

Chapter Two

WHAT IS SOCIAL SCIENCE?

FRIENDS AND ENEMIES OF NATURAL AND SOCIAL SCIENCE

One of my motives for writing this book is the growing presence of people in universities who are antagonistic to science in any form, yet call themselves social scientists. Some are anti-science without realising this. Others champion their hostility to a scientific approach to society. Another motive for writing this book is to break down some of the insularity between social science disciplines. I hope that my view of science is broadly acceptable to this group of supporters of social science, and that seeing what goes on in surrounding disciplines proves of interest.

As to those modern thinkers who either have a very different view from mine of what constitutes social science, or think the whole enterprise is both impossible to do and wicked to attempt, I hope to make inroads into their closed world. I will do my best to argue with these sceptical writers who tend to be prolific, energetic, muddle headed and popular with students. But I will argue by example. I do not intend to identify these scoundrels by name, and will resist the temptation to engage in abstract debate. They know who they are, and they do not need me to advertise for them. I know it is difficult to get the ear of this misguided *avant guard*. They have made big investments in the unfortunate intellectual positions they have adopted, and they tend to confine their reading to books and articles written by each other. But perhaps even they will agree that the proof of the pudding is in the eating.

My main goal and fervent hope is to interest some people who have never given even a moment's thought to addressing the boundless range of social issues in a scientific fashion. Lots of people have opinions about such diverse things as famines, the effects of television on children, a common currency for Europe, and life on housing estates, without realising that these topics, and a myriad other social mysteries and social problems, can be studied scientifically. Discussions in pubs which are not about sex or football are almost all about society in one way or another. People do find party politics, the pay of City traders, house building in the south East, war wherever it is going on, and so on, to be of real interest.

Even sex and football can be looked at from a social point of view. And anything which exists, including things of a social or societal nature, can be studied scientifically. My main aim is to describe and analyse how this is done. I am fully aware that a scientific approach to society is not the only approach. I do think that it is an interesting, attractive and potentially very useful thing to do. In passing, I hope to make a case for social science, along with describing and explaining what it is.

The whole of this book is an answer to the question, "What is social science?". Most of the answer provided is very practical and 'hands on'. It deals with what social scientists actually do, not with what they might do, may do, or could do in principle. This chapter is different. It operates at a very general level. In order to understand social science, it is necessary to have a framework for thinking about science as a whole. Social science is a part of the picture. So let us begin with the big picture, a picture of that amazing construct which is science.

SCIENCE AS CULTURE

There is nothing more peaceful than a herd of cows lying down in a field. As they ruminate together, is it possible that they are thinking? Probably, yes, they are. But are they wondering about how they came to be there, and what awaits them at the end? I doubt it. But suppose they did. They would not get very far with these questions because they are not very good at thinking. Even human beings, who are supposed to be good at thinking, a characteristic that allegedly distinguishes them from other animals, find these difficult questions. But perhaps among the millions of cows and the many millions of hours they spend thinking, a few unusually able and lucky ones from time to time manage to construct an important question, and maybe even to find some plausible answers.

The big problem for cows is that these discoveries are not transmitted to their fellows. Cows a thousand years ago, and a thousand years in the future,

will probably have much the same thoughts as cows today. They lack the capacity to transmit ideas across generations. In other words, they do not have much in the way of what could be called a culture, or an accumulation of knowledge. There is some growing evidence that cultural transmission among animals may be more important than hitherto expected. But whatever might be found, it will still be very minor compared to the central and over-riding role of the capacity to absorb and build on the ideas of the past which is the truly distinguishing feature of humans compared to other animals.

Of course humans today may choose to think about the great mysteries, and mundane puzzles, much as people did a thousand years ago. They can do that, but they do not have to. With suitable training, we can draw on the thinking of others. There are many, many traditions of thought. When people set about to build a house, a car, a football team, make a work of art, design a constitution for a government, or a treatment for a patient, they can draw on the handed down experience of the past, and in most cases, they have to draw on the past. They could not even make a start without doing so.

The truly distinguishing feature of human beings is that we can absorb constructions from the past, language being the outstanding example, and pass these hard won achievements on to others. Most people contribute nothing memorable to the language they speak, but many of the contributions of those who do add something new are added to the total and retained. That is the great feature of cultural transmission and development. Along with art and technology, science shines as one of the great and growing traditions of human culture.

Art changes, evolves, and responds to events and conditions of the past and the present. It does not in any obvious sense show continual improvement. Nor need it do that. It has other aspects of grandeur. Science is also a truly amazing human activity, and this is partly because of its cumulative and progressing nature. Scientists today may be no better than scientists in the past, but science is unrecognisably better. This intellectual structure which is science is such a marvel in itself that it would be a glory of mankind even if it had no practical consequences whatsoever.

While some people care about science for its own sake, the achievements of science interest relatively few people. What affects most people, whether they know it or not, is the practical consequences of science. The growth of scientific knowledge has changed life on this planet for everyone. The great advances which we see in health and life expectancy, in communication, and above all in productivity have all been made possible by the development of new knowledge. Science is not the only source of new knowledge, but it is the most organised, the most continuous and the most fundamental source of

knowledge. Of course knowledge has to be applied in order for it to have these great beneficial effects. Some of the finest achievements of engineers and others can be seen in developing an application of a discovery of science. But without the scientific knowledge in the first place, there can be no application of it. Undoubtedly practical experience adds to better practices. Science is not the only source of technical improvement. But many truly heroic leaps have come from science, and could not come from any other source.

No doubt there are serious problems that come with new knowledge, and adverse applications are always possible. There are different schools of thought as to how to respond to the possible destructive uses and the unintended consequences of science. Some people feel that scientists themselves have a special responsibility to work on certain problems, and not to work on other questions. Others feel that whether experiments should be done on human embryos, for example, is a matter for governments to decide, and scientists have no special role to play in these essentially ethical and political decisions. Tragic consequences of new knowledge are by no means confined to examples like Hiroshima. In the process of looking for new answers, mistakes are made, and these can have terrible effects. However, allowing fully for any and all of the unfortunate consequences of scientific knowledge, there is still an overwhelming case that so far mankind has reaped enormous net benefit from the progress of science.

Untold millions live longer and healthier lives. Many millions are incomparably better educated and have greater choices. Many have standards of living which even as little as a hundred years ago were inconceivable. Even in what are the rich countries today, nine out of ten people had hard lives working on farms in the year 1900. Today there is a richer life for most people in advanced countries. Only a tiny part of these gains which many experience came at some cost to others. The vast bulk of the gains for the millions who are gainers come from the advances of science. This is the single most fundamental source of what I see as human progress.

UNDERSTANDING

One of the proofs of the achievements of human understanding was the lift-off from the surface of the moon of the lunar module, bringing the two astronauts up to the circling spacecraft. There could be no full-scale rehearsal for this event. The functioning of the machine sitting on the moon's surface depended on many factors including the moon's gravitational pull, the near vacuum conditions, and the temperature at the time. None of

these could be measured directly. They were deduced from scientific theory. They could not be duplicated on earth. Engineers had to build a machine capable of taking account of these conditions. No doubt the engineering achievement in building this machine, which had to work the first time without testing under the actual conditions, is immense. It is comparable to constructing the temples of Luxor. But even the greatest engineers of the past could not have built the lunar module. They could not draw on the vast array of scientific knowledge necessary for that endeavour.

Some years before the Russians launched Sputnik, an uncle of mine tried to persuade me that it was impossible for humans to launch an artificial satellite. His understanding of why the moon stayed in orbit was shaky. As a child it was not easy for me to argue with him. How do we know the gravitational pull of the moon, he would ask? Even as an adult it is not easy to explain to a sceptic that through complex chains of reasoning, combined with observations that can be made here on earth, we can be pretty sure about how some things work thousands, and millions, and even light years away. Can we be certain? Certainty is not possible. Nor is it necessary. Only a fool insists on certainty.

When the Sputnik went up, my uncle had a number of options. He could have maintained that the scientific community was mistaken. Those beep-beep-beeps coming over the radio had some other source. In fact, the line that he took is not unusual in those circumstances. Much to my frustration he maintained that the reasoning which led him to argue those years ago that an artificial satellite could not be launched from the earth was essentially correct. He just missed out on one small, trivial consideration. I found the argument unfair. Why could he not simply say that he was wrong? Perhaps he felt that an adult must always be right in arguing with a child, and in addition, as a lawyer, he probably was pretty innocent of scientific reasoning.

But what is “scientific reasoning”? Not only is science amazing, it is also mysterious. Philosophers of science struggle with dozens of issues including how scientific knowledge is acquired? What distinguishes science from other activities? What are “facts”? What are scientific “laws”? Is there such a thing as the “scientific method”? Can we identify valid and invalid methods of investigation? In these opening chapters I want to provide a working picture of what it means to be scientific. It would be foolhardy in the extreme to expect to make a contribution to the high level debates that engage the philosophers. Those are important and intricate debates. Some of the greatest scholars of the past and the present have worked, and are still actively working, on these questions, and many other related questions. I can eavesdrop on these fascinating discussions, but that is as far as it goes.



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