# Abnormal Plastic After-Effect in Twisted Copper

# Abnormal Plastic After-Effect in Twisted Copper*

Masahiro KOIWA
*The Research Institute for Iron, Steel and Other Metals,*
*Tohoku University*
and
Ryukiti HASIGUTI
*Department of Metallurgy, University of Tokyo*

**Abstract**

The plastic after-effect in twisted copper wires were investigated at temperatures between −195°C and +96°C. The abnormal plastic after-effect, i.e. retwisting of the specimen after the release of external stress, was found in specimens pre-annealed at lower temperatures between about 150°C and about 300°C. Activation energies for the after-effect were determined and found to be dependent on the amount of after-effect strain. The abnormal after-effect found in the present investigation was tentatively interpreted to be due to the movement of dislocations piled-up against subboundaries. The observed logarithmic time law and the change in activation energy seem to be consistent with this interpretation.

* The **1215**th report of the Research Institute for Iron, Steel and Other Metals. Published in the Acta Metallurgica, **13** (1965), 673.