EXPERIMENTAL PROCEDURE (GENERAL)

All of the research reported herein has been done in the high-pressure, high-temperature laboratory on the Brigham Young University campus, under the direction of Dr. H. Tracy Hall.

Pressure Equipment:

Pressure equipment consisted of two presses. Both presses are classed "Tetrahedral Anvil Apparatus",[3] one having a larger sample volume capacity than the other. The tetrahedral anvil press consists of four independent, hydraulically-driven rams supported in such a manner as to all be converging at one point, each along lines normal to the faces of a tetrahedron. The heads (anvils) of the rams have flat, triangular faces and are machined such that when all four anvils have been driven together uniformly, they enclose a tetrahedral cavity. These anvils are constructed from cemented tungsten carbide.

Sample Holder:

The sample holder is a pyrophyllite* tetrahedron which has an edge length 25% larger than the edge of the triangular faces of each anvil. These dimensions are 15/16" and 3/4", respectively, on the small press and 1" and 1-1/4" on the large press.

As a result of the oversized tetrahedron, some of the lava (pyrophyllite) will be forced out into the narrow places between the anvils as they are all driven together on the tetrahedron. Lava has a sufficiently high coefficient of friction so that this excess lava forms a compressible

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*Pyrophyllite - A hydrous aluminum silicate also known as grade A lava, available from American Lava Company, Chattanooga, Tennessee.