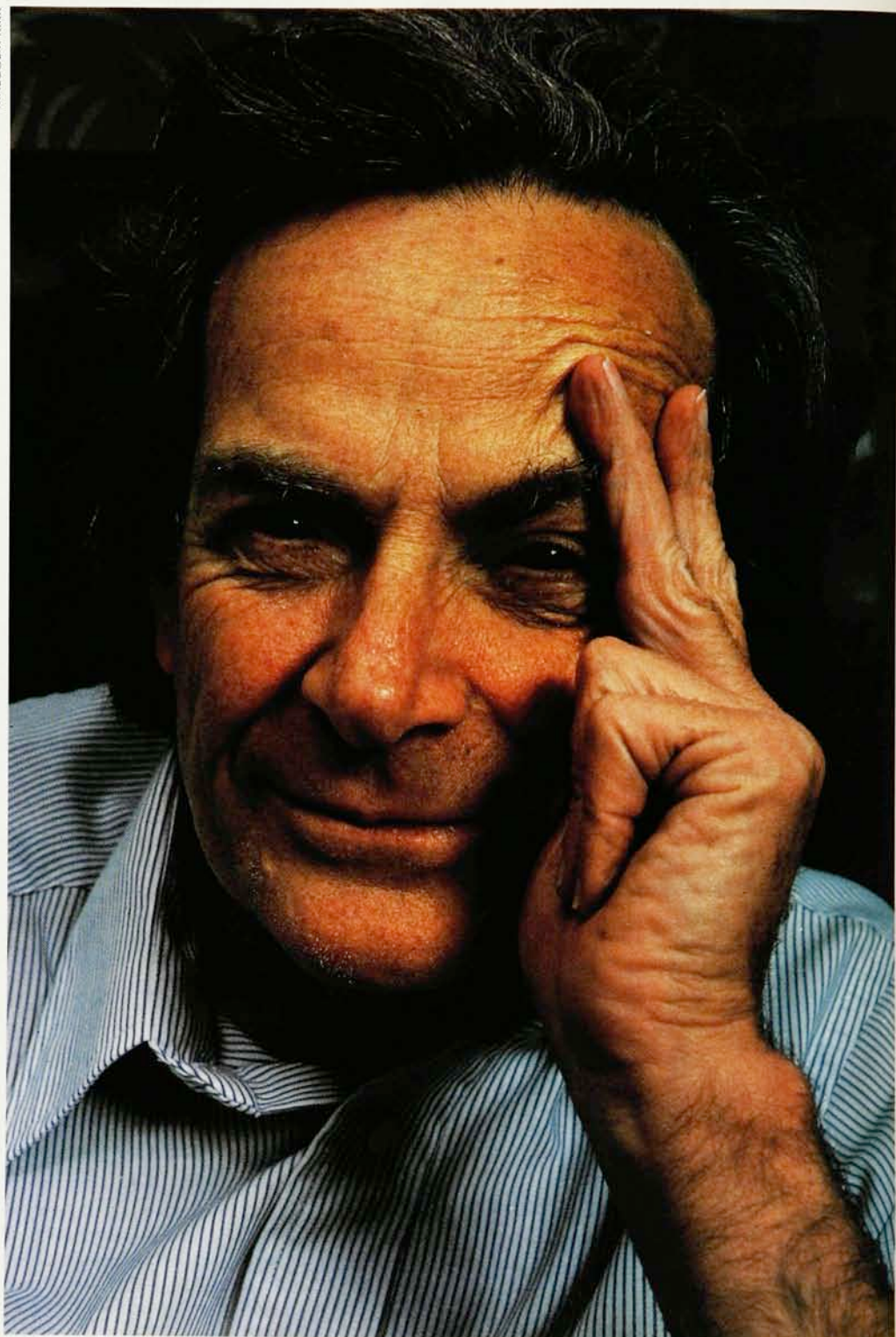




SPECIAL ISSUE:

RICHARD FEYNMAN

MALCOLM KIRK



The diagram you see scattered throughout this issue is a reminder of the legacy Richard Feynman left us. Feynman was a hero to me, as he was to many of us. When he died on 15 February 1988, the world lost one of the finest theoretical physicists of the 20th century.

As Julian Schwinger remarked in another context, the Feynman diagram, like the silicon chip of modern times, brought computing power to the masses. The impact of Feynman's work goes far beyond the diagrams.

In the obituary published in *The New York Times* after Feynman's death, James Gleick wrote:

Hans Bethe of Cornell University, paraphrasing the mathematician Mark Kac, said there were two kinds of geniuses. The ordinary kind does great things but lets other scientists feel that they could do the same if only they worked hard enough. The other kind performs magic.

"A magician does things that nobody else could ever do and that seem completely unexpected," Dr. Bethe said, "and that's Feynman."

Rather than publish an obituary, we have invited a distinguished group of Feynman's colleagues to contribute to this special issue in his memory. Eight of the authors also spoke at an all-day memorial session on 18 January in San Francisco at a joint meeting of the American Association of Physics Teachers, The American Physical Society and the American Association for the Advancement of Science.

At the morning session, chaired by Laurie M. Brown, the speakers were John Archibald Wheeler, Julian Schwinger, Freeman J. Dyson and David L. Goodstein. At the afternoon session, chaired by Eugen Merzbacher, the speakers were Murray Gell-Mann, David Pines, James D. Bjorken and W. Daniel Hillis. (Bethe was scheduled to chair the afternoon session but was unable to attend.) This special issue also includes a short article by Valentine L. Telegdi, a sampling of Feynman's art work and a glimpse of his office blackboards as he left them at the time of his

death. We have not included an article on Feynman's involvement in the space program because early last year he published his own: "An Outsider's Inside View of the Challenger Inquiry" (PHYSICS TODAY, February 1988, page 26).

Feynman was born in Far Rockaway, New York, in 1918. He earned a BS from MIT in 1939 and then went to Princeton to work with Wheeler; he received his PhD in 1942. Feynman spent World War II at Los Alamos. He then became a physics professor at Cornell, where he stayed until he joined Caltech in 1950. He remained at Caltech until his death. In 1959 he became Richard Chace Tolman Professor.

Brown, who was Feynman's graduate student at Cornell, recalled at the San Francisco meeting that at that time "Feynman was a compulsive worker, though anything but a workaholic. He would alternate intense night-and-day work with complete relaxation. His intensity required him to communicate his current ideas, and he made them a part of the courses he taught, even before he wrote them up for publication. . . . A few theoretical students had already begun to study quantum field theory and found it hard to adapt to Feynman's new methods. Sometimes they found themselves in the unenviable position of defending field theory's conventional wisdom against Feynman's new challenges."

Brown noted that Feynman loved to project the image of playful showman, "always undervalued at first because of his rough manners, who in the end triumphs through native cleverness, psychological insight, common sense and the famous Feynman humor. I have no quarrel with this aspect of Dick Feynman's personality; like most other people, I found it delightful. But it leaves out so much: not only his scientific genius, but his deep love of nature, his passion for teaching, and above all his extraordinary standards of personal integrity, not *always* present at the highest levels of creativity. . . . Whatever else Dick Feynman may have joked about, his love for physics approached reverence."

—GLORIA B. LUBKIN