Pictures to:

5.4 Microchip Development

My first job in microelectronic development was to provide for some analytic, i.e. trying to figure out why some chips didn't work as expected. That turns you and everybody else quickly to general cleanliness and the reasons why one works in a cloakroom. Telling regular workers to put on a kind of full body condom is one thing, coercing engineers and scientists to do this is another thing entirely. The typical response is: "why?". These gents (and in particular the ladies, whose hairdo was ruined by advanced clean room garb) wanted to know if those clean room suits really worked and if yes, how well. So we run all kinds of tests and produced all kinds of pictures to show why one had to do all this. Dr. Haudek in my group specialized in producing wonderful pictures in this context, some of which are shown below.

Some of these pictures (or very similar ones) were used in the <u>publications</u>.





It also show how much the structure sizes decreased - compare with the hair on a 256 kbit DRAM just above





Red blood cells on a 1 Mbit memory



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A coated metal particle

Probably a tiny drop of AI that was burnt off by a an electrical discharge

in a sputtering machine and hit the Si as a solidified droplet . It was coated with AI which was subsequently structured by etching.

Four conducting lines are now short circuited.





Mother nature then (1985 or so) was still ahead when it came to small structures. A typical strand of spider silk consists of several individual strings with diameters around 0.2 µm. Rather clumsy by todays micro-electronic standards











Next a cross-section through "my baby", the 16 Mbit DRAM I was the project leader for this chip, after all.





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