Dressing for modern times

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The Reluctant Patron: Science and the State in Britain 1850–1920. By Peter Alter. Translated by Angela Davies. Berg, 77 Morrell Avenue, Oxford OX4 1NQ/St Martin's Press, New York: 1987. Pp.292. £30, \$50.

SCIENTISTS do not have noticeably longer memories than other people, and one of the several virtues of Peter Alter's book is its reminder that problems with governmental funding of scientific research are not new. Indeed, political pettiness in these matters may be the rule rather than the exception, at least in Britain. The title of the book is well chosen. Between about 1850 and 1920, British science put on its modern dress. In 1920, *scientia* was decently, albeit scantily, clothed; 70 years earlier, the same could not be said. During that period, a combination of private and public patronage had provided the essentials. In the end, the government's role had proved crucial: *malgré lui*, the state had become one of the main patrons of the scientific estate.

The process itself has occurred in all developed countries during the past sesquicentennial, but in very different ways. If the hallmarks of modern science are paid professionals doing the work, collaborative research and a marked tendency towards specialization, the German states set the pattern from the 1830s. At about that time, Charles Babbage and others were complaining that British science was in a state of decline, although in hindsight it is unclear what it was declining from. In 1830, it was, and had long been, 'amateur' in its orientation. This did not mean that there was no world-class British science in that age of Babbage, Faraday, Herschel and Lyell, merely that very few could expect to earn a living from it. The word 'scientist' was coined only in 1833, and even in 1860, a decade after Alter's rough starting date, only three or four of the 22 Britons elected to fellowship in the Royal Society had conventionally 'professional' scientific careers.

If Royal Society elections have become anything to go by, this conventional professional career has been an academic one, although both industry and the government itself also provided scientific jobs by 1920. Within the new nineteenth-century universities and university colleges in London, Birmingham, Manchester, Liverpool, Bristol and elsewhere, science was important and money for laboratories

and equipment came largely from private patrons, mostly from such self-made entrepreneurs as Josiah Mason, John Owens and Donald Currie. The scientific base in the universities was created with virtually no help from the state.

Welcome though it was, to many spokesmen of science private patronage seemed only a partial solution. Always the

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Lord Haldane — "a true statesman of science".

German model was there, with its publicly endowed research institutes, its vigorous system of higher education, and its increasingly important science-based chemical and optical industries. As Britain began to lose out in world markets to Germany and the United States, the science lobby mounted its own campaign to try to convince the politicians that an enlightened public science policy (and a substantial capital investment) could reverse the trend. Key figures in the science lobby included a retired army officer, Colonel Alexander Strange (1818–1874) and, above all, Norman Lockyer (1836–1920), founder and first editor of *Nature*. Both *Nature* and another of Lockyer's creations, the British Science Guild (1905), provided outlets for his energetic espousal of science and its importance in national life. As Lord Kelvin had succinctly put it in the 1870s:

Investigations for which a large expenditure of money is necessary and which must be continued through long periods of years cannot be undertaken by private individuals. . . . [If] the government is well advised in respect to

science, it will be for the good of the nation that the government should make it part of its function to promote experimental investigations in science.

Despite decades of lobbying and some relatively modest gains, the scientific community began systematically to benefit from state patronage only from the turn of the century. Instances of this were the establishment of the National Physical Laboratory, which was modelled on the Physikalisch-technische Reichsanstalt in Charlottenburg and which formally opened in 1902; the amalgamation of various scientific institutions to form Imperial College London; and the rather unexpected spin-off of the 1911 National Health Insurance Act, the money to support the activities of the Medical Research Committee (now Council). The latter was unexpected because it was an initiative of the government; in the first two instances, and more generally throughout the period, governments in Britain had at best only passively responded to repeated pleas from scientists. During the First World War state involvement in scientific research increased, with the creation of the Department of Scientific and Industrial Research, ancestor of the Science Research Council, and the advent of the research associations of the main science-based industries.

Alter's book (which is a fluent and updated translation of a monograph first published in German in 1982) throws light on these and related issues. Although based on an admirable amount of primary research, its main achievement is to synthesize the scattered and piecemeal historical and sociological literature on a subject of depressing relevance to this age of cuts and retrenchment. Nineteenth-century scientists longed for political leaders who had been trained in science. They were few and far between. Even the scientists' best friend in high places, Lord Haldane (1856–1928), was a barrister. Nevertheless, Haldane was a true statesman of science, active on its behalf and commemorated in the 'Haldane Principle' — the assumption (in Alter's words) that, in Britain, "science should determine its own research aims and methods and be free from any direct control by the executive". The new dawn has now arrived. The current prime minister has a degree in chemistry. What, one wonders, will future generations mean if they refer to a 'Thatcher Principle'? □

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Mary Evans/Saturday Review