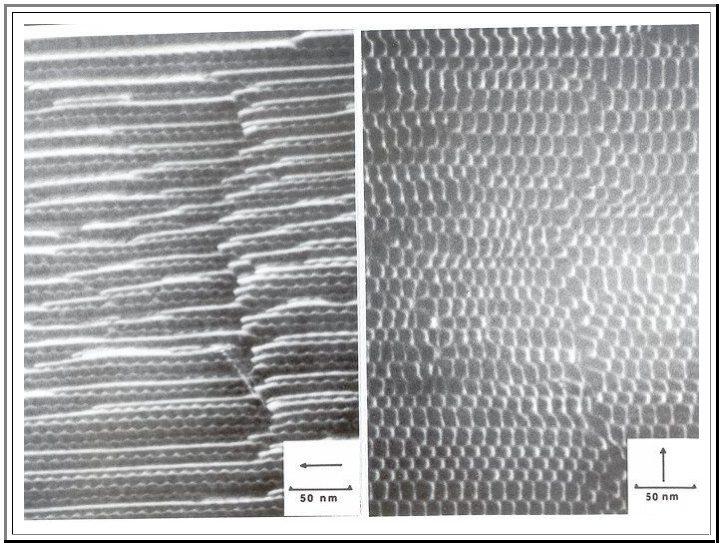
Small Angle Grain Boundary with Twist and Tilt

Illustration

- On the right-hand side is the (full-size) picture from the backbone, on the left-hand side *the same area* is shown, but imaged with different weak-beam conditions.
  - It can be seen that a whole new set of dislocations lights up. They are edge dislocations accounting for a fairly large degree of (unintended) tilt in this grain boundary. They interact with the screw dislocations visible on the right hand side to form a fairly complicated network of grain-boundary dislocations.
  - The big distortion in the edge dislocation structure running from top to bottom in the right-hand side of the image is probably due to a change of the grain boundary plane: All dislocations must move "up" or "down": the structure changes.



  - This is another good example of the power of contrast analysis with **TEM** and the difficulties of extracting the information contained in the picture (just try to draw the network with all the Burgers vectors indicated).