Obituary

Alex Todd (1907–97)

Organic chemist, and mover-and-shaker in British science policy

Alexander Robertus Todd, Scotsman and Nobel prizewinner, who died on 10 January in Cambridge, England, at the age of 89, was a big man in every sense. Height made him tower above others. Quick wits and impulsive generosity made him lifelong friends. Impulsive intolerance made him enemies as well. As a young man, he was a prodigy; later, he was simply indefatigable.

The twentieth century has been well served by its synthetic organic chemists, from Emil Fischer onwards. Todd, the son of a line-manager on the Glasgow tramway system, was a precocious undergraduate at Glasgow and afterwards spent two years at Frankfurt, earning a PhD (in German) for his work on bile acids. But he learned his craft from Robert Robinson, Oxford's legendary green-fingers, with whom he worked in the early 1930s before shuttling as a postdoctoral student between Edinburgh and the Lister Institute in London, ticking off structures and syntheses as he went: vitamin B_1, α- and β-tocopherol and, to his later delight, the active principle of cannabis (cannabinol).

He became head of the chemistry department at the University of Manchester in 1938, at the age of 31, where he embarked on the study of the purine and pyrimidine bases in living things. In 1944, he became head of chemistry at Cambridge: there his group produced the structures of vitamin B_{12} and contributed to that of penicillin, and also synthesized ATP.

Todd's Nobel prize was awarded in 1957 for his work on purines and pyrimidines, which had provided essential information for the model-building that eventually enabled Watson and Crick to produce a plausible structure for DNA. Todd and his collaborators showed that the deoxyribose in nucleotides is cyclized, that the link between the sugar and the base is a β-linkage and that, in polymers, the phosphate groups are invariably linked to the 5′ and 3′ carbons of the sugar molecule (giving a single strand of DNA its crucial directionality). It is odd that he himself never took up model-building.

By the late 1950s, Todd had also begun to sense the pleasures of public life. He cut his teeth on the struggle to build a new chemistry laboratory in Cambridge (completed in 1958), when he seems to have learned that a person with a clear idea of what he wants can often get it by requesting it in a variety of tones of voice ranging from the clear and reasonable to the determined and even threatening. (Height helped again.)

Todd was proud of being a Scot and of his achievements as a chemist, of course, but there were two other feathers in his cap that kept cropping up in conversation. One was his chairmanship of the Advisory Council on Scientific Policy between 1952 and 1964, whose job was to advise the British government on the spending of research funds, but which stood out (and still does) among such committees in publishing an often critical annual report. How did that come about? "I asked a civil servant to arrange it", he once said; one sympathized with the poor man concerned.

He also played a central part, as a trustee of the Nuffield Foundation, in launching the programme of curriculum development for schools called the Nuffield Science Teaching Project (of which I was the coordinator from 1964 to 1966). On one occasion, it fell to me to ask for an extra £2 million for several new projects and to Todd to speak first. "Can any trustee say the foundation's ever done a better thing?" was almost all he said. We got the funds.

In 1963, Todd — by now a life peer, and as such Lord Todd — was elected Master of Christ's College, Cambridge. Although still active in the laboratory, he seemed to have more time to spare for making waves. He was out of sympathy with many things: the Robbins report of 1963 recommending an expansion of British universities, the Trend report on the organization of British science, and even the election of the Labour government in 1964. "They think I'm to the right of Ghengis Khan", he used to say with relish.

Despite that insouciance, Todd was easily hurt when his views on public policy did not carry all before them. His presidential address to the British Association in 1970 (delivered in Glasgow Cathedral) was politically incorrect in many ways, advocating among other things the preferential direction of research funds to élite universities, much as the funding councils have now decided, and was derided by several newspapers. He seemed genuinely puzzled, over a consolatory whisky, that he had stirred up a wasps' nest. Making public policy was one thing, controversy quite another.

By then, the travel bug had bitten Todd. He enormously enjoyed travelling, more for the people he met than for the sights or the grand occasions. His photograph album must be full of groups of people at airports and dining halls, from Tokyo to Tashkent, in which the centrepiece is this two-metre Scot.

Travel caused an interesting fuss in 1975, when Todd was about to be elected president of the Royal Society. I was then director of the Nuffield Foundation (after a first spell at *Nature*). One day in October, he dropped by to explain that there would be so much travelling in the new post that he would have to resign as chairman of the trustees, so could I canvass the others to nominate a successor. We settled on Lord Trend (whose report, when he was secretary to the British cabinet, had ironically put an end to Todd's advisory council a dozen years earlier), who was promptly elected deputy.

And then Todd decided that he could fit in the travelling after all, and stayed for a further five years. (A little later, he was off to Hong Kong every other month to run a Nuffield look-alike called the Croucher Foundation, which was financed by an old friend and shipping magnate.) I said that it was for him to explain to Trend; but the explanation, I would guess, was more a declaration. Todd was like that. It is not so much that he was sure of himself as that he concealed self-doubt even from himself.

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