and the tetrahedral sample assembly is shown in Figure 3.

The tetrahedrons were made of American Grade A Lava (pyrophyllite) and had one-inch edges and a 0.125 inch sample hole. The electrical leads were made from pieces of molybdenum 0.50 by 0.22 by 0.005 inches. The graphite heater consisted of a tube 0.125 inch O.D. by 0.085 inch I.D. by 0.15 inch long and two end caps 0.125 inch diameter by 0.050 inch thick. The boron nitride liner fit inside the graphite tube and was made of a tube 0.085 inch O.D. by 0.050 inch I.D. by 0.10 inch long and two end caps 0.085 inch diameter by 0.020 inch thick. The reagents for synthesis were placed inside the BN tube.

In order to provide a larger sample volume for metallographic studies and density determinations the BN liner was replaced by a molybdenum tube formed from a piece of Mo 0.20 by 0.30 by 0.002 inches and two Mo end caps 0.125 inch diameter by 0.005 inch thick. The graphite heater was a tube 0.125 inch O.D. by 0.085 inch I.D. by 0.20 inch long and two end caps 0.125 inch diameter by 0.020 inch thick.

The studies on the rare earth sesquisulfides were carried out in a cubic anvil press, C-2, using 1/2-inch WC anvils. This press is similar to the tetrahedral press except it has six rams directed normal to the faces of a cube. A pyrophyllite cube was used to hold the sample and form the compressible gasket. The cubic sample assembly is shown in Figure 4.