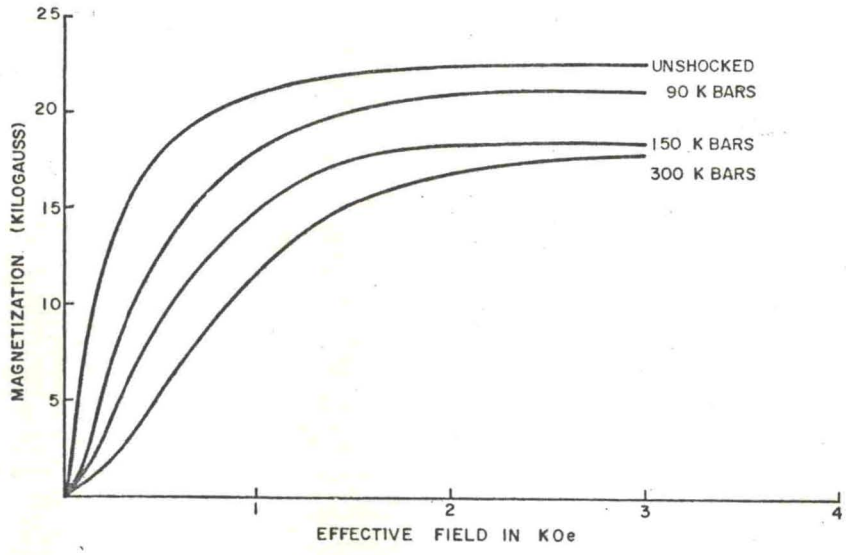
Consequently, the changes in saturation magnetization and susceptibility that were measured reflect both the work-hardening effects and the occurrence of a crystallographic phase transformation.

Magnetization and susceptibility were measured by means of a magnetic balance after the design of Sucksmith and Thompson (1954). The field gradient, which is independent of the applied field, was supplied by two brass strips. This method allowed for the passage of 65 amps through the brass strips. The results of these experiments appearing in the table

Peak pressure (kbars)	Susceptibility $1/\chi \times 10^{-3}$	Saturation induction (kilogauss)
90	6·32	21·5
150	22·67	18·6
300	21·39	18·1
Annealed	4·69	22·1

clearly indicate a variation in susceptibility between the specimens shock loaded at 90 kbars and those at 150 and 300 kbars. The values for $1/\chi$ of $6{\cdot}32 \times 10^3$ at 90 kbars and $22{\cdot}67 \times 10^3$ at 150 kbars generally follow the Curie–Weiss law, indicating a magnetic transformation. The transformation, unlike those of the ordinary type which take hours for completion, occurs martensitically.

The magnetization curves appearing in the figure indicate different approaches to saturation for each pressure, and in general a lowering of magnetization M observed under a field H. Three distinct magnetization regions are shown. There is an initial increase in M, with slope dM/dH



Magnetization curves for iron manganese shock loaded up to 300 kbars.