

gradient exists in the sample cavity. Consequently, a fine wire sample bent into the arc of a circle is utilized so that the sample will lie on an isobar. The experiments described below were done to establish the pressure calibration and to demonstrate that a sufficiently hydrostatic pressure is attained.

For the ordering experiments a sample of  $\text{Cu}_3\text{Au}$  wire of 0.010 in. diameter is bent into a circular arc 0.125 in. in diameter and then flattened by rolling to a thickness of 0.007 in. For pressure calibrations samples of bismuth wire ( $D = 0.003$  in.) and lead wire ( $D = 0.007$  in.) were used. The current and potential leads to the sample are pure iron wires 0.004 in. in diameter. These are brought out of the sample chamber between the two lavite gaskets. Electrical leads of lower strength material are broken off when pressure is applied. In addition to the electrical leads, two chrome-alumel thermocouples are placed in the sample cavity. One, placed in contact with the specimen, serves to measure its temperature; the other activates a temperature controller. Before use the thermocouples are calibrated against a certified, standard couple. After being pressurized several times the couples retain their calibration; this is taken as evidence that they are not significantly cold worked during pressurizing.

To attain high temperature the entire anvil assembly is heated by a surrounding electric furnace and by heaters built into the anvil support blocks.