PREFACE

The term *mineral* in the title of this book is defined as "a homogeneous, naturally-occurring phase, ... restricted to inorganic crystalline phases" (Glossary of Geology and Related Sciences, American Geological Institute, 2nd edn, 1960, p. 186).

Minerals, so defined, dominate the world around us. They make up the bulk of the earth's crust and the skeletal structures of organisms, and they are used extensively by Man in his industrial, agricultural, artistic and cultural activities.

The elements from which minerals are formed undergo continual cycling within the environment. The cycles are influenced by a variety of factors not the least of which are, in many instances, biological in character.

It is the purpose of this book to review current knowledge of the major biological processes which are involved in these geochemical cycles and which influence, directly or indirectly, the formation, dissolution and transformation of minerals.

Chapter 1 outlines some general aspects of the biogeochemical cycling of elements. The chapters in sections 2—8 relate to specific classes of minerals selected on the basis of their quantitative or economic significance and the extent to which biogeochemical data are available. The last two chapters make recognition of Man as an organism which is making a profound impact on the mineral status of the earth. Chapter 9 deals with the use of minerals in agriculture and chapter 10 provides an insight into the future consequences of mineral utilization.

The book is not intended to provide a complete coverage of the biogeochemistry of minerals and the choice of topics largely reflects the editors' interests. We do regret, however, being unable to find authors to discuss carbonate deposition by protozoa and biological silicification to complete the sections carbon and silicon, respectively.

Since, as discussed in Chapter 1, biogeochemical cycles are interlinked, there is inevitably a degree of overlap between the subjects discussed in this book. Straight duplication has been avoided as much as possible but differing viewpoints on particular topics have been included to provide the non-specialist reader with an appreciation of the complexities surrounding hypotheses which are often not amenable to rigorous scientific proof.

Many colleagues, too numerous to mention specifically, have assisted in various ways in the planning and preparation of this book. Our particular thanks, however, must go to:

Mrs. Shirley Driessen, Miss Winnie Wong and Mrs. Robyn Raison who bore the brunt of secretarial and typing work associated with the editing,

the publishers, Sigma Xi, and Professor B.J. Skinner for permission to reproduce the article in Chapter 10,

all the authors for their time, thought and efforts, and

our publishers, Elsevier, for their patience during the book's lengthy gestation period.

P.A.T.
D.J.S.