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Book Reviews

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This book is a completely rewritten and expanded version of an earlier book by R. M. Garrels called Mineral Equilibria, published by Harper and Row in 1960. The present volume is composed of eleven chapters, six appendices, and two indices. Appendix 2 contains extensive and valuable tables of standard enthalpies, entropies, and free energy values for 52 elements and their compounds. Selected references are given at the ends of each chapter, as well as in footnotes throughout the text. The value of this book is greatly enhanced by numerous problems which are presented at the ends of most chapters along with their solutions.

The central theme of this book, as stated by the editor, is “. . . The application of thermodynamics to the many natural systems of geologic interest and geochemical concern.” The authors achieve this objective splendidly with an unusually lucid presentation. The authors make skillful use of illustrative examples of geologic interest and thereby make the content of this book accessible to students of geology whose grasp of chemical thermodynamics and the calculus may have become rusty.

After the first two chapters, which are introductory in nature, chapter three is devoted to a discussion of carbonate equilibria in water. Chapter four treats complex ions and presents a chemical model of sea water. Chapters five and six deal with the measurement of Eh and pH and partial pressure diagrams, respectively. Chapter seven describes the stability fields of compounds of Fe, Cu, Mn, Ni and Co in terms of Eh and pH conditions. It is the longest and perhaps the most significant chapter in this book. Chapter eight discusses ion-exchange phenomena and ion-sensitive electrodes. In chapter nine, the authors deal with the effects of pressure and temperature on equilibria; chapter ten treats combination diagrams, and the last chapter focusses attention once again on geologic applications.

Emphasis is placed, throughout, on graphical representation of equilibria, thus making the contents of this book more accessible to geologists who traditionally are used to information displayed in this form. This book should become a valuable text in geochemistry and a useful reference work to geologists and geochemists alike.


A history of a subject written by one who was actively engaged in its development is usually well worth reading. This short history of genetics, much of it previously presented as a series of lectures, lives up to this expectation. Dr. Sturtevant, in the first four chapters, provides brief discussions of pre-Mendelian genetics, Mendel, and that period from the time of Mendel’s experiments to the simultaneous rediscovery of Mendel. The remaining sixteen chapters are concerned with developments since 1900 and cover various topics from their beginnings up to about 1850. More recent developments, when included, are referred to only briefly. The classical fruit fly and corn work is succinctly reported, but so is research with such organisms as protozoa and molds, as well as the development of such areas as population and biochemical genetics.

Dr. Sturtevant, because he was involved with so many of the topics reported, gives valuable insights into the excitement of the researchers as they worked, and the interplay of ideas as they developed. This is a book for readers with some genetic understanding, be it a beginning course or a graduate degree. Ideas are presented which will easily lead one to broadened thinking and probably further reading. This work is, above all, the distilled knowledge of an original thinker. A selected eleven-page bibliography and a useful chronology are provided. An appendix containing “intellectual pedigrees,” that is, diagrams showing teacher-student relationships of the most important geneticists, is a truly unique feature of this work. These eleven diagrams provide a springboard for the imagination of those who enjoy the contemplation of how ideas develop and pass from person to person. This feature alone is well worth the price of the book, but there is much more. Any biologist, or anyone with interests in biology, who has an evening to spend reading this book will be well rewarded for his time.

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