

CONTENTS

INTRODUCTION	vii
1. HISTORICAL DEVELOPMENT	1
2. MODES OF OCCURRENCE	14
3. STRUCTURE, SPECTROSCOPY AND PARAMAGNETISM	32
4. ISOTOPIC CONSTITUTION, RADIOACTIVITY AND VALENCY	53
5. SEPARATIONAL TECHNIQUES I	65
6. SEPARATIONAL TECHNIQUES II: PRECIPITATION REACTIONS	87
7. SEPARATIONAL TECHNIQUES III: CRYSTALLIZATION PROCEDURES	110
8. SEPARATIONAL TECHNIQUES IV: OXIDATION-REDUCTION PROCEDURES	124
9. SEPARATIONAL TECHNIQUES V: MISCELLANEOUS PROCEDURES	141
10. SEPARATION AND CONCENTRATION OF INDIVIDUAL LANTHANONS	157
11. COMPLETE SEPARATIONAL SCHEME	175
12. FINAL PURIFICATION OF LANTHANON COMPOUNDS: OC-CLUSION IN LANTHANON PRECIPITATES	182
13. PROPERTIES OF THE LIGHTER LANTHANONS	197
14. PROPERTIES OF THE HEAVY LANTHANONS	248
15. ANALYTICAL METHODS	254
16. USES AND APPLICATIONS OF THE LANTHANONS	269
APPENDIX: YTTRIUM	277
NAME INDEX	281
SUBJECT INDEX	286