

Events & Sightings

Mary Croarken
University of Warwick

Nathan Ensmenger
University of Pennsylvania

2002 IEEE Computer Pioneer Award

Per Brinch Hansen was awarded the 2002 IEEE Computer Pioneer Award at a ceremony held on 8 May 2002 in Portland, Oregon. The award was given for pioneering development in operating systems and concurrent programming, exemplified by work on the RC 4000 multiprogramming system, monitors, and Concurrent Pascal. Per Brinch Hansen has kindly let us reproduce his acceptance speech:

It is an unexpected pleasure for me to receive the first major award for the work I did from 1965 to 1975. I must confess, I was beginning to feel like Duke Ellington, who once said, "Fate doesn't want me to become famous too early." So, I thank the IEEE Computer Society for honoring me and making this speech necessary. And, I thank my friend, Jonathan Greenfield, for his tireless efforts in nominating me for the Computer Pioneer Award.

Now, you should not for a minute imagine that I knew what I was doing as a young programmer. On two occasions, the work you are honoring me for almost came to nothing.

In 1962, I graduated from the Technical University of Denmark without any programming experience (it was not yet being taught). There were (as far as I remember) no textbooks available on programming languages, compilers, or operating systems.

With this background, I began my career as a systems programmer with Regnecentralen in Copenhagen. At age 29, I became head of software development for the RC 4000 computer. The senior manager of Regnecentralen, Niels Ivar Bech, gave me only one directive: "I need something new in multiprogramming!"

After a while, Jorn Jensen, Soren Lauesen, and I realized that we had no original ideas about multiprogramming. So, I told Bech: "We aren't getting anywhere. Is it all right with you if Jorn, Soren, and I spend a weekend at a country inn?" I wanted to give us one last chance. We had already agreed that we would either return with new ideas or give up and copy the best ideas we could find elsewhere. Bech immediately agreed (he had done the same thing when Regnecentralen's Cobol compiler project had come to a standstill).

It worked! The thought of returning to Regnecentralen without new ideas was simply unacceptable to us. Out of that weekend came the first ideas for the RC 4000 multi-

programming system, which introduced the now-standard concept of an operating system kernel.

Since 1970, I have been a computer scientist in the United States. While writing my textbook on operating system principles, I invented the monitor notation, which combines process synchronization with object-oriented programming.

At California Institute of Technology my goal was to develop a concurrent programming language with monitors. You would think it would be easy for me to extend Pascal with monitors. But I had no idea of how to do this. I remember sitting in my garden in Pasadena, day after day, staring at a blank piece of paper and feeling like a complete failure. It took me two years to find reasonable solutions to most of the problems and make compromises, which enabled me to ignore the most thorny issues.

In 1974, I distributed a description of the programming language Concurrent Pascal. I now understood what I was doing. One day the Caltech president, Harold Brown, came to my office and asked me to explain my research. After listening for half an hour, he said, "That sounds easy." I agreed because that was how I felt at the time. So, in the end, things turned out all right.

Let me conclude by quoting the biologist Francis Crick: "It's true that by blundering about we stumbled on gold, but the fact remains that we were looking for gold."

Thank you for your attention.

References

1. P. Brinch Hansen, *The Search for Simplicity: Essays in Parallel Programming*, IEEE CS Press, Los Alamitos, Calif., 1993.
2. F. Crick, *What Mad Pursuit: A Personal View of Scientific Discovery*, Basic Books, Harper Collins, New York 1988.
3. J. W. Hasse, *Beyond Category: The Life and Genius of Duke Ellington*, Da Capo Press, New York, 1995.

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Ada Byron Lovelace: To Dream Tomorrow (A film about Ada Lovelace and Charles Babbage)

John Fuegi and Jo Francis of the University of Maryland have released a film about Ada Lovelace and