Pictures to: 3.1 TEM Work at Cornell University

3.1.1. TEM Investigations of Grain Boundaries in Silicon

Part 2: Fig. 9 - Fig. 16 plus some Auxiliaries

In what follows I present the pictures used for the one and only <u>major publication</u> concerned with the structure of the **grain boundaries**. Besides the originals, I give some auxiliary pictures that show essentially the same structure. You are going miss Fig. 8 ? Sorry - I have no good print of that picture anymore.



Fig. 9 in publication.

(111) lattice fringes across two low-angle boundaries on (100) planes. Tlted-beam illumination and a specimen orientation close to a (112) pole was used for this and the following lattice-fringe images. The spacing between the fringes is 0.31nm.

I fondly belie that this is the very first high-resolution TEM (*HRTEM*) picture of screw dislocations. It shows directly the typical drawings shown in text books



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50 nm



Relating to Fig. 10. Showing contrast change from intrinsic to extrinsic stacking fault upon changing the sign of the diffraction vector



Auxiliary picture to Fig. 10. Increasing the excitation error in weak beam increases resolution but decreases contrast. It also needs longer exposure times and thus increases the risque of blurring



Fig. 11 in publication.

Weak-beam and lattice-fringe image of a low-angle twist boundary on a (111) plane.







Relating to Fig. 11 / 12 in publication to Fig. 6 in publication.











