and after handling within the 1% accuracy of measurement. We conclude that the state of anneal was not significantly affected by this handling.

Target preparation also involves some heating of the foil. Silver wires were spot-welded to the foil tabs, 1.2 cm from the sensitive part of the foil. Thermal transients accompany the weld. One hopes this transient is appreciably attenuated before it reaches the sensitive portion of the foil. After assembly, coaxial cables were soldered to the silver wires. (Solder melts at about 200°C.) Heat was applied to the silver wire twice, for about 2 seconds each time. The body of the silver foil is in contact with a heat reservoir consisting of sapphire discs and dental amalgam, so the foil should be heated to much less than 200°C, hopefully less than 50°C.

3. Condition of Foil Surfaces

Generation of dislocations at sources on the specimen surface has been shown to be important in quasi-static deformation of silver single crystals (Worzala and Robinson, 1967). This raises the question whether differences in surface condition could explain the differences in shock resistivity in the two silver foil types studied here. The surface state was rough and poorly defined from metallurgical and surface physics viewpoints (Fig. 17). Both foil types were prepared in nearly identical fashion except that the MRC foil, as received, had more initial surface roughness and therefore was mechanically polished for a longer time. No significant effect of surface preparation was found in the lithium fluoride precursor decay studies (Asay et al., 1972). Deviation in surface preparation is not believed to be the cause of observed resistivity difference between foil types in the present work.

Surfaces on such soft metal with less roughness and less deformation could probably have been achieved using cerium oxide as the final polishing abrasive instead of the 0.05 μm alumina employed in this work. A non-mechanical polishing technique for mirror finishes developed by Henry, Hockey, and Mitchell (1970) might also have improved the surface condition.

4. <u>Grain Size and Preferred Orientation</u>

The mean grain sizes in the two types of silver foil used were significantly different. For annealed W3N foil, mean grain size was about 35 micrometers while for MRC foil, annealed and unannealed, it was about twice that. In both cases mean grain size seen on the foil surface was greater than the foil thickness; we then expect that a traverse of the foil thickness is usually confined to a single grain. For this reason, the difference in grain size is not expected to have a significant effect on defect production, dislocation glide, and dislocation generation. One can envision some effect on dislocations moving on glide planes at large angles to the shock direction; such dislocations might reach and interact with grain boundaries. Boundaries can cause dislocation pile-ups, followed by stress concentration and dislocation generation in the next grain. The effect would be more important in the smaller-grained W3N foil.