This increase in stress for decreasing sample thickness is not very significant.

Stress jumps across the plastic I shock versus sample thickness are shown in Fig. 4.4. Precursor amplitudes were taken from Fig. 4.1. The solid line represents the weighted average of the stress jump for the present results. The stress jump appears constant. Deviations from this constant value of 123.6 ± 1.6 kbar for all the data are within experimental error. Constancy of the stress jump implies that the increase in plastic I stress for decreasing sample thickness shown in Fig. 4.3 may be due to the increase in precursor stress.

4.3.2. Plastic II Data

Table 4.3 summarizes results for the plastic II shock in iron. These results are from the same experiments as those that produced the plastic I data of Table 4.2. The table includes sample thicknesses, free surface velocities, shock wave transmission times, and rise times of the plastic II shock front. "Beginning" of the plastic II wave front refers to the time at which free surface velocity begins to exceed the plastic I value. "Top of the wave" refers to the time when free surface velocity again becomes constant or nearly so. Plastic II results are used here primarily to determine a best value for Lagrangian velocity of the wave front and to obtain the best possible pressure-volume (P-V) point from the data set.

Plastic I and plastic II shock wave arrival times at the free surface for various sample thicknesses are shown in Fig. 4.5.

TABLE 4.3.--Plastic II data

Sample Thickness (mm)	Plastic II Free Surface Velocity (mm/μsec)	Transmission Time for Beginning of Wave (mm/μsec)	Transmission Time for Top of Wave (μsec)	Rise Time of Wave Front (μsec)
0.941	1.054 ± 0.040	0.255 ± 0.010	0.446 ± 0.020	0.191 ± 0.022
0.998	1.186 ± 0.021	0.306 ± 0.018	0.503 ± 0.026	0.197 ± 0.032
1.556	1.141 ± 0.023	0.448 ± 0.026	0.652 ± 0.026	0.204 ± 0.037
2.022	1.153 ± 0.031	0.547 ± 0.021	0.684 ± 0.034	0.137 ± 0.040
2.609	1.079 ± 0.032	0.677 ± 0.027	0.842 ± 0.048	0.165 ± 0.055
3.132	1.012 ± 0.040	0.832 ± 0.031	1.008 ± 0.029	0.176 ± 0.043