

CONTENTS

	Page
Foreword to the second edition	ix
INTRODUCTION	xi
Chapter I. COMPOUNDS OF THE HEXA-, PENTA-, AND TETRAMMINE TYPE	1
1. Methods of determining the composition of complex ions	1
2. Hexammine compounds and their analogues	11
3. Acidopentammine compounds	16
4. Diacidotetrammine compounds	29
Chapter II. CO-ORDINATION THEORY	39
1. The evolution of the theory of complex compounds prior to the co-ordination theory	39
2. The principal and auxiliary valence	45
3. Co-ordination number	49
4. The relationship between the co-ordination number and the auxiliary valence. Addition compounds and substitution products	53
5. The co-ordinating capacity of the substituent group	56
6. The relationship between the composition of the complex and the behaviour of the anions	60
7. The nomenclature of complex compounds	64
8. Spatial interpretation of co-ordination numbers	66
Chapter III. STEREOCHEMICAL CONSEQUENCES OF THE OCTAHEDRAL MODEL	73
1. Geometrical isomerism	73
2. Optical isomerism	76
3. Methods of resolving optically active complex compounds	86
4. The relationship between the composition and the rotatory power of complex compounds	88
5. Transformations involving optically active complexes in solution	92
6. Methods for determining the configurations of geometrical isomers of complexes with the co-ordination number of 6	98
Chapter IV. COMPOUNDS OF THE TRI-, DI-, MONOAMMINE, AND HEXACIDOTYPES FOR THE CO-ORDINATION NUMBER OF 6	108
1. Triacidotriammine compounds	108
2. Tetracidodiammine compounds	114
3. Pentacidomonoammine compounds	119
4. Hexacido compounds	121
Chapter V. COMPLEX COMPOUNDS WITH A CO-ORDINATION NUMBER OF 4	130
1. A short review of the derivatives of divalent platinum	130
2. The nature of the isomerism of divalent platinum compounds	139
3. Other elements which exhibit a co-ordination number of 4	150
4. An outline of the stereochemistry of complex compounds with the co-ordination number of 4	159

	Page
Chapter VI. CO-ORDINATION, HYDRATION, AND OTHER STABLE TYPES OF ISOMERISM FOR COMPLEX COMPOUNDS	163
1. Co-ordination isomerism	163
2. Co-ordination polymerization isomerism	166
3. Hydration isomerism	168
4. Ionization metamerism	169
5. Structural isomerism	170
6. Valence isomerism	172
Chapter VII. THE NATURE OF THE FORCE OF COMPLEX FORMATION	174
1. Introduction	174
2. Electrostatic concepts	176
3. Polarization	186
4. The thermal stabilities of complex compounds	194
5. Complexes of the polyhalide type	195
6. Concepts derived from a study of the covalent (homopolar) bond	197
Chapter VIII. THE MUTUAL EFFECTS OF CO-ORDINATED GROUPS	218
1. Differences in the properties of isomers	218
2. Rules for the trans-effect	219
3. Rearrangements within the co-ordination spheres of complex compounds	233
Chapter IX. ACID-BASE PROPERTIES, OXIDATION-REDUCTION PROPERTIES, AND SOLUTION EQUILIBRIA OF COMPLEX COMPOUNDS	237
1. Acid-base properties	237
2. Oxidation-reduction properties	249
3. Equilibria in solutions of complex compounds	264
Chapter X. SOME SPECIAL KINDS OF COMPLEX COMPOUNDS	280
1. Polynuclear complex compounds	280
2. Innercomplex compounds	287
3. Iso and heteropoly acids	302
4. Supercomplex compounds	308
Chapter XI. A SURVEY OF THE ABILITY OF ELEMENTS TO FORM COMPLEXES IN RELATION TO THEIR POSITION IN THE PERIODIC TABLE	314
Bibliography	342
Supplementary Bibliography to the English Translation	354
Author Index	357
Subject Index	360