EXPERIMENT

Sample Preparation:

The silver single crystals were grown from Handy and Harmon fine silver* in graphite crucibles in an air atmosphere in a Lindberg furnace by placing the crucible in a region of high thermal gradient, raising the entire crucible well above the melting temperature of silver, then reducing the temperature at a rate of less than one degree per minute until the sample completely solidified. Usually the grain boundaries, if any, were visible when the specimen was removed from the crucible and a fast etch of ammonium hydroxide, Superoxol and water or a slow etch of potassium dichromate, sulfuric acid and water would bring out brilliant (111) blaze planes.*

*Spectrographic analysis by Heron Testing Laboratory, Inc. found less than 0.06% copper and no measurable amounts of other impurities.

*Blaze planes refer to the bright streaks of high reflectivity caused by preferential etching of a family of crystalographic planes.

No attempt was made at seeding or other means of predetermining the orientation of the crystals. The orientation of specimen