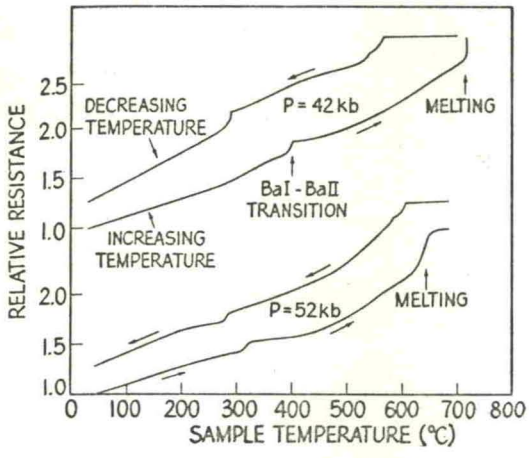

Fig. 2. Resistance vs temperature curves for the various phases of barium.

lting curves observed at low pressures in the pre- nt work and those obtained at higher pressures[6] d support to the tentative conclusion that the -kb transition at 25°C is indicative of melting. sitive identification of this phase as liquid, wever, can be made only after high pressure x-ray measurements are carried out. If Ba is liquid above 140 kb at low temperatures, the technological implications would be significant since true hydrostatic measurements would be possible in the very high pressure range at reasonable temperatures.

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[1]Present address: Physics Department, The University of Texas, Austin, Texas.

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IRECT OBSERVATION OF DISAPPEARANCE AND COLLAPSE OF STACKING-FAULT ETRAHEDRA IN GOLD FOILS DURING ION BOMBARDMENT IN THE ELECTRON MICROSCOPE

L. M. Howe and J. F. McGurn
Chalk River Nuclear Laboratories
Atomic Energy of Canada Limited
Chalk River, Ontario, Canada

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(low to room temperature; E)

lcox and Hirsch[1] found that defects in the form stacking-fault tetrahedra were produced during nching and subsequent aging of gold. Cotterill others[2,3] bombarded quenched and aged Au at 20°C with 1.0- and 3.5-MeV alpha particles upon examining their foils in the electron micro- e after the bombardment found that the tetrahedra collapsed. They suggested that the interstitials rated during irradiation migrate to the tetrahedra cause them to collapse. To obtain further mation on the mechanism of collapse of the hedra and, hopefully, on the temperature of ion of interstitial atoms, we have been bom- g Au foils in the electron microscope with eV O^- ions emanating from coated emission filaments. In order to study this ion damage at low temperatures as well as at room temperature, a liquid helium cooled finger was constructed for the microscope. A sample temperature below 30°K (but above 15°K) could be attained, as determined by condensing xenon, krypton, argon, or nitrogen onto the cold sample during observation. Full details of the cold finger including the determination of specimen temperatures and the results obtained during ion bombardment of annealed copper below 30°K are given elsewhere.[4,5]

Stacking-fault tetrahedra were produced in 99.999% pure Au foil by quenching from 950°C into brine at 0°C and then aging for one hour at 100°C. When a normal emission filament was used in the electron