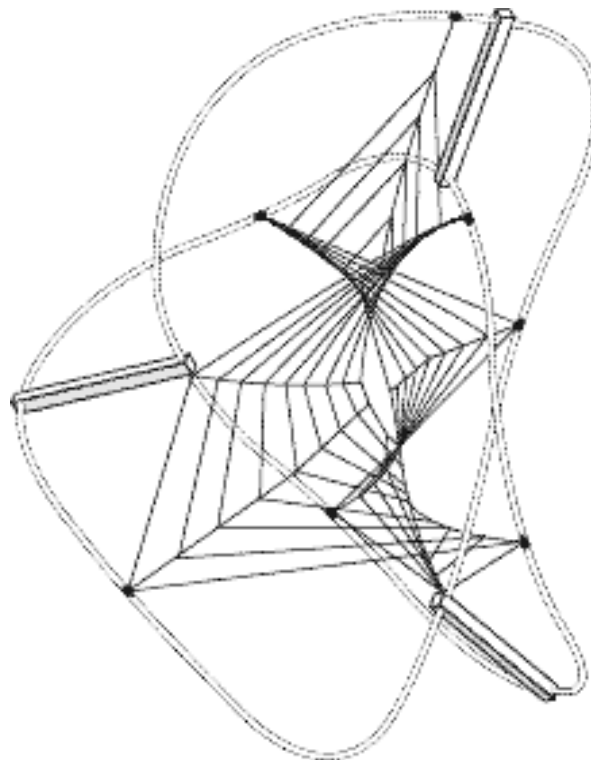


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*Science in Another Way?*Max Steuer
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Science in Another Way?

A frequent complaint on the part of some postmodernists, social theorists, and followers of similar ideologies is that conventional researchers are so intolerant of their work, while they themselves do not object to activity of a more conventional and traditional type. Other fashionable thinkers of a related nature take a rather different line. They maintain that traditional social science is an invalid activity. Some go so far as to assert that all of science is based on unwarranted authority and unsound premises. In this paper I take issue mainly with the first group who see themselves as tolerant in an intolerant world. I believe that their claims to be doing social science, but in another way, are false. In fact they are not doing science. They are doing something else. Often these other activities have something in common with literature. Making claims to be doing social science when in fact one is doing something else is dishonest if done consciously, and misleading if done unconsciously.¹

These can be confusing times as to what is science and what is not science, both for people outside the social sciences, and even for some people within the social science disciplines. Ben Agger, a social scientist, writes, "...I characterize science as fiction, a literary account that creates a believable world."² This view of science is not uncommon among postmodernists. I believe it is an inappropriate and unhelpful view. In this paper I would like, hopefully, to shed some light on the nature of social science and matters related to the demarcation problem in the philosophy of science. My approach addresses the topic in a way which differs markedly from that of Karl Popper and other specialists.³ While different, my approach has at least one thing in common with more traditional approaches to demarcation. It has the same goal. This goal is to separate science from activity which may claim to be science, but is mistaken in that claim.

Many people would agree that the present time is one where invalid approaches to social science are rampant. These academically misleading views, and dangerous views when it comes to public policy, have a number of advocates in some university departments, particularly in sociology, literature and media studies. But it is not enough to simply assert that an approach is a poor one. Criteria must be suggested for separating reasonable work from unreasonable work. It is ironic that just when the need for demarcation is greater than in the past, demarcation as a philosophical endeavour has very much gone out of fashion.

¹ An earlier version of this paper was given at the 12th International Congress of Logic, Methodology and Philosophy of Science held in Oviedo, Spain, August 7 - 13, 2003. I am indebted to participants for comments, especially Kevin Dodson, and to Richard Bradley and Roman Frigg of the LSE Department of Philosophy, Logic and Scientific Method for their comments. All remaining errors of judgement and substance are mine.

² Agger, Ben, *Postponing the Postmodern: sociological practices, selves, and theories*, Rowman & Littlefield, 2002, p. 8.

³ Steuer, Max, *The Scientific Study of Society*, Kluwer, 2003.

The most popular and representative example of an unscientific endeavour which nevertheless goes under the title of social science is postmodernism. This movement cannot be defined simply and uniquely. However, common to most definitions are the notions that the world underwent important changes thirty or so years ago, and that these changes mean that methods of analysis which might have been useful in the past should no longer be applied today. In his description of postmodernism Michael Stanford explains that according to this view, we have lost our way. "The theological and metaphysical bases of our culture have given way, our 'meta-narratives' no longer make sense, our values have been disvalued, and our lives ... have meaning no longer."⁴ This is a summary of the philosophical premises of postmodernism by an outsider, a non-believer. To be fair to the movement, it is important to quote from an advocate.

"The experience of time and space has changed, the confidence in the association of between scientific and moral judgements has collapsed, aesthetics has triumphed over ethics as a prime focus of social and intellectual concern, images dominate narratives, ephemerality and fragmentation take precedence over eternal truths and unified politics, and explanations have shifted from the realm of the material and political-economic groundings towards a consideration of autonomous cultural and political practices."⁵

One of the problems in defining this and other 'post' and 'beyond' movements is the willingness, indeed enthusiasm for entertaining contradictions in what is being proposed. Having asserted the above, and resting a whole approach to understanding society on the premise that we now live in a different world, David Harvey goes on to virtually negate what he has been at pains to maintain. The language employed is characteristic of the project.

It may be necessary to, "...dissolve the categories of both modernism and postmodernism into a complex of oppositions expressive of the cultural contradictions of capitalism. We then get to see the categories of both modernism and postmodernism as static reifications imposed upon the fluid interpretation of dynamic oppositions."⁶

Whether this view of history is broadly correct or not, it certainly does not follow that historical change necessitates using a different scientific method, or, indeed, advocating a movement away from science.

Historians have been particularly troubled by postmodernism, as this doctrine takes as its starting point an assertion about history. Few, if any, historians find themselves able to recognise the view of history put forward by postmodernists. Along with claims as to what happened in the past goes the view that history as an activity has been deluding itself. Keith Jenkins is among the more uncompromising advocates of postmodernism. He plays a central role in postmodern arguments with historians.

⁴ Stanford, Michael, *An Introduction to the Philosophy of History*, Blackwell, 1998, p. 14.

⁵ Harvey, David, *The Condition of Posmodernity*, Blackwell, 1990, p. 328.

⁶ *Ibid.*, p. 339.

“...history is a narrative prose discourse of which...the content is as much invented as found...the cogency of historical work can be admitted without the past *per se* ever entering into it — except rhetorically.”⁷

Philosophers of history understandably find this position hard to swallow. Lemon comments on this passage writing that, “In other words, and at face-value, the discipline of history either does and/or (?) *should* proceed without the reality of past events constituting its foundation!”⁸ Postmodernists differ as to whether past facts exist or not, but seem to be in agreement that even if they do exist they can never be known with any degree of confidence.

So called ‘social theory’ is even harder to define than postmodernism. It shares a lot with postmodernism, including what the writers take to be a politically left critique of the knowledge enterprise as being dominated by white males. In addition it maintains that all knowledge is subjective. This can mean that all knowledge is arbitrary and relative. More typically it means that a truer understanding, and perhaps the only valid understanding when it comes to social matters is closely related to literature as a way of expressing what it is like to be there.

I find it hard to control my dislike of all this, and wish to see social science university departments come to distance themselves from it. The more traditional philosophical efforts at demarcation have attempted to make explicit the rules for valid scientific investigation. These rules are intended to stand above the work of practitioners, and hopefully enable one to separate good work from bad. While it is no longer popular, I still think this is an interesting endeavour. We all agree that astronomy is different from astrology and physics is different from poetry. One would have thought that something useful could be said to describe these differences. The fact that demarcation rules have proved elusive does not mean there will not be progress towards formulating them.

The Popperian notion of the asymmetry of scientific investigation, that propositions can be refuted by evidence but not proved, was the most well-known attempt at demarcation. Certainly it has its problems, but it made a contribution. The emphasis on refutation highlighted the importance of evidence and the testing of theories. Asymmetry was presented as a tight, logical argument. This was how science had to work in principle, whatever in fact was going on. Among the followers of Popper, there was a certain scorn for what was called the sociology of knowledge. For them what the practitioners of science were doing, or thought they were doing, had no bearing on the logic of discovery.

Some of the of the philosophers at the London School of Economics coming after Popper have examined the Popperian argument in detail. They incline toward the view that on closer examination it is riddled with weaknesses. They suggest that while the broad argument loosely stated is attractive, almost

⁷ Jenkins, Keith, *On What is History?*, Routledge, 1995, pp. 178 - 179.

⁸ Lemon, M.C., *Philosophy of History*, Routledge, 2003, p. 384.

everything about it is shaky when one starts to look closely at the arguments. In *Proofs and Refutations*⁹ Lakatos argued that the logic of discovery could be applied to mathematics, as well as to natural science. This would seem to be more Popperian than Popper. But in *Falsification and the Methodology of Scientific Research Programmes*,¹⁰ Lakatos emphasised the point that theories are not simple stand-alone propositions which are either consistent with the evidence or are not consistent. Science is, among other things, a large complex structure of interconnected theories. Recognition of the interconnected nature of scientific endeavour marks the beginning of the collapse of the Popperian approach.

While it lends itself to the refutation view, Popper's famous phrase "All swans are white" turns out to be misleading as an example of a scientific theory. I am worried about the fact that it does not explain anything. It simply asserts that members of one class, the class of swans, are all members of a larger class, the class of all white objects. I see scientific theories as having an element of explanation. Many writers agree that something can follow from a true general claim without being explained by it. It may be due to Popper's strong personality that no-one challenged his example in seminars.

What did worry Lakatos and others about "All swans are white" as a scientific theory was the implication that theories are simple stand-alone explanations, and can be fully tested one by one. I think the view that theories can be understood as being disconnected one from another is generally rejected. Indeed, one of the outstanding features of science is that it is an interconnected structure of ideas. The elements of the scientific structure are many and varied. They go under names like theories, relationships, observations, evidence and conjectures. These are bound together in complex connections.

Some of the elements of the structure of science are called laws. I mention this because it is sometimes put as a criticism that social science has no laws. Whatever else may be said about laws, we can agree that they have some generality. They refer to a class of events. All events of that kind have certain characteristics which the law identifies. The characteristic might be a common explanation, or a common behavioural regularity.

In my view, these things called laws tend to have one or more of three characteristics. They tend to have been a part of their subject for some time. They tend to be frequently employed as at least part of an explanation. And they tend to be held to be quite reliable. But I maintain that calling some elements of the structure of a science laws, such as the 'law of supply and demand', does not add anything useful, and can be harmful. It implies a special status without specifying what that is. Laws may turn out to be replaced by better ideas, just as conjectures may be replaced. I prefer to call

⁹ Lakatos, Imre, *Proofs and Refutations: the logic of mathematical discovery*, edited by John Worrall and Elie Zahar, Cambridge, 1976.

¹⁰ Lakatos, Imre, *Falsification and the Methodology of Scientific Research Programmes*, in *Philosophical Papers*, (Vol. 1), edited by John Worrall and Gregory Currie, Cambridge, 1978.

all explanations 'theories', whether they are new or old, well established or very tentative

My central point is that the element of connectedness is crucial. Much of the work that scientists undertake can only be understood in terms of a structure of ideas. It is obvious, but still important to emphasise the point, that scientists work on a common structure. No one works on the whole of the structure. Scientists work on bits of it, and then move on, leaving it to others to carry on the work of improving their part and other parts of the structure. Without a notion of the connected nature of science, it is impossible to account for the work that scientists undertake.

Scientific work takes a number of forms, all dependent on the connected nature of science. Some researchers remove redundant parts of the structure. Others work on inconsistencies. The body of scientific knowledge does not grow in a completely coherent and consistent way.¹¹ New observations are made and new conjectures formulated which are helpful in some regard, but are also inconsistent with other parts of the structure. A very important part of scientific work is removing or resolving these inconsistencies.

Another important scientific activity is making careful observations which are not dependent on an explicit theory. These types of observations are motivated and guided by scientific intuition. But "scientific intuition" does not come out of uninformed guesswork. It is dependent on having a mental picture of the existing structure of science.

For Popper there is only one reason to bring evidence to bear, and that is to test a theory. Yet often experiments are performed just to see what happens, in the hopes that the outcome will be suggestive. With so many ways of doing science, it is not surprising that successful attempts to pin down something called the scientific method have proved hard to come by.

These problems do not add up to a reason to abandon high-level metaphysical examination of the nature of science. And such work can contribute something to showing what is wrong with the what I and others believe to be inappropriate ideas that plague much of social science today. Ultimately it may contribute more. But this is not the only way to go about examining the nature of valid and invalid endeavours in social science, or put another way, valid and invalid alternatives to social science.

Many abstract discussions of the philosophy of the social sciences suffer from unrealism. Analysis could be sharpened and made more effective by taking more account of what actually goes on in social science research. A recent example of lack of realism can be found in a book which claims that social science ignores power.¹² It is hard to imagine how anyone familiar with the research in political science could make that claim. The same author asserts

¹¹ Cartwright, Nancy, *The Dappled World: A Study of the Boundaries of Science*, Cambridge, 1999.

¹² Flyvbjerg, Bent, *Making Social Science Matter*, Cambridge, 2001.

that economics will not be a science until economists can predict the stock market.¹³ This is like saying that physics cannot be a science until physicists can predict the location of any atom in a gas at any time. Some knowledge of what actually goes on in social science research can help to control such errors.

An alternative approach to demarcation starts from a careful look at the research being done by social scientists. What researchers are actually doing can be a useful compliment to formulating general principles of scientific enquiry. When we look at social science research, it is at once apparent that this work is very different from the activity of the postmodernists and the social theorists. Along with others, I maintain that social science is basically like natural science. It is interesting that some academics with posts in departments of social science attack science in all its forms. Others who claim to be doing social science can readily be seen to be doing something else, when compared to the activity of genuine social science.

We can start from the opposite end to the Popperians and examine what social scientists really do when they undertake research. Science in all its forms is organised through establishments, or clubs if you like, which centre on university departments, professional associations, academic journals and the like. This is true of social science and natural science. One could suggest in principle that the postmodernists and the poststructuralists are part of the social science establishment. It would then follow that there is no way one can distinguish their work, which I and many others find to be unscientific, from the work which I and many others think is scientific, simply on the basis of these muddled movements being in or out of the establishment. Yes, one could suggest that in principle, but what about the facts?

In order to provide some evidence, I have attempted to examine all the research reported on certain topics in the English language journal literature in each of the five social sciences over a recent decade.¹⁴ The topics I chose to look at are crime, migration, money, religion, housing and the family. There was no particular axe to grind in selecting these topics. They were rather arbitrarily chosen with only two criteria in mind. The topics should be important topics, and each of the social sciences should have something to say on each of them. No doubt dozens of other topics would meet these criteria equally well.

When we look at the actual work undertaken by social scientists a number of interesting features emerge. In my view a very important one is that there are no articles by the 'post' and 'beyond' scholars on the topics I have examined in the major English language professional journals. This is quite a startling claim. Some philosophers ask if postmodernist work is scientific or not. Asking whether it is scientific or not implies there is such a thing. I say that

¹³ *Ibid.*, p. 66.

¹⁴ Steuer, Max, *Op.Cit.* I take the five core social sciences to be Anthropology, Economics, Political Science, Social Psychology and Sociology. Some arguments in defence of this position are given in *The Scientific Study of Society*.

when it comes to examining these topics, and by implication other topics like them, postmodernist research does not exist.

One could argue that the topics I have chosen bias the results. Had I chosen themes like 'the body', 'cultural identity', 'globalization' and 'risk', postmodernists and social theorists would have a lot to say. And here we do come to a sticking point. I think these topics differ in kind from the topics I chose. For a start, they are far more general and abstract. Take globalization as an example. Migration, a topic I do consider, is one part of the story. World financial capital and capital movements is another. Then there is tourism, the world wide web, direct foreign investment, and a host of other topics.

It would be an unfair criticism, were it to be made, that traditional social scientists are either unwilling or unable to tackle large and broad issues. That claim is simply wrong. Just as natural science can study an atom or a galaxy, social science may study housing, or the gross national product, or beyond. Science can operate at any level of generality, while retaining certain features, and I will come to these. Social science remains scientific whether the topic is how juries decide in rape cases, or the formation of nation states. It is true that the social theorists and postmodernists tend to favour big issues, but the key point is that they treat them in a way that differs from science, and not that they are big.

Social theorists and others have a rather different goal than social scientists. They are not concerned with the causes of events, with explanation, or explicating how events are connected. Much of the material I am calling 'post' and 'beyond' is not about explanation, it is about something else, namely, what it is like to be there. Audiences and readers like to be told what it is like to be them. Of course literature does this. And there is nothing wrong with that. It is one thing to describe what it is like to be unemployed, or what it is like to be involved in a custody battle. This is very different from explaining what causes the level of unemployment to be what it is. And it is very different from analysis of the consequences of changes in custody law.

It simply is not the case that postmodernists write journal articles on housing, as do researchers who are not of that persuasion. The postmodernist and social theory writers do something else. The problem is not how to separate what I take to be scientific studies of migration, for example, from studies which either deny the possibility of doing social science, or claim to be doing the job of science in another way. In fact the poststructuralists and related enthusiasts do something quite different from this kind of specific topic related research.

Some of the writers who I believe to be doing invalid work try to argue that when it comes to social matters, there can be no science. Still others go even further, and claim that all science is sham and illusion.¹⁵ But equally silly and

¹⁵ See Sokal, Alan D. and Bricmont, Jean, *Intellectual Impostors*, Profile, 1997, for numerous examples.

more insidious are the writers who claim to be doing science, but in a different way. In this latter group are the so-called social theorists. I believe that strong arguments can be mounted against the social theorists. But the problem of separation does not exist in the work I have investigated for the simple reason that there are no articles on migration, or any of the other topics I have investigated, in the English language journal literature by these 'post', 'beyond', and 'social theorist' writers.

As surprising as this is, on first examination, I think there are a number of reasons why these invalid endeavours, invalid in my opinion, simply do not have a presence when it comes to investigating these specific topics in the serious journal literature. First, these writers tend to publish in books rather than in the professional journals. While a number of publishers go in for serious peer review, for others the test is simply does it fit the party line and will it sell. Those writers whose ideas involve whole-sale rejection of what I think of as valid social science are very popular with students and the general public. Their arguments are either very easy to follow, or so convoluted that they cannot be followed. It comes to the same thing. It means that no well-informed opinion can be brought to bear. There are no experts. If it is easy, or if it is meaningless, we all are equally qualified. This strategy of putting forward something which claims to be knowledge, and does not require any effort to understand it, certainly is attractive to many students and others. It finds its way into books but is less common in peer reviewed journals.

Unfortunately it is not reasonable to assume that peer reviewed journals are a guarantor of quality. I think they are about the best we have, but experienced practitioners exercise judgement about the journals and about articles in them. My point is that within the core journals of the five social science disciplines we do not find examples of 'post' and 'beyond' material on the kind of topics I have chosen. Journals like *Discourse and Society* operate at one remove from particular disciplines, and it is there that one can find articles of the postmodern and social theory kind, but rarely on the 'one level down' type of topics I have examined.

The main reason why we simply do not find postmodernist articles on housing or crime in the discipline journals is that these writers go in for a very general and pseudo methodological level of writing. They are disinclined to research specific topics. Instead they favour a particular kind of very general investigation. "Do we live in the modern era or the postmodern era" is a popular topic, along with questions like, "Is globalisation good or bad." (The answer always offered is that it is both good and bad.) This taste for very general propositions may be one of the factors that accounts for the lack of journal articles on specific topics by the 'post' and 'beyond' social scientists.

Much of pretend social science is what I call social poetry. This is an attempt to capture in words some aspect of the subjective experience of life today as lived by people in the audience. What makes it invalid, in my view, is to claim that these reports on networking, risk, emotional and sexual life, authority and religion, globalization, and the media are science. Of course those topics can be studied in a scientific manner, but they are especially popular with the

pseudo scientists. What it is like to be there can be important data for scientific investigation. For many investigations it is important to know something about the subjective experience of people, as a part of the scientific enquiry. But as an end in itself, and not part of an explanation, it is not science.

No-one would say that the activity of social poetry has no place in a university, any more than one would say that only science has a place in a university. To be honest I tend to look down on it a bit because to the poets one says, well, this is social, it is not actual poetry. But much worse, to the students and university funders they do say this is social science. It is a kind of science. It is science in another way. That is the part of the claim that has to be firmly rejected.

Ethnographic investigation on the part of anthropologists bears a superficial similarity to social poetry, or social theory as it usually prefers to be called. Yet there are two very important differences.¹⁶ The first is that discovering how people see and experience their lives is not an end in itself for anthropology. It is part of tracing out a structure of ideas concerning the functioning and nature of communities. The second difference is that anthropologists examine actual, specified communities. The social theorists and postmodernists, and the 'post' and 'beyond' thinkers generally, aim to provide a kind of truth about our age, whether we actually see it that way or not. No specific time or place is identified in making these assertions as to how people see the world and their lives. This is in stark contrast to anthropologists who clearly identify the people whose subjective experiences they are studying.

Karl Popper spoke about social prophets and how they differed from scientific activity. A prophet pretending to be a social scientist may put forward a prediction, or even an explanation. A good example of a prophetic explanation was an assertion of why the Soviet Union collapsed.¹⁷ The answer given was the computer. For all I know, maybe the computer did have something to do with the collapse of the Soviet Union. The point is that in that discussion there was no connectivity. The speaker gave no indication of how the computer related to the political structure of the Soviet Union. There was no connectivity of ideas.

This is the second feature of the 'post' and 'beyond' school of activity. The first is concentrating on what it is like to be you. The second is ignoring the body of work which is science. Scientists work on that great structure of observations, ideas, explanations, data and relationships which make up the common ground of science. That structure is continually changing and growing. Scientists work on that structure in a variety of ways. As I say, among other things, they try to remove redundancies, and try to resolve

¹⁶ For a discussion of the postmodern invasion of anthropology see Sidky, H., *A Critique of Postmodern Anthropology: In Defense of Disciplinary Origins and Traditions*, The Edward Mellen Press, 2003

¹⁷ Lecture by Anthony Giddens, London School of Economics, Old Theatre, Michaelmas, 2001.

inconsistencies. And they make additions to the structure. New ideas in science are additions to or replacements of parts of the existing structure of science. They are not separate from the structure.

This feature of working in a variety of ways on a common agreed structure of thought is in sharp contrast to the postmodernists and related traditions. The one-word explanations of society that we see so frequently today strike out as if the body of science did not exist. These writers are off on their own. They act as if there was no body of knowledge out there to be either improved, refuted, extended or in some way developed. I argue that if an investigator does not work on the existing body of science in some way or another — resolving inconsistencies, making relevant observations, correcting errors, adding new ideas, removing redundancies — he or she is not doing science.

The Popperian, and other more traditional efforts at demarcation have the laudable and ambitious goal of judging whether the work being done to improve the existing body of science is good work or not so good. I am not going so far. I am maintaining that to be doing science one has to address the structure of work which is science. We can get a long way by acknowledging the science establishments, the bodies of knowledge they represent, and the common goal of working on their bodies of research rather than doing something else. Just to repeat, there is nothing wrong with not doing science. Art, history and philosophy are perfectly valid alternatives to social science. My guess is that we may have learned more about society from them than from social science. That is not the point. To confuse science with even its valid alternatives does a disservice to both. But that is not the worst crime. To pretend, or claim, to be doing science when engaged in social poetry or social prophesy is at best self-deluded and at worst just wicked.

Two criticisms have been advanced against my claim that observing the actual work of scientists and of pseudo scientists can help with demarcation. To repeat, my test is do you work on the existing structure of science? But what about early, pre-science developments? My approach would rule them out as contributing to science, so it is claimed. Of course, until there is a structure, we cannot insist that practitioners work on that structure. But now we have a structure, and now is when I want to distinguish between useful and wasteful work. So I do not take this criticism too seriously.

The second criticism points to important work that came from outside the scientific establishment. Could not someone off on their own come up with something which could improve on the existing structure? There are a number of things to be said about this. Leaving it to the reader to make the connections, if any, to the body of knowledge is asking too much. If this isolated work was done in the knowledge of existing work, but just chose to ignore it, that is perverse. If it was done in ignorance of existing work, it would call for the greatest good luck to come up with a genuine contribution. It cannot be ruled out logically, but as being improbable. I am prepared to assert that the structure of ideas is sufficiently developed that no significant

contributions to social science have been made in ignorance of the structure for at least fifty years.

For the most part, postmodernist and poststructuralist work ignores the body of knowledge *and* has a different objective. To repeat, that objective has more to do with “telling it like it is”, often with fancy language, than with the objectives of science.

A number of pseudo science writers advocate the use of the methods of literary criticism to unpack social reality. We may ask what an author is saying in a particular novel. We may try to make explicit the implications of a novel as to how a particular community functions. Why not do the same with actual events? Well, for one thing, there are no methods of literary criticism, other than speculation, intuition, and in some cases drawing on scientific knowledge from one discipline or another. At a seminar it was put to me recently, why cannot sociology have a literary orientation? Why does it have to have a scientific orientation? I am thrown back on the same answer. One does not have to do science, but if you choose not to, it is invalid to claim to be doing science. It is also just wrong to justify not doing science on the grounds that studying society in a scientific manner is not possible.

One of the defences offered by advocates of the unorthodox and unscientific approach to social investigation is the claim that the old divisions between disciplines are outmoded in the modern world, and today we need a holistic and integrated approach which does not respect disciplines. Reality, so it is claimed, does not recognise academic categories. Of course it is correct to say that reality does not fall neatly and uniquely into disciplines. But it is easy to misapply this observation, and to draw the wrong conclusions from it.

An examination of research in the five social sciences is likely to lead to the conclusion that the existing structure of subjects makes sense. They each have research methods and a built up body of tentative conclusions which constitute useful traditions of enquiry. Postmodernists tend to reject the existing structure of disciplines. Some say it should all be sociology, or social theory.

Research is not the same as making policy. Whatever else may be said about scientific research, it should be recognised that it involves breaking problems down into bits. Scientists do not try to get the answer to everything at once. Clearly this does some injustice to the subject matter. Equally clearly it gets results. Piece by piece the structure of science, that great cathedral worked on over many generations, grows and improves. No one has to do science, but if you want to claim to be doing, or aspire to be doing, scientific work, you have to get down to cases, to specific problems. One way or another you have to work on that structure of science, by tidying, correcting, refining or adding to it.

The existing structure of social science disciplines into anthropology, economics, political science, social psychology and sociology may have arbitrary historical antecedents. In future it may make sense to alter the

structure. If that happens, more likely it will be by gradual evolution than by conscious decision. Shaking up scientific establishments entails huge costs and should not be done lightly. I see little evidence that advocates of drastic change take account of these costs. Perhaps even greater are the costs that come from abandoning established research standards.

In some quarters it is claimed that the whole of social science apart from economics is as good as useless. I am equally opposed to those who advocate an economics take-over of social science. Economics is a much larger endeavour than the other four, and on most measures is bigger than the other four disciplines put together. This has much to do with the use of this branch of knowledge in public policy. I believe there is a strong case for much more public policy use of the other four social sciences. This would have the effect of both improving policy and of advancing the subjects themselves.

An interesting current example of reluctance to use social science has to do with the use of expert knowledge in democratic decision making. Biologists can advise the government about the dangers of certain diseases in cattle passing to humans. Defence experts can advise the government about the military dangers posed by certain foreign states. Many people would agree that there is room for improvement in the institutions and practices surrounding these relations between the experts and the politicians. Yet the normal practice is to ask a judge or lawyer what reforms are needed, rather than asking a political scientist to advise on these matters. Why?

A strong case can be made that the greatest barrier to wider public policy use of the social sciences is the confusion between genuine science and pseudo science within the non-economics social sciences themselves. My claim is that it is not all that hard to see the difference between genuine and pretend social science. This has to be recognised and acted on within the social science establishments. As interesting as it may be to youthful students and laymen of all ages to be told that we live in the postmodern age, with globalization, the breakdown of authority, terrorism, international movement of capital, new sexual behaviour, and so on, this is different from offering explanations. Scientific explanations do not just pop out of heads, even very clever and imaginative heads. Genuinely helpful advances to knowledge are to be found by employing and developing the existing body of scientific knowledge.