

Michael Berry

Power, passion and paradox

Genius: Richard Feynman and Modern Physics James Gleick 1992 Little, Brown 544pp £18.99hb

FEYNMAN had a tremendous personal power. I felt it when visiting CalTech to give a seminar in 1985. Even the knowledge that he would be in the audience ruined the previous week while I weighed every word of my talk, mindful of his reputation for pouncing on unwary speakers. The unwritten house rule was that Feynman dominated the discussion after seminars, to the extent that he always asked the first question.

In my case, although (as I later discovered) he found the talk interesting, he remained silent, and so, according to the rule, nobody else spoke up either. I felt this as a devastating anticlimax, which left me smarting for several days.

He was aware of this power, to the point of self-parody. In the CalTech coffee-room I noticed a thin wire hanging out of his pocket, and was told this was an aerial, trawling for any memorable encounters or lightning repartee for possible inclusion in his next book (this occurred some time between *Surely You're Joking, Mr Feynman!* and *What Do You Care What Other People Think?*).

Both the power and the parody are well documented here by the journalist James Gleick. When I learned he was writing this biography, I feared he might react against the spate of adulation following Feynman's death, and be tempted to replace an account of the physics by a character assassination. I was wrong. Gleick has done a fine job, concentrating on Feynman's hard-to-popularise "physicists' physics" but at the same time bringing out its connection with his unique personality, his family, his colleagues, and the history and culture of his times.

I liked the descriptions of Feynman's endless curiosity, his fascination with detail, with particular facts in physics and mathematics, as well as the deepest ideas. As a teenager Feynman was awestruck by $\exp\{i\pi\} = -1$ as well as being excited to learn that $\cos 20^\circ \cos 40^\circ \cos 80^\circ = 1/8$. Later he became obsessed by the two-to-one ratio between the rates of spin and wobble of a thrown plate (this is not an easy observation, and in *Surely You're Joking...*, he gets the sign wrong – was this a deliberate piece of Feynman mischief, I wonder) and sought to relate this phenomenon to a similar peculiarity of electrons.

Feynman was the quintessential "man who walks by himself": he did not "care what other people think". He hated



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Bongo fury – Feynman at work and at play (top)

scientific meetings ("like a lot of worms trying to get out of a bottle by crawling all over each other"). So it is a paradox that he did care passionately about the popularisation of science. He despised the quiz show mentality where science is reduced to the massing of facts and the naming of phenomena, and insisted on knowing by doing, which "gives a feeling of stability and reality about the world", "drives out many fears and superstitions", and teaches "how to distinguish truth from fraud, and from show".

With this came intolerance of patronising attitudes to scientists. When a Swedish encyclopaedia asked for a photograph of him playing his beloved bongo drums so as to "give a human approach to...theoretical physics", he snapped back: "The fact that I beat a drum has nothing to do with the fact that I do theoretical physics. Theoretical physics is a human endeavour, one of the higher developments of human beings – and this perpetual desire to prove that people who do it are human by showing that they do other things that a few other humans do (like playing bongo drums) is insulting to me."

I applaud this sentiment – especially timely now when we are pressed to soften the edges of our reality to accommodate the treacherous demands of marketing, image and advertising – but note the inconsistency that he allowed the same photograph to decorate his celebrated "Lectures on physics".

Gleick dwells on Feynman's compulsion to engage in brief, intense love affairs. This raises several questions. How deeply was his emotional turbulence connected with his creativity in physics? (One of his partners, wistfully recalling an idyllic episode, wrote "last year you were content in Rio, and as a result produced Beta Decay".) Is there a more than superficial similarity with Schrödinger, who, as Weyl wrote, did his best work "during a late erotic outburst in his life"? (Late? He was only 37!) Was he simply exploiting and manipulating the well known aphrodisiac powers of success? Or was he raging against the tragic loss of his first wife and tender love Arline? I would like to see more discussion of these matters, but I expect it is too soon, and still, for some, too painful, for that.

It is hard for one who did not know Feynman personally to judge the reliability of Gleick's portrayal, especially in view of Feynman's whimsical predilection for creating and refining myths about himself. But Gleick, while repeating many of the better-known stories, has clearly gone to great trouble to get independent opinions and assessments, and the result rings true. Feynman was not a typical scientist in the popular image, but he was an irrepressible fountain of passionate physics, and it is good to read about him.

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