

I. INTRODUCTION

The problem selected for high pressure, high temperature synthesis studies was the extension of the rare earth diantimonide and cubic rare earth sesquisulfide series of compounds. Since diantimonides and cubic sesquisulfides of the light rare earth elements are known (1),(2) it seemed probable the other compounds of these series could be formed by the proper application of high pressure, high temperature techniques.

Series of compounds which are found over a given range and then do not exist for the rest of the elements are common in compounds of the lanthanide elements. A listing of the lanthanide elements and their atomic numbers is given in Table 1.

TABLE 1
THE LANTHANIDE ELEMENTS AND THEIR ATOMIC NUMBERS

Sc																
21																
Y																
39																
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu		
57	58	59	60	61	62	63	64	65	66	67	68	69	70	71		
