

antimony. The white specks near the edge of Figure 15 (marked W) analyzed approximately 60 per cent Sb, 20 per cent Gd and 20 per cent Mo. The Mo undoubtedly came from the Mo liner used in the metallographic and density runs.

Terbium

At pressures below 30 kilobars and temperatures from 800 to 1500 °C cubic TbSb plus Sb were obtained as found by analysis of the X ray diffraction pattern. At lower temperatures over this pressure range cubic TbSb lines plus a complex pattern analogous to the unknown products, type I, pattern from the Gd plus 2 Sb system were obtained. The LaSb₂ type orthorhombic structure characterized by Wang and Steinfink (1) was observed over a narrow pressure band from 35 to 45 kilobars at temperatures from 1100 to 1700 °C. This showed the existence of TbSb₂ which was previously unknown. Above 35 to 45 kilobars the high pressure orthorhombic structure observed for GdSb₂ was found for all temperatures above 500 °C. TbSb₂ exists in two different orthorhombic crystal modifications similar to GdSb₂.

At pressures from 30 to 40 kilobars and temperatures above 1400 to 1500 °C only lines from the reactants could be found in the diffraction pattern. Perhaps a compound was formed under these conditions which was not metastable and reverted back to the reactants when the pressure was released.

The reaction product diagram for Tb + 2 Sb is shown