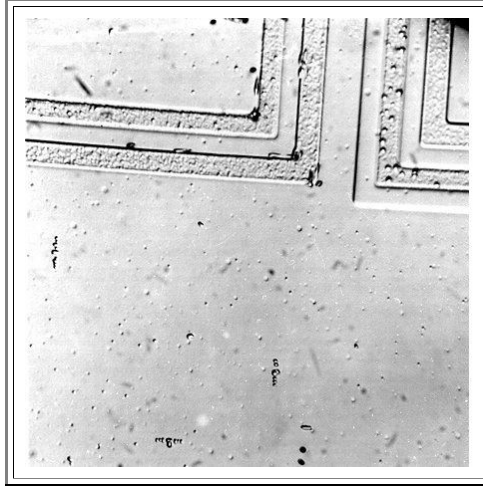


Precipitates and Other Defects as Seen with Preferential Etching

Illustration

Shown is a preferentially etched part of an integrated circuit. Many kinds of defects are revealed; the interpretation is not necessarily clear.

- The big etch pits in the frames of device parts are due to dislocations.
- In the structureless area we see pits and hillocks (distinguished because the "black-white vector", the vector from the black part of a small contrast to the white part comes with both signs) and a few very distinctive features consisting of a central pit with "satellites" along one direction.



- All these features are most likely due to precipitates. The rows of pits are caused by precipitates that produced a sequence of dislocation loops to relieve the stress in a process known as "**prismatic punching**".

What [prismatic punching looks like if imaged with a transmission electron microscope at high magnification](#) can be seen in the link