

## *Contents*

FOREWORD	vii
PREFACE	ix
INTRODUCTION	1
<b>I. THE APPARATUS AND ITS USE</b>	<b>5</b>
<b>A. THE RING OVEN</b>	<b>5</b>
<b>B. THE GAS GENERATOR</b>	<b>11</b>
<b>C. THE SAMPLE PIPETTE AND GLASS HOLDER</b>	<b>13</b>
<b>D. SOME ACCESSORIES</b>	<b>15</b>
<b>II. QUALITATIVE ANALYSIS</b>	<b>17</b>
<b>A. WITHOUT SEPARATIONS</b>	<b>17</b>
<b>B. SEPARATIONS</b>	<b>18</b>
1. Separation into Two Groups	18
2. Separation into Three Groups	20
3. Separation of Substances already Collected in a Particular Group	20
<b>C. SYSTEMATIC SCHEMES FOR THE ANALYSIS OF METAL IONS</b>	<b>24</b>
1. Dissolution of Sample	25
2. The Separation Scheme for Fourteen Metals and Similar Schemes	27
3. The Separation Scheme Using "Washing-out" and "Washing-in" Techniques	37
4. Separation Scheme Using Liquid-Liquid Extraction Procedures	37
5. Some Other Separations of Metal Ions	41
<b>D. REACTIONS FOR METAL IONS</b>	<b>43</b>
<b>E. SEPARATIONS AND REACTIONS FOR ACID RADICALS</b>	<b>57</b>
1. Separations	57
2. Some Special Applications	59
3. Reactions for Acid Radicals	61
<b>F. REAGENTS AND FILTER PAPER</b>	<b>65</b>

III.	SPOT COLORIMETRY WITH THE RING-OVEN METHOD, "RING COLORIMETRY"	69
A.	THE DETERMINATION OF IRON	72
B.	THE DETERMINATION OF OTHER METALS	76
C.	REMOVAL OF INTERFERING IONS	84
D.	THE DETERMINATION OF SOME ANIONS	85
E.	AMPLIFICATION REACTIONS	85
F.	UNIVERSAL STANDARD SCALES	87
IV.	ORGANIC SUBSTANCES	94
V.	RADIOCHEMICAL APPLICATIONS	101
A.	DETERMINATION OF ACTIVITIES	101
B.	IDENTIFICATION OF RADIONUCLEIDES	109
C.	SOME SPECIAL SEPARATION PROCEDURES	110
D.	DETERMINATION OF INACTIVE SUBSTANCES	115
VI.	THE RING-OVEN METHOD COMBINED WITH OTHER TECHNIQUES	117
A.	RING-OVEN METHOD AND ELECTROGRAPHY	117
1.	Qualitative Analysis	117
2.	(Semi)-quantitative Analysis	119
B.	COMBINATION WITH PAPER- AND THIN-LAYER CHROMATOGRAPHY	122
C.	COMBINATION WITH SOLVENT EXTRACTION	129
D.	COMBINATIONS WITH OTHER TECHNIQUES	131
VII.	APPLICATIONS IN VARIOUS FIELDS	133
A.	AIR-POLLUTION STUDIES	134
B.	TRACE ANALYSIS AND TOXICOLOGY	138
WI.	CONCENTRATION OF SUBSTANCES IN THE FORM OF A STRAIGHT LINE	141
	CONCLUSION	143
	APPENDIX	145
	LIST OF ORIGINAL RING-OVEN PUBLICATIONS	147
	REFERENCES	155
	INDEX	163
	OTHER TITLES IN THE SERIES IN ANALYTICAL CHEMISTRY	169