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Seeking the Ordinary in the Extraordinary

Organisation and Scientific Discovery
John Hurley
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To identify the factors that promote innovation and discovery is the holy grail sought by scientific policy makers. This book sets out to identify the organisational factors that can make scientific discovery more likely.

The problem is approached by focusing on Nobel prize winners and the circumstances that led to their success. Sixteen Nobel laureates (the 10% of the physical science winners who agreed to participate) were interviewed and analysed to prise out the common factors of their working lives.

There are a number of assumptions in this research strategy. The most fundamental is that scientific discovery correlates closely with creativity, technological problem-solving and social value. The author marshals many of the historians and philosophers of science of the previous half century to develop what are presented as uncontentious definitions. 'Discovery', in this book, is linked with a continuous, if sometimes faltering, process of intellectual development in which organisational factors can perturb the rate, but not the content, of the advance. Hence the claim that scientific discovery, as exemplified by the Nobelists, is needed to solve the 'difficult but solvable problems' hindering the 'development, and even continuance of our civilisation' (p. 8). From these assumptions follow a series of others: that science, rather than technology, is the primary source of discovery; that Nobel prize winners represent the 'best' of scientists, and models to emulate; that the Nobel prizes in physical science recognise, in some regular way, economically applicable or socially beneficial knowledge; that environment is important, but only up to a point, in shaping the career of a scientist and what he or she produces.

At the root of this research is the search for desirable scientific attributes from among an atypical population of scientists – indeed, the word 'exceptional' appears four times when describing them (p. viii). Their histories suggest that early encouragement and selection were contributing factors for many of them. They also suggest, unsurprisingly, that organisations combining a nucleus of competent

colleagues, good facilities and intellectual freedom are a common denominator in their success. Yet few of Nobel laureates claimed that their institutional circumstances were important other than in a negative sense. The author, unlike his subjects, emphasises the implied organisational dimension in actual research. It is the implicitness and diffidence of his argument that rather weakens it. Bruno Latour and other sociologists of science described in general terms some twenty years ago how discoveries depend on such organisational links. By limiting its study to the pinnacle of the scientific hierarchy, the present book misses the opportunity to further detail the optimal conditions under which most scientists work.

Nor can compelling conclusions be drawn. The final chapter rehearses the imprecision of terms and the vast array of philosophical views surrounding models of discovery, without taking an explicit stance; the reader is not so much guided as dropped into a morass of conflicting beliefs. Indeed, the theme of the book seems to begin and end with the American administrator and historian of science James Conant, who noted that 'there is only one proved method of assisting the advancement of pure science: that of picking men of genius, backing them heavily, and leaving them to direct themselves'. Importantly, the author suggests resolving the many loose ends by a significantly expanded programme of study centring on organisations rather than scientific cohorts.

Can the support of science, and an effective science policy, really be best achieved by emulating the exceptional world of the Nobel laureates? I remain unconvinced.

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