

Book Review

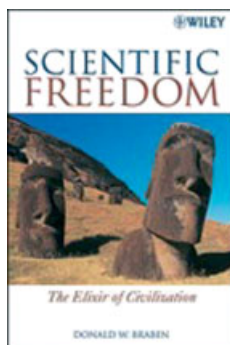
DONALD W. BRABEN

Scientific Freedom: The Elixir of Civilization**John Wiley & Sons; March 2008**

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Donald Braben's purpose in writing this book is to provide a rationale and modus operandi for the development of "transformative research". Braben defines transformative research as "Research that sets out radically to change the way we think about an important subject" and which is exemplified in the 20th century by the work of people such as Einstein, Fleming, Pauling, etc., to whom he refers collectively as the "Planck Club". Drawing on the econometric analysis of Nobel

Laureate Robert Solow, which demonstrated that technological change is a major element behind long-term economic growth, Braben's working hypothesis is that "unconstrained creativity eventually leads to new opportunities and new growth". However, he argues that since 1970, growing bureaucratisation, declining university autonomy, the over use of peer review, the need for accountability in the research funding process, allied to a decline in academic freedom, have acted in concert to diminish the possibility of such transformative research being undertaken. Hence, he believes, unless this position is reversed via a fresh approach which champions transformative research through greater scientific freedom, a decline in economic growth is the inevitable outcome.

Braben briefly examines previous scientific revolutions since the 17th century, before making a strong empirical case for a Fifth Scientific Revolution. Such a Revolution would involve the widespread introduction of transformative research coupled with greater autonomy for universities and the granting of academic freedom to individual academics. Braben outlines how a new university might operate under such a regime, although Braben's proposed academy would be unrecognisable to most current Vice-Chancellors and Departmental Heads. Staff would be selected "for their radical and stimulating viewpoints. They would attend for short periods, say a week initially". Students would attend because "they felt a need for intellectual refreshment. They would be mature and expert in some field. . . . (and) would attend for short periods for which they would pay or be sponsored". Such an institution would not hold examinations or award degrees but "would help students develop their own critical and creative capacities, and to show them that life in general can be richer than present orthodoxies recognise".

Proponents of such innovative ideas rarely have the resources required to subject them to a practical experiment. Unusually, in 1980 Braben was invited to come to BP and set up a Venture Research Unit, and for the next decade received £15 million to create an environment for transformative research in which funds were freely available, and there were no boundaries, deadlines, exclusion, milestones, peer reviews or priorities – researchers were free to go in any direction they wished with "no specific objective other than to understand or explore". Rather than advertise for researchers, Braben and his team gave guest lectures at universities and to the media, and published information about the Venture Research Unit in academic journals. Consequently they received 1000 applications per year, of which circa 100 were deemed serious contenders and set up 26 separate research groups between 1980–90. In the last section of the book Braben provides a detailed assessment of the work of the research groups which the Venture Research Unit supported and concludes that "perhaps 14 made transformative discoveries".

Examining Braben's book from the standpoint of trends in academic freedom over the last 50 years, it is evident that there are analytical omissions. Much of Braben's analysis relates solely to the UK and the USA. In the UK individual academic freedom has always been subordinate to institutional autonomy, while in the USA protection for academic freedom has been derived from a large canon of judicial decisions, tied to an interpretation of the First Amendment of the United States' Constitution. In other Western European states, academic freedom is more usually protected directly under the constitution or through specific h.e. legislation. For example, the Greek constitution makes particular reference to academic tenure, and most other EU nations provide some form of academic tenure, which was abolished in the UK in 1988. Similarly Braben opines that "since the Renaissance, the policy on academic research has been generally not to have a policy". However, most historians would argue that the idea of the importance of academic freedom for university research came much later, and more especially following the reforms instituted by Wilhelm von Humboldt at Berlin University in the 19th century. In addition Braben's central argument would have been strengthened if he had considered that academic freedom is indicative of democratic values within the wider community, as many scholars have noted. In this sense, as the economist Fritz Machlup, one-time President of the American Association of University Professors and notable for his research into knowledge as an economic resource, has observed: "academic freedom is a right of the people, not a privilege of a few." More significantly, subsequent work on Solow's neoclassical economic growth model has confirmed that technological advance is important, but that the process is much more complex than such a uni-causal approach would suggest.

Despite such reservations it is impossible to deny Braben's central thesis about the best way to pursue the search for new

knowledge. By its very nature such knowledge is unknown, thereby making it impossible to manage the process of its discovery. Indeed where attempts to manage the research process lead to a concentration on "safe" areas, unexpected but groundbreaking discoveries are unlikely. Braben cites examples of academics who, possessing tenure, have had the freedom to pursue their research, frequently against the wishes and advice of their (often senior and distinguished) colleagues, and have subsequently confounded their critics by making discoveries that have been crucially important, both to science and society at large. Braben's arguments about the need for freedom in research can find support in some eminent quarters. For example, Max Perutz, Nobel Laureate and founding Director of Cambridge University's Molecular Biology Laboratory, in his book *I Wish I had Made you Angry Earlier: Essays on Science, Scientists and Humanity*, (2003, p. ix) argues that "creativity in science, as in the arts, cannot be organised. It arises spontaneously from individual talent. Well-run laboratories can foster it, but hierarchical organisation, inflexible,

bureaucratic rules, and mountains of futile paperwork can kill it. Discoveries cannot be planned; they pop up, like Puck, in unexpected corners."

The suggested readership for Braben's cogently argued and lucidly written text is broad: "anyone who has a serious interest in global affairs - industrialists, academics, legislators and consumers". In November 2007, Bill Rammell (the U.K. Minister for Higher Education) reported that the Prime Minister, Gordon Brown, had requested him to invite the university sector to lead a debate on how academic freedom can be maintained. For anyone wanting to make a meaningful input into such a debate (including the ministers concerned), Braben's book must be considered essential reading.

Terence Karran

University of Lincoln, UK.