certain characters are selected under a given set of environmental conditions. In any event, Simpson's numerous ideas deserve careful study by all scientists who wish to further our knowledge of evolution, either through the synthesis of available knowledge or through experiments designed and performed to increase this knowledge.

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Advances in Virus Research, Vol. I. Kenneth M. Smith and Max A. Lauffer, Eds. Academic Press, New York, 1953. 362 pp. Illus. $8.

It can hardly be said that this newcomer in the growing family of the "Advances" series fills any urgently felt need. Discussions of most areas of virus research have multiplied at a tremendous rate in the past few years, either as records of symposia or as reviews in various periodicals. Yet, *Advances in Virus Research* can make a real contribution by bringing together information from different areas of virology, and especially by encouraging the growth of the comparative approach.

The first volume contains generally sensible and occasionally authoritative material. What strikes the reader most forcibly is the uneven development of various areas. Epstein's opening article, a review limited to some well-known aspects of bacteriophage work, shows the enormous progress made possible by the use of strictly quantitative methods. Biological and biochemical aspects of phage research are, however, presented in a sketchy and somewhat confused manner. The two articles on plant viruses by Bennett and Black, both up-to-date and authoritative, serve to illustrate the urgent need for simple quantitative methods applicable to plant viruses. A host of challenging observations—for example, the joint transmission by insects of two viruses both needed for production of a disease—must await the availability of precise methods of study. The problem of "plant-and-insect" viruses, well presented by Black, is one of the most fascinating of biology and we must admire the patience and ingenuity required for work in this field.

The two papers that follow present an interesting contrast. Bergold's discussion of viruses that produce insect diseases shows, on the one hand, the need to complement the fine chemical and morphological observations (mainly the author's own) with precise work on virus growth and synthesis. Henle's article on influenza virus multiplication, a lengthy and somewhat overdetailed review, shows, on the other hand, the handicap of purely biological work on virus growth without close integration with biochemical analysis. It is almost inconceivable that even such basic information as the nucleic acid content and composition of influenza viruses should still be a matter of speculation.

"The focus of interest of this series [being] the virus, not the disease," as stated in the preface, Melnick's excellent review on poliomyelitis brings the reader a somewhat distressing realization of the primitive state of our knowledge concerning the biology and biochemistry of the agent of this most stubbornly investigated disease. Sharp's review of purification of animal viruses gives a useful compilation of recent advances in methodology. Markham's concluding article on nucleic acids, which unfortunately lacks the most recent information on desoxyribonucleic acid structure, is mainly valuable for the description of work on enzymatic degradation of ribonucleic acid.

As a whole this volume seems to suffer, not only from an apparent delay in publication, but also from the absence of an integrated plan. The suggestion might be made that the manuscripts for each future volume be submitted to a subeditor who, in an introductory article, would place the various contributions in some general perspective.

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An Introduction to the Theory of Seismology, ed. 2. K. E. Bullen. Cambridge Univ. Press, New York, 1954. 296 pp. Illus. $6.50.

Dr. Bullen has changed the text but very little in this revised edition. A comparison between the 1947 and the present editions shows that many pages are identical. This is not a criticism, however, but rather a compliment to the author. His original exposition has met the test of the critics, and although little new has been added to his *Introduction,* either edition is a "must" for the shelves of any geophysical library.

In his introductory chapter, the author treats the history of seismology in a concise manner but does introduce most of the major personalities and projects that pertain to the development of this science. He provides a logical plan for developing his text and then follows this plan closely and explains his points clearly.

In the chapters on elasticity and the wave theories of both body and surface waves, Bullen provides an excellent position. Although he busies himself with the major phenomena, these are explained and proved both clearly and comprehensively. These chapters comprise the best section of the book.

This book does not propose to be a directive on station operation, and a critic is always trying to change the purpose of the author when he makes suggestions. The reader learns very little about station operation from this work, and it does not explain sufficiently the operation or characteristics of various types of instruments. Again, the technique of locating epicenters, the interpretation of seismograms, and so forth, is not sufficiently explained. For the student the material presented is insufficient, and for the teacher the material is superfluous. In some places, the author's quest for brevity has resulted in his being too brief. In Chapter xv, for example, in treating Fur-