Crises? What Crisis?

Born in 1962, I remember little of the 1960s besides moving house in 1966 and the Apollo 11 Moon landing in 1969. The 1970s were different, and much of what made the decade distinctive has stuck with me. I remember the flared trousers, the center-parted long hair, the platform shoes. I remember the high inflation, the low growth, the coal miners’ strikes, the energy crisis, the Troubles in Northern Ireland. Above all, I remember the music. David Bowie, Can, Elton John, Roxy Music, Bob Marley, Funkadelic, Stevie Wonder, Yes, Led Zeppelin, the Clash—many of the new flavors of rock that sprouted in the 1960s flowered in the 1970s.

Oddly, despite the economic and political woes of the 1970s, fundamental physics leapt forward. In 1974 the $J/\Psi$ meson was discovered, followed by the $\tau$ lepton in 1975 and the bottom quark in 1977. By the end of the decade, almost all the components of what became known as the standard model of particle physics were in place. Its field-theoretic framework had proven capable of accommodating three of nature’s four fundamental forces. And of the model’s zoo of leptons, quarks, and force-mediating bosons, only the top quark, the $\tau$ neutrino, the $W^\pm$ and $Z$ bosons, and the Higgs boson awaited discovery.

What of computational physics? Searching Physics Today’s archives, I came across a special issue, “Digital Computers in Physics,” which appeared in July 1970. “In the 1970s we can expect physicists’ involvement with computers to become even more extensive and sophisticated,” wrote editor-in-chief Harold L. Davis to introduce the issue. The lead article was by IBM’s Rolf Landauer, who set himself the goal of elucidating the physical limits of computation. The article remains worth reading. In his article, Lawrence Livermore’s George Michael reviewed the current state and future promise of computer display technology. And in “Shopping for a Time-Sharing Service,” Hussein Elkholy of Fairleigh Dickinson University helped readers navigate the various options that physicists faced for renting computer time, a possibility that has returned with the advent of cloud computing.

Rounding out the issue was a news story by Physics Today’s Barbara Levi. By 1970, 90 percent of the magazine’s readers were using computers for work, according to a survey conducted for the issue, a finding that prompted Levi to look for novel computer applications. She reported on two: algebraic computation and the management of experimental apparatus. Both fields remain vibrant.

The now near-ubiquitous use of computers in education was also foreshadowed in Physics Today. In a news story in December 1976, Bruce Carr reported, “Computer graphics are no longer minor variations on the theme of computer-based educational materials. At the University of California, Irvine, the work of the seven-year-old Physics Computer Development Project is almost entirely dependent on the graphical capability of its hardware.”

In case you’re wondering, this column’s title is that of Supertramp’s fourth album, which was released in 1975. The band took it from the screenplay of the 1973 film, The Day of the Jackal. Later in the decade, The Sun, a British tabloid, appropriated the line for a front-page headline that mocked Prime Minister Jim Callaghan’s dismissal of the mounting chaos that was enveloping the country. “Crisis? What Crisis?” so encapsulated 1970s Britain that two different writers picked it, four decades later, for their respective histories of the dismal decade.

But in Britain at least, the 1970s weren’t all bad. Glorious music aside, it was in the late 1970s that the pay gap between rich and poor reached its narrowest. Thereafter and to this day, the steady increase in economic equality of the past century reversed direction.

Charles Day is Physics Today’s editor in chief. The views in this column are his own and not necessarily those of either Physics Today or its publisher, the American Institute of Physics.