

# WHY DEMOCRACIES NEED SCIENCE

HARRY COLLINS &  
ROBERT EVANS



'Scientific and technological advances have a huge impact on our lives, yet science and society have an ambivalent relationship: science needs democracy to flourish but its techniques are beyond political accountability. In this thought-provoking book, Collins and Evans assert that "science gives substance to the way of being of democracy". Consequently, science is a key to achieving and safeguarding our democratic ideals.'

**BARRY BARISH, LINDE PROFESSOR OF PHYSICS, EMERITUS, CALTECH; PI AND DIRECTOR OF LIGO, 1994-2005**

'Free-market ideology threatens both science and democracy. Collins and Evans respond not with philosophical arguments but with an appeal to common sense. They ask us first to see that we face a basic moral choice, and then to choose the values of modern science. A provocative and thoughtful book.'

**MARK BROWN, PROFESSOR OF GOVERNMENT, CALIFORNIA STATE UNIVERSITY, SACRAMENTO**

We live in times of increasing public distrust of the main institutions of modern society. Experts, including scientists, are suspected of working to hidden agendas or serving vested interests. The solution is usually seen as more public scrutiny and more control by democratic institutions – experts must be subservient to social and political life.

In this book, Harry Collins and Robert Evans take a radically different view. They argue that, rather than democracies needing to be protected from science, democratic societies need to learn how to value science in this new age of uncertainty. By emphasizing that science is a moral enterprise, guided by values that should matter to all, they show how science can support democracy without destroying it and propose a new institution – The Owls – that can mediate between science and society and improve technological decision-making for the benefit of all.

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& EVANS

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## Why Democracies Need Science



## *Preface*

There are four parts to our argument. Part I introduces the problem, setting out the main issues as we see them, and describes the academic foundations on which our call to arms is built. Part II contains most of the new ideas: it sets out the principles that inform what we call ‘elective modernism’ and explains their implications for the ways in which scientific advice should be sought and used in policy-making. We argue that science should be seen as a moral enterprise and that the values that inform scientific work should be celebrated; this, as far as we know, is a new idea, so it takes precedence over the utilitarian justification of science in the argument of the book, but it can also be used in addition to the utilitarian argument when that works. Crucially, however, the moral argument works for sciences that do not have any obvious utility and, in that sense, it is prior. We argue at the same time for the primacy of democratic institutions in technological decision-making and invent a new kind of institution – ‘The Owls’ – whose job is to represent faithfully the content and degree of certainty of any technical advice that might be thought to bear on these decisions. Part III shows that we do what we say should be done in Part II. There we suggest that one of the values that characterizes science is ‘continuity’, by which we mean that even the most revolutionary of



scientific ideas will seek to incorporate and retain a good portion of what was previously accepted as true. In Part III, we show the ways in which our ideas, which we have come to realize in the light of reactions to them must include an unintended element of revolutionary thinking, relate to the huge existing literature that deals with science and democracy. In Part IV, we sum up our argument in a manifesto for the future of science that sets out the key choices facing you, the reader, in as straightforward and uncompromising a manner as possible. Given what has been said so far, it will be no surprise that this manifesto emphasizes the moral responsibility of scientists to act in ways that preserve science's traditions and values. If scientists fail in this task and we fail to support them in it, then a crucial element of the culture that sustains democratic societies will be lost.

Though both authors take full responsibility for the whole of this book, Collins was the lead author of Part II while Evans took the lead on Part III. The authors have to thank many people. We thank Martin Weinel for his marvellous analysis of the Thabo Mbeki, anti-retroviral drugs affair and for his contributions to the more political parts of this book. Under slightly changed circumstances, he would have been a co-author. Above all, we thank the various audiences who have been willing to listen to talk of elective modernism. The term had been batted around a bit but the ideas were probably first presented by Collins on 8 October 2008 at the regular meeting of Cardiff's Centre for the Study of Knowledge Expertise and Science, and since then they have been presented at many national and international meetings and mentioned, *en passant*, in a few pieces of published work. Intervening events have slowed their presentation in extended form much more than we anticipated.

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# Part I

## *Introduction*



# 1

## *Science as a Moral Choice*

What kind of society do we want to live in? There is plenty wrong with Western societies: huge and growing inequalities; unstable and corrupt financial systems; political systems whose logic places national self-regard above the terrible suffering of distant nations; and politicians for purchase. Worse, in Western societies we are no longer confident about our basic values. The realization that a sense of moral superiority was often a thin disguise for the exploitation of colonized peoples, and now the fear that exploitation of the Earth's natural resources is risking our collective future, are causing us to question what we have traditionally thought of as progress. Maybe the exploited peoples had it right and a calm life in tune with nature, however short, and however bereft of technological goods, is better than the endless quest for more, for further, for faster.

This book deals with questions one level down from these concerns, taking it that the difference in quality between our lives and those of our distant ancestors does represent progress. There has been material progress, such as freedom from high rates of maternal and infant mortality and relief from the struggle to eat and stay warm, and, to a less marked extent, there has been moral progress, with the weak no longer living in continual fear of the strong. The problem that we address here is the potential or actual erosion of



our style of life which is coextensive with the erosion of certain once-cherished values. We address one part of this problem: the role of science in society.

In earlier works – discussed later under the heading ‘Three Waves of Science Studies’ – we argued that, in spite of the huge enrichment of our critical understanding of the nature of science that has taken place since the 1970s, it is still important and intellectually possible to value expertise. Big arguments can be based on shallow foundations and we base our ideas about expertise on the commonsense view that it is better to give more weight to the opinions of those who, literally, *know* what they are talking about. But there are all kinds of experts who know what they are talking about: astrologers and astronomers; chemists and alchemists; tea-leaf readers and econometricians. In our earlier arguments, there is only a brief justification of scientific expertise as opposed to other kinds of expertise. Here we complete another step in the Third Wave project by justifying scientific expertise in particular while making it as hard for ourselves as possible by accepting pretty well everything from the social constructionist critique of science that has emerged since the 1960s – The Second Wave. These days, academic discussions of science and technology grow ever more polarized, but the view here fits neither pole; it endorses the enriched understanding and critique of old models of science that came with the cognitive revolution of the 1970s but it also aims to preserve a special place for science in society.

## The moral case for scientific values

We are interested in problems that can be understood in terms of the shared values and practices of social groups. As particular practices are repeated over time and become more widely shared, the values that they embody are reinforced and reproduced and we speak of them as becoming ‘institutionalized’. In some cases, this institutionalization has a formal face to it, with rules and protocols written down, and specialized roles created to ensure that procedures are followed correctly. The main institutions of

state – parliament, courts, police and so on – along with certain of the professions, exhibit this formal character. Other social institutions, perhaps the majority, are not like this; science is an example. Although scientists are trained in the substantive content of their discipline, they are not formally instructed in ‘how to be a good scientist’. Instead, much like the young child learning how to play ‘nicely’, the apprentice scientist gains his or her understanding of the moral values inherent in the role by absorption from their colleagues – socialization.<sup>1</sup> We think that these values, along with the values that inform many of the professions, are under threat, just as the value of the professions themselves is under threat.

The attacks on science come from many sources. From the outside, science is beset by post-modernist analysis that sees no truth, only ‘accounts’; it is beset by environmentalist critiques that see science as an instrument of ecological disaster; and it is beset by political regimes that see value only in economic terms, or, in America, can make political capital by contrasting science unfavourably with religion. Even in our own subject – the social studies of science – one never hears an argument or a position defended on the grounds that it is ‘scientific’; the very idea would be dismissed as naïve since it is now believed there no longer is such a thing as science distinct from society. Science is also under attack from the inside. Scientists, thinking to defend their culture from politicians wishing to reduce taxes, rush to embrace the idea that they can deliver material and cultural goods to society – science is in there with capitalism forging new start-up companies, providing impactful outputs that increase productivity and efficiency, and entertaining the masses with astonishing revelations about the nature of the heavens. But you need a long spoon to sup with the devil. The danger is that soon science will be valued only for its material and entertainment value. The intention may be good but too many scientists are selling their profession in the wrong marketplace.

### Professions, professionalism and moral leadership

A society is made up of institutions: transport systems, educational systems, healthcare services, providers of housing, food producers,

police, lawyers, the military, sportspersons, entertainers, churches, political institutions, businesses and banks. The moral life of a society is, in part, an aggregate of the moral substance of these institutions. In institutions like religion, the moral role is explicit. But religion is also the most obvious example of how the moral leadership role of an institution can decline. In the UK, the established church – the Church of England – is still saying all the right things, but hardly anyone is listening. In the US the situation is different, with religious institutions still strong, but there are many competing ideas, very few of which are ready to confront the dominance of free-market capitalism. And it is probably free-market capitalism that has had the most corrosive influence on democratic life in the second half of the twentieth century, not least because it has subverted and undermined the notion of professionalism.

In some of the earliest work on the nature of professions (e.g., by Durkheim and later Parsons<sup>2</sup>), professions such as law and medicine are explicitly linked with the moral qualities expected of their practitioners and the stabilizing effect this had on society as a whole. In contrast, the contemporary idea of professionalism has a more managerial and ideological meaning in which ideas of autonomy and personal responsibility are used to retain some degree of market power but also, within organizations, to discipline workers by creating normative expectations of duty, responsibility and care. This marketization of the professions, in which professionalism ‘becomes more commercially aware, budget focused, managerial, entrepreneurial and so forth’ undermines the idea of professions as repositories of moral standards.<sup>3</sup>

In many spheres of work, these changes in work practices are clearly visible. Professionalism is widely trumpeted as a value for workers of all sorts, and new professional bodies spring up all the time to protect this new jurisdiction. Whilst, for many, the contemporary demands of professionalism are experienced as attempts by those in more senior positions to devolve responsibility to those lower down the organizational hierarchy, for those with genuine autonomy there is evidence that the old moral codes no longer apply. When one of the authors of this book was young, the banks could be held up as an object lesson in integrity. The success of ‘The City’ – London’s ‘square mile’ – was said to be