

The rise of the professional

The Victorian Scientist: The Growth of a Profession

by Jack Meadows

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John Waller

In 1873 the Victorian scientific polymath Francis Galton sent out a printed questionnaire to the most distinguished fellows of the Royal Society in London. His aim was to work out the ingredients of heredity, education, outlook and aptitude that went into making a good scientist. The results were published in his 1874 book *English Men of Science*. To nobody's great surprise, this dogmatic hereditarian concluded that most scientists were born rather than made. Although he did assert that a religious education is harmful to the development of a free, enquiring spirit, he focused almost exclusively on the personal traits of the scientists, not on the social structures and contexts that impeded or aided their research. And yet, as Jack Meadows explains in *The Victorian Scientist*, Galton was living through, and even helping to bring about, a revolution in the way science was done.

British science, it is generally acknowledged, finally became a professional activity during the lengthy reign of Queen Victoria. It was a calling once dominated by amateurs, many of them clergymen with undemanding livings, barristers with few briefs or little interest in the law, and gentlemen of leisure unfulfilled by rural sports. But by 1900 it had emerged as a full-time occupation practised by salaried experts. It is also widely agreed that this was a virtually unqualified boon. The professionalization of science, which began in German universities but later spread across the developed world, was a vital prerequisite for the discoveries that have made science such a powerful force in the modern world.

In an accessible style, Meadows charts the long struggle that saw science enter school and university curricula despite fulsome opposition from the admirers of ancient languages. He explores how scientists forged links with both industry and universities, and demonstrated the practical advantages of scientific discovery (not least Lord Kelvin's contribution to laying the undersea cables for international telegraphy), as well as the potential of pure research. Meadows discusses the transfer of mainstream science from the garden, field and makeshift laboratory to the purpose-built and lavishly equipped labs of the late nineteenth century.

This book also shows how the prestige of science rose, and with it the willingness of government to bankroll its endeavours. Less



Changing rooms: laboratories were transformed when professional scientists replaced amateurs.

and less often were scientists of humble means obliged to eke out a living writing textbooks and going on lecture tours. As the state's purse strings loosened, the social complexion of science altered, with more members of the middle and lower classes of society entering its ranks. But, as Meadows points out, there were plenty of losers in this process of professionalization, as those with dual loyalties to science and other callings were increasingly forced out, demoted to the rank of mere collectors and made to feel unwelcome at the 'high tables' of science, such as the Royal Society.

Meadows adds colour to this story with plenty of striking anecdotes, such as William Buckland dining on bluebottles, and Lyon Playfair's near-suicidal chemistry experiments. There are mentions too of Lord Kelvin's self-belief and Thomas Huxley's wit. But Meadows also makes more serious points. There is much more to telling the history of science than cataloguing its intellectual attainments. And, more importantly, the achievements of science owe at least as much to salaries and state support as to flashes of brilliant insight.

The received model of scientific progress — that it was brought about by a handful of other-worldly "scientific Shakespeares", to use C. P. Snow's phrase — is neither realistic nor especially helpful. Charles Darwin seldom called on the government for financial assistance, but his great breakthrough was critically dependent on Britain's trading interests, a well-funded navy, and a vast network of trading posts, consulates and scientific societies back home that encouraged his

activities and helped him make sense of his finds. One somewhat embittered contemporary pointed out further advantages that Darwin enjoyed. "Darwin is an enviable man," he wrote, having "a pleasant place, a nice wife, a nice family, station neither too high nor too low, a good moderate fortune, and the command of his time." These last three were particularly important. As Meadows emphasizes, the quality and quantity of science rose dramatically when, having been put on the state payroll, scientists were seldom hamstrung by having poorly connected relations or little inherited wealth.

One serious omission from this book is any real discussion of what the term 'professional' means, then and now. For instance, some Victorian scientists thought the word implied creating not university posts but a powerful intellectual elite made up largely of independently wealthy gentlemen. Nor does Meadows consider how professions operate as technocratic monopolies, often hostile to the non-professional, no matter how competent his or her research. Huxley and his allies, for example, fought hard to exclude amateurs from Victorian science, even though many of the greatest discoveries of the day had arisen from the earnest endeavours of those who, like Darwin, had neither laboratories nor official positions.

Nevertheless, *The Victorian Scientist* is to be recommended for giving non-specialist readers a much more complete picture of the context of nineteenth-century science. ■

John C. Waller is in the Department of History and Philosophy of Science, University of Melbourne, Victoria 3010, Australia.