gasket. After a small amount of this has "oozed" out, a very tight gasket is formed and further travel of the anvils increases the pressure in the cavity now occupied by the lava sample holder. Figure 3, in which the gaskets mentioned can be seen, shows a tetrahedron before and after a run.

Calibration Technique:

It was necessary to calibrate the presses or, in other words, to determine how much pressure was actually transmitted to the sample inside of the lava tetrahedron with a certain oil pressure on the rams driving the anvils.

The presses were calibrated by a technique developed by Dudley[2] and a detailed description can be found in his thesis. A brief summary follows.

The known transition points of bismuth and barium which are 24,800 atmospheres for the Bi I-Bi II transition, and 77,400 atmospheres for barium, were used as calibration points. These two elements were each put inside of a tetrahedron in the same position a regular sample would occupy, then the resistance of the material was measured and recorded as a function of pressure. A typical curve, resistance vs. pressure, can be seen in Figure 1. Two or three curves like this were obtained for each of the elements, bismuth and barium. The transition point was taken as halfway between the top and bottom of the resistance drop at the point of steepest slope. These points were then plotted and a line drawn through them and the origin. This became the calibration curve for the presses. See Figure 2.