

# Religious resonances

Charles Tanford

**Michael Faraday: Sandemanian & Scientist.** By Geoffrey Cantor. Macmillan: 1991. Pp.359. £40, \$45.

It is rugged country up in the northern Pennines, from where the Faradays came. It is also one of few places in England where the Sandemanian religion gained some measure of a foothold — an appropriately rugged form of Christianity, uncompromisingly guided by scriptural precepts, where a single perceived infraction of the rules led to temporary 'exclusion' and two 'exclusions' meant 'out' forever. And the rules were severe. It was not enough to obey the explicit precepts of the Bible. One had to go further than that, to be guided by these precepts alone, to avoid as far as possible any actions on which the scriptures are silent. Which of course put Sandemanians in opposition to virtually all other religious sects, conformist and non-conformist alike. They had few friends. Michael Faraday himself called it "this despised sect".

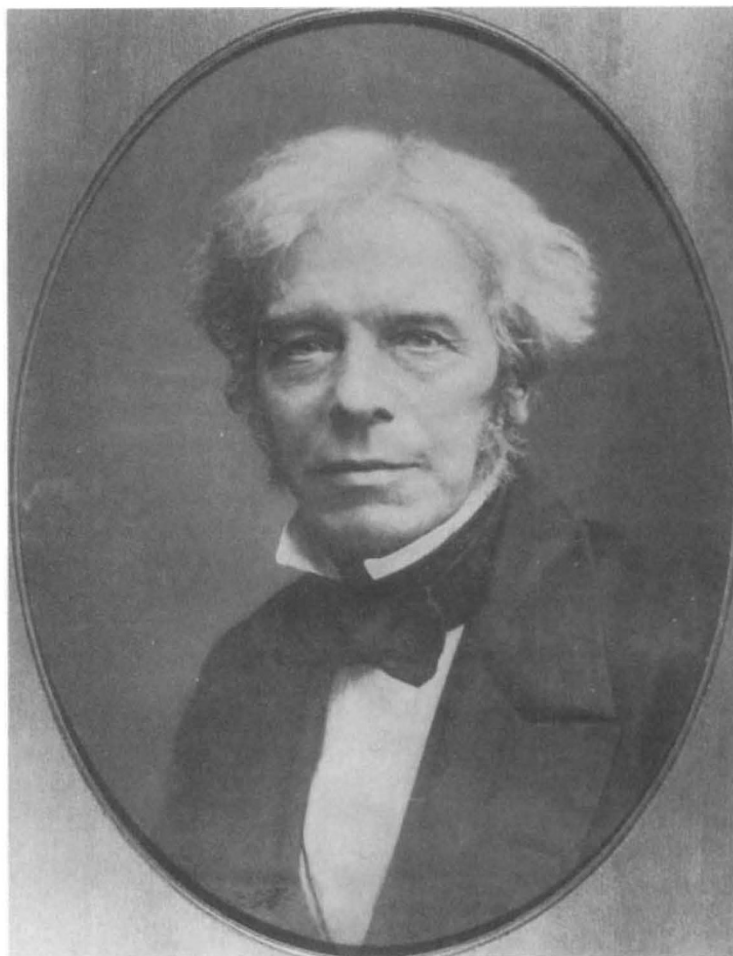
James Faraday was one of the Pennine Sandemanians. He had a smithy in Outhgill, next to an inn on the drovers' trail to market. When an economic downturn stemmed the flow of cattle, he and his wife moved (in early 1791) to London and left the rugged land behind, but took the religion with them. Fellow Sandemanians were in fact instrumental in helping James find a city job. Michael was born in London later that year and he in turn became a fervent Sandemanian for most of his adult life. It is quite appropriate in this Faraday bicentenary year to ponder the

question — how much did the demanding constraints of his religion influence Michael Faraday's science? In *Michael Faraday: Sandemanian and Scientist*, Geoffrey Cantor addresses this question — or, to be more precise, he assumes it must have had a direct effect and seeks out evidence to support this.

There are some obstacles. There is no question about Faraday's faith and that it guided him when addressing moral issues, but Faraday himself never claimed a connection with his scientific work and indeed emphasized the need to separate religious and ordinary beliefs in an 1854 lecture. The biblical precepts themselves seem to lead

in this direction — Cantor makes much of Matthew 22:21, the injunction to "render unto Caesar the things which are Caesar's". Does not that advocate a clean separation between spiritual life and one's work in the real world?

Nor does the purely scientific record suggest otherwise. Christian Oersted, who was



Michael Faraday — did his faith influence his scientific work?

the first to see the magnetic needle move in response to an electric current, insisted that he was inspired, not in his case by religion but by the metaphysics of Kant and Schelling. His claim of inspiration can be supported, despite the fact that he seems to have totally misread the kantian philosophy itself. But those who were excited by Oersted's result and followed it up — Ampère, Davy, Faraday — do they not reflect the ordinary progression of discovery, each successive investigator building on the work of his predecessor, driven by the fascination of the problem alone? Or am I being too Whiggish?

Obstacles, however, do not deter Cantor.

He is quite frank about his goal, which is not to make an open-and-shut case but to search for places in Faraday's writings where what he calls "resonances with appropriate biblical passages" can be detected. Likewise he has combed the diaries of Faraday's beloved nieces (Faraday had no children of his own) and the writings of suitable contemporaries, on the basis of whose works Faraday's own thoughts might be "reconstructed".

Whatever the merits of resonances and reconstructions, Cantor's biography does lead to reflection. How about other scientists and other religions? Joseph Priestley, for example: does Unitarianism lurk behind the discovery of oxygen? Or, within an individual scientific life, what are the relative strengths of different social influences? In Faraday's case, for example, the death of the by then rather hostile Humphry Davy, in 1829, as compared with his temporary exclusion from the Sandemanians in 1844 — which had the greater influence?

But we digress, for such comparisons are beyond the scope of Cantor's book. His mission is to gather in one place every conceivable shred of evidence related to his single chosen example — a kind of theoscientific analogue to a clinical case history. He concludes that "no strong causal arrow can be drawn" from Faraday's religion to his science or vice versa. Both were "very much of a piece", he states, both "chosen responses to his psychological needs".

My own thoughts turned to my former chemistry mentor, Henry Eyring. He was a devout Mormon, an elder of the church's governing body in Salt Lake City. Scriptural precepts dominated his every moral stance and his family life. But none of us who were his students could imagine any relation to his science

(which included a brilliant book, *The Theory of Rate Processes*; McGraw-Hill, 1941). Were we naive? I must find myself a copy of the Book of Mormon and search for resonances! □

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■ Also published recently to commemorate the bicentenary of Faraday's birth is *The Correspondence of Michael Faraday: Vol. 1, 1811-1831*, edited by Frank A. J. L. James, which contains many previously unpublished letters both to and from great British scientists. Published by The Institution of Electrical Engineers, price is £55. □