

BOOK REVIEWS

Environmental Chemistry by R. W. Raiswell, P. Brimblecombe, D. L. Dent and P. S. Liss, Published by Edward Arnold, London, 1980, pp. viii + 185, Price £ 495.

The success of the Industrial Revolution witnessed during the past two centuries provided mankind enough opportunities to procure and process the raw materials from nature to meet its growing demands of food, clothing, housing, power, transport, health and recreation. The large scale factory production organised by the industry during these decades to meet such demands has also contributed to many environmental problems and these have been recognised recently as alarming and disturbing. It has become imperative to take effective steps to prevent pollution of air, water and the earth generated by the industry even to sustain our normal day-to-day life, let alone to improve its quality.

In attempting to alleviate such problems, it is necessary to understand how the chemical environment behaves in its unpolluted state. Studies of natural environmental processes can provide the necessary base-line data to assess the impact of pollutants whether these are totally man-made chemicals (*e.g.*, D.D.T., Freons) or natural substances whose concentrations are being increased (*e.g.*, CO₂ by increased burning of fossil fuels).

Environmental chemistry has thus become one of the very important disciplines and its basic aim is to understand the processes as well as systematise the environmental data in terms of chemical principles. By understanding the processes occurring in nature, it becomes possible to understand the behaviour of man-made substances thrown into the environment. However, contributions from other sister disciplines such as biology, ecology, geology, economics and physics will also be necessary for an integrated approach to the solution of these vital problems.

In the light of such a realisation, efforts are being made in some of the academic institutions of the industrially advanced countries to re-structure some of the degree courses in both life and physical sciences and enable the students to be more aware of the problems of the environment and natural resources. The volume under review is one of the series along with others which will provide a range of textbooks on environmental biology, ecology, economics and physics. The textual material of the present volume had its origin in a short lecture and practical course given by the authors to first year students in the School of Environmental Sciences, University of East Anglia. They have adopted the Earth-Air-Water Factory as an analogue to illustrate the way in which chemical principles operate in the environment. The framework is the hydrological cycle and the chemical processes which occur as water moves

from the atmosphere on to the land surface, into rivers, lakes and oceans and eventually into marine sediments.

The introductory first chapter gives a brief account of the crust, the hydrosphere, the atmosphere and the earth-air-water factory as an analogue. A somewhat detailed treatment of the atmosphere, the crust and the oceans is taken up in the subsequent three chapters. The fifth and the final chapter is devoted to the formation of mineral resources in sediments which include manganese nodules, microbiological processes in sediments, formation of petroleum and coal. A glossary of terms provided at the end will help those who have no adequate background in chemistry to follow the text. Reference to further reading is given in the bibliography. The book is complete with an index.

It is gratifying to observe that there has been a good appreciation of the importance of environmental studies in India and it is therefore hoped that this subject will find place in the instructional programme and research work in the increased number of institutions and universities. The book will certainly be helpful for such studies and also may form a basis for instructional material. The cost appears to be rather high for a book of less than 200 pages.

A. R. VASUDEVA MURTHY

Theoretical Principles of Inorganic Chemistry by G. S. Manku, Published by the Tata McGraw-Hill Publishing Company Ltd., New Delhi, 1980, Pp. xxiv+563, Price Rs. 28.50.

This book is intended for the undergraduates in Chemistry in the Universities. There are 13 chapters, each appended with problems followed by four appendices with a bibliography. The general writing is lucid and the chapters are arranged in a sequential pattern, easily comprehensible by the students. However, I find two chapters, redox systems and the solvents stand out of the logical development. The way these two chapters are written is also not very convincing. It is not very clear whether the author wanted to introduce the concept of oxidation state in the redox systems chapter or try to initiate discussion on electron transfer reactions. The chapter on the solvents should be dealt primarily on nonaqueous solvent systems rather than venturing on chemical structure and solubility, solubility of long chain organic compounds with polar ends, etc. The chapter on isolation of elements is good. Possibly the bibliography for this chapter should include some more books.

The problems in each of the chapters are chosen well and illustrative of the subject matter. The author has tried to synthesise the subject matter contained in Day and Selbin's *Theoretical Inorganic Chemistry* and Sienko and Plane's *Physical Inorganic Chemistry* in a book comprehensible to undergraduates. The book can be recommended to the undergraduate classes provided it is priced low enough.

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