

## Posted to the Gilder forum - November 20, 1999

### Understatement

From Richard P. Feynman's talk to the American Physical Society on December 29, 1959 at Caltech I quote what must be the understatement of the century:

"There might even be an economic point to this business of making things very small."

Feynman's ability to forecast events based on physical realities is astounding. I quote further from the same talk:

"The information cannot go faster than the speed of light—so, ultimately, when our computers get faster and faster and more and more elaborate, we will have to make them smaller and smaller."

"But there is plenty of room to make them smaller. There is nothing that I can see in the physical laws that says that the computer elements cannot be made enormously smaller than they are now. In fact, there may be certain advantages."

Feynman forecasts that heat will not be a problem. Talking about nanometric bearings he states:

"Let the bearings run dry; they won't run hot because the heat escapes away from such a small device very, very rapidly."

Feynman announces the possibility of building things atom by atom:

"But I am not afraid to consider the final question as to whether, ultimately—in the great future—we can arrange the atoms the way we want; the very atoms, all the way down!"

This great future was less than 40 years away!!!!

I highly recommend reading "The Pleasure of Finding Things Out," the best short works of Richard P. Feynman.

Denny