

SYSTEMATIC INORGANIC CHEMISTRY

FROM THE STANDPOINT
OF THE PERIODIC LAW

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PREFACE TO FIRST EDITION

This book is intended for students reading for final degree and other advanced examinations, and possessing the amount of information on the properties of the elements and their compounds, and of technical processes, usually covered by the intermediate university courses.

We think that, by omitting the more elementary parts, we shall have brought the systematic aspect of the subject more clearly into prominence. The Periodic Law still affords the most complete method of systematic classification, and our treatment is based upon it—the book being, indeed, an exposition of that law.

The chapters on the Atomic and Molecular Theories, on Oxides and Allied Compounds, and on Oxidation and Reduction, are not intended to be complete accounts of these topics, but rather to recapitulate what the advanced student already knows. We presuppose some acquaintance with the elements of modern physico-chemical theory; and we have not hesitated to draw illustrations, when desirable, from the chemistry of the carbon compounds.

We have made free use of the best modern textbooks and current literature, and desire to acknowledge our indebtedness especially to the works of Dammer, Marignac, Roscoe and Schorlemmer, Ostwald, and Treadwell.

R. M. C.
G. D. L..

PREFACE

TO THE FIFTH EDITION

For this edition the book has been thoroughly revised and much new matter added.

In particular, the notes on the electronic interpretation of valency and molecular structure, formerly placed in an Appendix, are now incorporated in the text. To meet these changes, Chapters I and II have been recast utilizing some material from Chapter XIV. Chapter I contains the older atomic and molecular theories, Mendeléeff's periodic law, and pre-electronic theories of valency. Modern electronic theories appear in Chapter II, and Chapter XIV deals with radioactivity and nuclear transformations. A discussion of oxidation and reduction from the electronic standpoint is given, and the importance of the newer study of crystal structure is shown in the section dealing with the silicates.

Sources of information are indicated by the name of the author (in case of joint-authorship the first name is given) and the year of publication. It is hoped that these will serve as due acknowledgment, and also admit of further reference through the Indexes of *British Chemical Abstracts*, *Chemical Abstracts*, and *Chemisches Zentralblatt*.

I am deeply indebted to the publications of Professor N. V. Sidgwick, and to the Contributors in the *Annual Reports on the Progress of Chemistry*, published by the Chemical Society. I have to thank Professor J. Muir and Dr. M. M.

J. Sutherland, of the Royal Technical College, Glasgow, for helpful discussion, and the assistance of the latter in reading the proofs is gratefully acknowledged.

It is a privilege to offer this Revision as a tribute to the memory of an inspired teacher, Dr. R. M. Caven.

June, 1936.

NOTE TO PRESENT EDITION

The present Edition has given an opportunity to make a few corrections and improvements. Several portions of the text have been re-written in order to include well-established advances.

A. B. C.

March, 1939.

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