# Rare Earths

# The Fraternal Fifteen

# **CONTENTS**

#### INTRODUCTION

An Analogy
Definition
Location
Why the Interest

#### HISTORY

The Age of Discovery Confusion Gives Way to Understanding A New Era Derivation of the Names and a Recapitulation

# ATOMIC STRUCTURE

From Simple to Complex The Rare Earths Similar but Different Unpaired Electrons

# CHEMISTRY AND SEPARATION

Oxidation—Reduction Reactions Fractional Crystallization Ion Exchange Preparation of the Metal

## PHYSICAL PROPERTIES

Melting Points Magnetic Behavior Miscellaneous Properties

## APPLICATIONS AND USES

Atomic Energy Commercial Uses Research

Tomorrow

#### SUGGESTED REFERENCES