Table I. Widths of Profusely "Twinned" Edge Zones and Corresponding Pressures

Shot No.	Explosive Thickness in Mm(D)	Mean Thickness of "Twinned" Zone in Mm(L)	L/D of Twin Zone Boundary	Pressure* at Twin Boundary in Kb	Depth of 130 Kb Point	L/D of 130 Kb Point
1593	12.78	7.0 ± 0.2	0.55 ± 0.02	150	11.3	0.88
1594	12.70	7.0 ± 0.2	0.55 ± 0.02	150	13.2	1.04
1664	24.0	15.0 ± 0.2	0.62 ± 0.01	145	25	1.04
2113	25.4	13.0 ± 0.2	0.51 ± 0.01	155	–	–
2614	25.4	12.5 ± 0.2	0.49 ± 0.01	155	–	–
2141	25.4	13.5 ± 0.2	0.53 ± 0.01	152	26	1.02

*Single shock interpretation

turns to normal the γ iron crystals will transform back to α-iron by means of a second martensite transformation into 24 possible orientations which are related to the γ iron orientations. Some of the newly formed α grains may have transformed from γ iron, by the same shearing movements which produced γ iron from α iron, thereby returning to their initial orientation. In general, however, the new grains will have a different orientation than they had initially. According to the Bowles mechanism all of the α grains with the same orientation will exhibit twin relationships with each other.

The reason that the boundary between the heavily and the lightly banded regions occurs at a pressure greater than the transition pressure of 130 kbars may be due to the nonisothermal nature of the transformation. In such a case the material may not all transform at once but would go through a system of mixed phases.[2] This means that there would be no volume change without increase of pressure, and the volume corresponding to the beginning of the heavily banded region would be at a pressure somewhat higher than 130 kbars, where the transition begins.

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