from the epoxy in 0.5 microseconds. The sandwich reaches thermal equilibrium in about a millisecond.

Accurate estimates of the temperature rise are not possible because of incomplete knowledge of epoxy thickness and of variation of the thermal conductivity of epoxy with increasing pressure and temperature. Values for these two epoxy parameters are decisive in determining the temperature rise due to heat flow in silver.

Micrometer measurements of the sandwich thickness indicated a total epoxy thickness of -0.5 ± 2.5 μm, the uncertainty being indicative of the micrometer accuracy. This indicates a typical epoxy layer of less than 1.2 μm average thickness; perhaps about 0.6 μm is typical. One would not expect a thinner layer as the silver foil thickness measurements indicated a thickness nonuniformity of about $\pm$ 0.6 μm. Computation[2] shows temperature rise in silver in 0.5 microseconds is independent of epoxy layer thickness for thickness greater than about 1.5 μm. This is because of the poor thermal conductivity of the epoxy.

The behavior of the thermal conductivity of epoxy with pressure and temperature is not known. Experimental work on thermal conductivities of dielectric materials shows them to increase with increasing pressure (0 to 30 kbar) (Bridgman, 1958; Andersson and Backstrom, 1973). Similarly, increase in temperature increases thermal conductivity; melting or decomposition might change this behavior.

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[2] The author acknowledges the assistance of J. Sy in getting a working computer program for this calculation.

Table III shows estimated results for the temperature rise and resistivity change in silver due to heat flow 1/2 microsecond after shock arrival, where the resistivity change is given by

$$\frac{\Delta\rho(HF)}{\rho_o} = \frac{\alpha(V)\Delta T_{HF}}{\rho_o} .$$

TABLE III. Results of heat flow calculation. Temperature rise and resistivity change due to heat flow as a function of pressure for two different foil thicknesses. Epoxy layer thickness used in the calculation was 0.6 μm.

Foil Thickness (μm)		Pressure (kbar)				
		25	50	75	100	120
16	ΔT_{HF} (°C)	1.1	2.8	3.4	2.6	1.2
	$\frac{\Delta\rho(HF)}{\rho_o}$	0.004	0.009	0.010	0.007	0.003
24	ΔT_{HF} (°C)	0.7	1.9	2.5	2.3	1.7
	$\frac{\Delta\rho(HF)}{\rho_o}$	0.002	0.006	0.007	0.006	0.004

The MRC foils were about 16 μm thick while all W3N foils except one were about 24.4 μm thick. These estimated resistivity changes can account for some of the resistivity deviation between shock and hydrostatic results; as much as 22% in MRC silver and 9% in W3N silver. Correcting point defect resistivity accordingly would reduce total defect concentrations but would increase the concentration difference between MRC and W3N silver. Restated, defect concentrations due to shock compression