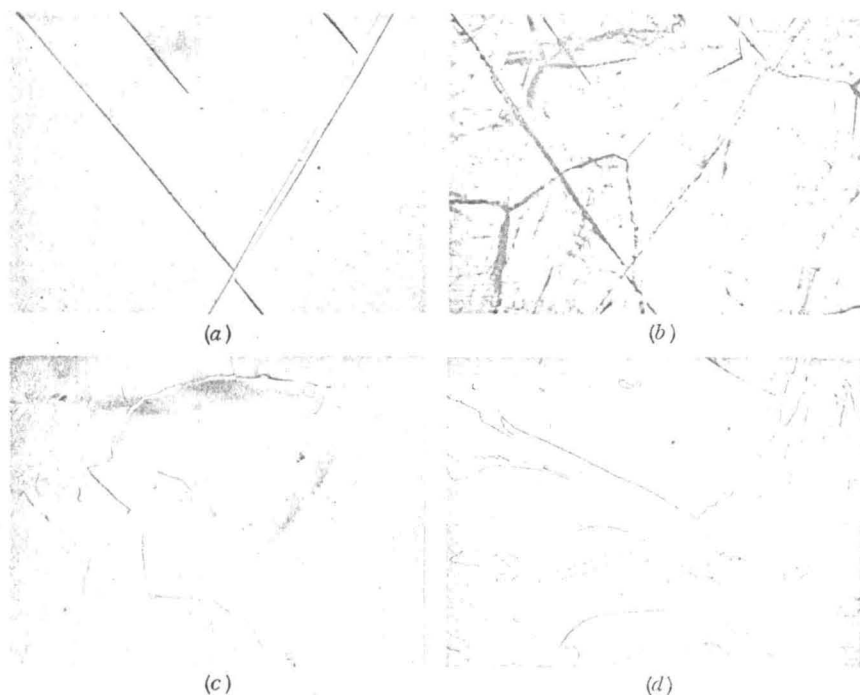


Fig. 5—Structural changes in bismuth single crystal after I-II transition. (a) Original structure; (b) after transition; (c) intermediate repolish; (d) final structure. X100. Reduced approximately 42 pct for reproduction.



Figs. 7 and 8. In these figures, the original structure (a) represents the metallographically prepared surface prior to pressurization. The structure after transition (b) shows the same region as the original area immediately after removing the sample from the pressure cell but without further metallographic preparation. One can readily see the "ghost" image of the original structure, *i.e.*, original Phase I grain boundaries and twin bands, along with an image of the structure in the Phase II or Phase II and III regions. Considering Figs. 5 and 6, one can readily see pronounced grain bound-

aries depicting the polycrystalline nature of Phase II, along with substantial surface distortion due to volume change. When the sample passes through both the I-II and II-III transitions, as shown in Figs. 7 and 8, the structure is much more diffuse since two volume changes occurred. It is still possible, however, to see an image of the original structure as well as some grain boundaries probably associated with Phase II bismuth.

That the structure observed directly after transition is actually a "ghost" image depicting the history of the sample is demonstrated by its removal

Fig. 6—Structural changes in polycrystalline bismuth after I-II transition. (a) Original structure; (b) after transition; (c) intermediate repolish; (d) final structure. X100. Reduced approximately 42 pct for reproduction.

