Walter A. Bollmann
Prof Dr Sc Nat
Crystallography
1920 – 2009

Walter Bollmann was born on September 24, 1920 in Zurich, Switzerland. He studied Mathematics and Physics at ETHZ, where he obtained his doctoral degree with Prof. Paul Scherrer in 1951. Two years later he joined Battelle Institute Geneva, where he first worked on electron diffraction and later became well-known for his excellent work in transmission electron microscopy (TEM) of metals and alloys. He developed a method of specimen preparation by electro polishing, which became known « Bollmann technique » and was successfully used in many laboratories. Applying the technique to austenitic steel, Bollmann was one of the first who was able to recognize dislocation lines in TEM micrograph. A very personal and very readable account of the TEM work at Battelle is given in « W. Bollmann, pp 123-147 in « History of Electron Microscopy in Switzerland », where he describes also his studies to recrystallization of nickel, of the hcp-fcc phase transition in cobalt, and radiation damages in graphite.

Later, Walter Bollmann became more and more interested in developing a general geometrical theory of crystalline interfaces in order to interpret the dislocation networks that he observed in low-angle grain boundaries. His paper « On the analysis of dislocation networks » was accepted as hablilitation thesis by ETHZ, where he became « Privatdozent/Professor » for lattice defects in crystals at the Department of Earth Sciences in 1962 and was later awarded the title of Professoror in 1977.

In order to interpret dislocation networks in general crystal interfaces, he developed his O-lattices theory, which he described in a number of papers as well as in two books. He interpreted a general high-angle grain boundary, in which two neighbouring grains have a large fraction of their symmetry translation in common. These common translations form a lattice, called coincidence-site lattice. He showed that the Burger vector of secondary dislocation in high-angle grain boundaries are then among the shortest vectors of another lattice, which he called « DSC lattice ».

Latter, his main interest turned to triple lines, i.e. Lines where three grains of a polycrystalline material meet. He showed that the balance of the dislocation in the three grain boundaries that meet at a triple line determines its disinclination character.

As an invited scientist or lecturer, Walter Bollmann worked temporarily at the Argonne National Laboratory, the University of Oxford and the University of Florida in Gainesville.

His other matters of interest and incl. publications were in the fields of psychology and Egyptology.
He was married and father of three children.
He died in Geneva Switzerland on January 29th, 2009.

(Text as per H. Grimmer in Swiss Society of Crystallography Newsletter Nr 77, May 2009)

Major publications
Bollmann W., Phys. Rev. 103 (1956) 1588-1589
Bollmann W., pp 127-147 in « History of Electron Microscopy in Switzerland »

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Bollmann W. « Crystal Defects and Crystalline Interfaces » Berlin, 1970
Bollmann W. « Crystal Lattices, Interfaces, Matrices » Geneva 1982
Bollmann., Philos. Mag. 57 (1988) 637-649
Grimmer H., Bollmann W., Warrignton D.H., Acta Cryst. A30 (1974) 197 - 207