book with material that is not needed by the bulk of the readers. The other major subjects covered include theoretical population genetics; examples of natural and artificial selection; methods for requiring, permitting, or prohibiting the recombination of genes; and a discussion of variation within and between species. In addition to this traditional description of the genetic aspects of evolution, there is a final chapter in which the authors discuss the problem of variation within a species complex from the computer user's ultramodern point of view. This section should prove far more impressive than understandable, but the student will receive some idea of the large amount of simplification present in the usual definition of a species. Throughout the book, information is firmly packed into each paragraph so that it is difficult to read. Undoubtedly, Ehrlich and Holm will prove to be an interesting competitor with the standard texts in the genetic explanation of evolution.

Savage's *Evolution* can easily be dismissed. It is short and catastrophically bad. The discussion of evolution is acceptable, but almost everything related to genetics is disputable or wrong—mostly wrong. The worst fault is the confusion of an allele's name with its frequency, so that p is the frequency of p and it is an allele of q, which has a frequency q. Two such loci are discussed at the bottom of page 41, and the number of errors there may set a record for six lines of print in a modern science text. No instructor should lead a student into this morass.

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Electron Deficient Compounds

Boron Hydrides. William N. Lipscomb. Benjamin, New York, 1963. x + 275 pp. Illus. $14.

In 1933 Alfred Stock published the first book summarizing his brilliant pioneer work on the identification and chemical characterization of the enigmatic boron hydrides. In this early volume structural and theoretical information was either nonexistent or mostly incorrect. During the past 15 years work on these early problem areas has been cleverly advanced by Lipscomb and his co-workers. It is thus appropriate that such new material forms the heart of Lipscomb's book, which includes developments up to the summer of 1963.

The first chapter is an excellent summary of structural information on about 40 boron hydrides, halides, and their derivatives. Chapters 2 and 3 are devoted to theoretical models for the so-called "electron deficient molecules." In chapter 2 boron hydrides are described in terms of localized two- and three-center bonds and electron delocalization is then described in terms of resonance involving these bonds. In chapter 3 a very terse introduction to the molecular orbital method for B_5H_9 precedes the description of an application of molecular orbital theory to such topics as an estimation of energy levels, spectral lines, ionization potentials, heats of formation, and charge distribution in the boron hydrides. Lipscomb is enthusiastic in his presentation and has devoted a large amount of space to the semiquantitative applications of theory, but in my mind many of the problems considered are so difficult that, despite the amount of space used, the results are not reassuring. For example, in B_2H_6 the bridge protons are referred to as more negative than the terminal protons (pages 33, 106, and 172) by one method, as more positive than the terminal protons by another method (page 106), and as a subject for further study (pages 107 and 112). As Lipscomb notes, our problems are probably indicative of the "symmetry of our ignorance."

Chapter 4 gives a résumé of available information on nuclear magnetic resonance spectra of boron hydrides and their derivatives. It contains a proper recognition of both the problems and strong points of the method. Chapter 5 is a concise summary of the chemistry of the various hydrides. Much of this information is presented in tables, equations, and illustrative reactions. Although I would prefer to have a little more detail, the book does provide a neat summary and entrée into most of the pertinent literature on the subject.

The book is nicely presented and reasonably free from typographical errors. One of the features that will cause some annoyance to the average reader is the constant reference to numbered borons in the theoretical discussions of chapters 2 and 3 and the complete absence of numbers for borons on all of the accompanying figures.

It is inconceivable to me that anyone working with boron hydrides or related compounds would wish to do