It should be noted that there is some effect of grain size on yield stress at low strain rates (Hall, 1970). A factor of two increase in grain size in silver causes an 8% decrease in yield stress. However, in shock experiments no effect of grain size on HEL after 19 millimeters of shock propagation was noted in Armco iron (Jones and Holland, 1968). An effect of grain size on precursor attenuation in the first millimeter or less of shock propagation is not ruled out by their work. Lithium fluoride work showed no effect of the number of subgrain boundaries on the precursor decay or HEL (Asay et al., 1972), whereas in copper there was an effect (Jones and Mote, 1969). Grain size is thus a possible but not likely source of the difference in defect resistivity between the two foil types.

This is an appropriate time to discuss preferred orientation of crystallites in cold-rolled foils. The topic has been reviewed by Barrett and Massalski (1966). For silver rolled at room temperature or below the texture is described by the (110) plane parallel to the rolling plane and the $[1\bar{1}2]$ direction parallel to the rolling direction. Other crystallite orientations are present but with less frequency.

Rolling texture changes to a new texture on low-temperature annealing but becomes random with annealing above 800°C. After long annealing at 433° to 533°C (anneals in present work were one to two hours at 535°C) the orientation is the same as the original rolling texture.

Based on the above discussion, it is most likely that the silver foils used in the present work had a (110) [1$\bar{1}$2] texture.

Barrett and Massalski (1966) observed that in f.c.c. metals the predominant dislocation slip plane is the closest-packed (111) plane. Many metals alter their slip plane at high or low temperature or high strain rate. In copper, however, the same slip systems operate under shock as in quasi-static deformation (Jones and Mote, 1969). For crystallites with (110) planes parallel to the foil surfaces, three (111) planes will be at 45 degrees to the foil surface. The maximum resolved shear stress in uniaxial shock compression is approximately at 45 degrees to the foil surface, so that dislocations on (111) slip planes would be subjected to this maximum shear stress $(\sigma_x - \sigma_y)/2$. This leads us to observe that differences in crystallite preferred orientation in the two types of foil studied could lead to differences in defect production by the shock. No such differences in crystallite orientations are expected, however.