

RADICAL STATISTICS CONFERENCE

26-27th Sept. 1975

Extraordinary effort from John, with help from Ian, has produced a complete transcript of that conference discussion sessions. As soon as these are checked and tidied up, they will be released as a separate pamphlet (for which there may need to be a small mailing charge). It looks like being a very useful document and raises many of the key dilemmas for working statisticians.

In this edition of the Newsletter, we are including the only one of the pre-prepared conference papers that hasn't already been circulated: David Dickson on "Science is Social Relations", together with a couple of minutes of gratuitous dialogue that preceded it.

We had also hoped to include a transcript of the discussion that followed, in which the positions basic to the Saturday sessions were aired for the first time, but we've still to check this against the tape and will release it later as part of the complete transcript.

Paul D.

Introduction

"I'm sorry, but they're all dancing.

Our organisation seems to have collapsed at the last minute, but I guess that we can follow the program tonight as long as there are no objections. Tomorrow can be as fluid as people want to make it, with restructuring possible from one session to another. I don't really know who's going to talk, but John does, so he ought to tell you about this evening and about our program in general.

What the collective has tried to do is to arrange things so that the conference won't take the form of a traditional academic get-together. That's already been shown in what's happened tonight.

We've invited David Dickson from the RSJ (Radical Science Journal) collective to speak tonight. Since a lot of what happened in the development of RSJ has relevance to us. For example, the critique of the Use-Abuse model, which we are going through at present, is a subject they discussed at length and was also an issue for BSSRS. But this is an important topic to which we will doubtless return later.

As far as tomorrow goes, we've provided a structure for events, but hope that everyone will feel free to decide whether or not they want this. The first session tomorrow is set aside for discussion of the programme and any specific additions we want to make. But let's begin now with the talk by David Dickson.

Science is Social Relations

David Dickson

Preamble:

The fact that I've written out what I'm going to say doesn't mean that this is meant to be an academic paper in the strict sense of the term. If you feel we should only go half-way through, then that's fine, there's no need for me to go right through it. It should take about 25 mins, if that's okay. But I'll start and if anyone feels like chipping in/stopping me half-way through, please do."

Paper:

There are two senses in which this talk is intended to be introductory. In the first sense, I hope it will provide an introduction to this conference by indicating in broad terms how it is possible to contemplate and carry out a political critique of both the form and the content of scientific knowledge, at least to the extent that we have been able to develop this critique in the context of Radical Science Journal. At the same time, this paper is also introductory in the sense that some of the points that I shall be raising in the course of this argument - and here I am thinking in particular of attempts to develop a political theory of mathematical analysis - are ones at which the debate is still wide open. I do not intend to attempt to close this debate in any way, but to indicate both where and how it appears to be in need to further analysis and development - and it is precisely here that, I would suggest, there are many fruitful links to be made between the fields of "radical" science and "radical" statistics.

Perhaps the first question we should ask is, why are we interested in carrying out this type of analysis? I take it that, at least for most of the members of this audience, the question of the social and political influences on science and scientific knowledge is not merely an academic one, but that we are concerned about the effects of such scientific knowledge in society - and more precisely how we can link our understanding of the nature of this knowledge to our politics. To a socialist, this must mean attempting to link the nature of scientific knowledge to the class basis of the capitalist society in which it is embedded and functions, and more particularly to the hierarchical and authoritarian forms of organisation and control within that society. What I hope to show - or at least to suggest how it is possible to show - is that scientific knowledge exists in a form that reflects, reinforces and mediates the power of a dominant capitalist class; that science acts as what, I suggest, we should see as a coding mechanism that translates the material aspects of the class basis of capitalist society into a particular way of perceiving and organising our experiences of the material world. This is the sense in which we can say: "Science is social relations"; i.e. science is a coded form of the social relations of production of capitalist society.

Perhaps a good place to start is by looking at the recent evolution of attitudes to science - and here I shall be primarily using the terms in its English sense, referring to what are usually loosely called the natural sciences - within socialist thought. And for understanding the current situation, it is probably easiest to start with the attitude of the "old left". Here the dominant attitude, one that was exemplified by the various pre-war movements of radical scientists, but has remained in some version or other up to the present day, was that science was essentially value neutral with respect to society; scientific truth was objective, and a scientific fact remained identical to both capitalist and socialist. The crime of capitalism - and this comes through strongly in the writings of J.D. Bernal - was that its political irrationality merely impeded the progress of science, but did not influence the nature of scientific knowledge, even though this knowledge may have been produced to meet the social and economic ends of capitalist society at a particular point in its development.

The dominant framework for looking at science was therefore what is generally referred to as the "use and abuse" framework. In other words, you levelled your criticism at the political system which used science for particular ends, whether military, industrial or commercial, but not at the science itself. I think it is fair to say that this attitude first came under attack on a significant scale towards the end of the 1960's. There are a variety of reasons one can suggest for this. On the theoretical level, for example, the growth of a semi-humanistic Marxism, basing the concepts of its political analysis - in particular that of "alienation" - on Marx's "Economic and Political Manuscripts of 1844", became widely propagated through, for example, the writings of Herbert Marcuse. In a more direct sense, disenchantment with the products of industrial capitalism at home coincided with widespread revulsion at the atrocities carried out by the American military with these same products in Vietnam, or the British army in N. Ireland. There are other factors, of course, such as the student revolts of 1968, that also played an important part. But the net effect seems to have been an awareness of the need to develop a greater understanding of the nature of science - and for that matter also of technology - as part of what used to be called the super-structural component of capitalist society, to show how they were not merely the passive reflections of the economic base, or neutral tools of economic development, but were potent political forces in their own right.

Now it seems that it was in the social sciences that this transformation first gained a significant hold. As social scientists - or perhaps one should say Marxist social-scientists - came to terms with the need to develop an understanding of their society as part of any attempt to change it, so they began to take apart their own discipline, indicating the extent to which it provided a means, not for obtaining any "objective truths" about society, but of supporting a particular form of society, namely capitalism and its dominant patterns of activities and attitudes. Gradually this approach, of which a number of examples are illustrated in Robin Blackburn's paperback "Ideology in the Social Sciences", spread its effects further and further into the natural sciences as well. In psychology, for example, an attack on the behaviourist ideas of B.F. Skinner developed into a complete political criticism, of the racist ideology behind the writings of psychologists such as Arthur Jensen and Hans Eysenck, in their claims that educational systems should be adjusted or manipulated to take into account the racial differences between different ethnic groups, measured in terms of their performance in intelligence tests (itself a use of statistics that I shall refer to briefly later); as Steven Rose and others have shown, such arguments, posed in the apparently neutral objective terms of the relative contribution of genetic and environmental factors to an individual's intelligence, or rather to his IQ, became the expression of the political values of a system which builds an ideology to legitimate its oppression and exploitation of particular social groups.

Arguments about the political factors influencing the content of scientific disciplines were further extended to biology. Robert Young, for example, has indicated how Darwin's theory of natural evolution fitted into the ideology of Victorian Britain, and how the social and political form of British society at that time became reflected in the debate over the scientific status of the theory of evolution - for example, in the encouragement of the view that a competitive struggle for existence was inevitable, inescapable and even ordained. More recently, at a conference held earlier this year in London, under the title "Is there a Socialist Science", Simon Pickvance described his experiences as a research student in a molecular biology laboratory at Cambridge, showing how the hierarchical and authoritarian way in which the laboratory was organised became reflected in the very nature of the scientific work being carried out - in this case the complete description of the physiological characteristics and properties of a simple living organism, the nematode worm. For example, each research student was given a different part of the worm to study, with the apparent intention that eventually description of the various parts would be fitted together to provide an overall description of the total organism. Assembly-line production, in other words, the ideal way to organise production within a system which desires to fragment any social cohesion of the work-force at the base by means of the so-called division of labour, and to concentrate political power in the factory owner (or the laboratory director for that matter) who is the only one in full control of the final product. Just as the form of the industrial product comes to reflect the political situation in which it was produced, so, argues Simon Pickvance, the form of scientific knowledge - at least in this particular area of biology - provides us with a reflection of the political organisation of the research laboratory, which itself, of course, is now becoming increasingly run according to strict economic or "rational" criteria.

When we move from the biological to the physical sciences, the task of revealing the political content becomes much harder, but no less necessary, and especially so because there still remains a strong tendency - which is probably shared by a number of those present tonight - to accept that political factors can play a large part in determining the content of what they would call the soft sciences - much of what I have already seen about the discussion of the political content of statistics tends to be at this level, to treat statistics in the form in which it is practiced as a social science - but to insist that there remains an untouched rational kernel of objectivity that characterises the physical sciences, and in particular resides in mathematics. At its simplest, this is the argument which accepts it as part of commonsense that one and one will be two in either a socialist or a capitalist society, that eight will always be the square root of 64, or at a more sophisticated level, that whereas Isaac Newton may have developed his theories of gravitation in the context of economic demands for better navigational aids through an increased understanding of the motion of celestial bodies, his theories and modes of explanation were themselves objective, or at least value-free with respect to the society in which he was working.

As I said, the task here is a much harder one, and in its way much more challenging. And this is the second point at which I said this paper can only be introductory, an introduction to a debate rather than an exposition of its resolution. But it's a debate which is crucial in any political discussion of statistics, and statistical theory in particular. For the task is to demonstrate how the very content of mathematical analysis, at least in the form in which it is applied to objects in the material world, reflects, reinforces and mediates the dominant forms of political organisation and social control which exist in society. In other words, to show how mathematics incorporates and transmits a particular way of organising our experiences of the world that coincide with the ideological conditions necessary for the continued reproduction of a particular political system, in our case monopoly capitalism, and with the relationships between individuals that that system implies.

In the short time I have available, I can only indicate some possible starting points for this debate, showing how the argument seems to be shaping up. Very schematically, it seems possible to suggest, to start with, that the forms of classification and categorisation of objects in the material world carried out in primitive societies not only, as social anthropologists have been able to demonstrate, display a logical complexity as rich as those of contemporary scientific analysis, but also reflect the dominant forms of political organisation and control - for example, in their incorporation, in a mediated form, of the rules of marriage and kinship, we can suggest that the development of abstract mathematics in the form in which we are now led to see it coincided with the beginnings of economic systems based on trade and barter between different societies in the first stages of Greek civilisation, with the material need to isolate the "value" of a commodity from its social context - the context in which it found its "use" value - becoming represented in an abstract mode of discussion about prices expressed in mathematical form. In the physical sciences, Alfred Sohn-Rethel suggests, in the current issue of Radical Science Journal, that Galileo's notion of inertial motion, an idea central to the development of mechanics and of physics since the seventeenth century, in fact reflected the form of the economic base of early capitalist society; that there is a direct parallel, for example, between the conservation of momentum of a body in motion, and the conservation of capital, as it circulated in society in its various forms. Paul Foreman, in a discussion of the social context of the discovery of quantum theory, has suggested that a prime factor in the scientific debate about notions of a-causality lay in the ideological and cultural climate of Germany at that time, a Germany which had just suffered a major defeat in the First World War, and was turning its back on notions of determinism in all fields, including physics. Finally, Luke Hodgkin has argued, in a paper also given at the recent conference I mentioned before - and incidentally, like the previous paper, one that we are hoping to publish in the next issue of Radical Science Journal - that the major tendencies in twentieth century mathematics reflect significant shifts in the nature of the production processes incorporated in the economic base of contemporary capitalism. In particular, Luke Hodgkin suggests that the major shift has occurred between what he calls the old mathematics of the beginning of the century, characterised by attempts to produce coherent methods for demonstrating that solutions to problems existed, and the new mathematics, oriented towards finding the solution of problems - so-called "construction" mathematics. This mathematics, he points out, was born in America during and after the Second World War when a system of close collaboration between science and industrial and military interests was established, the first computers were built and applied, techniques of numerical and systems analysis were developed, and so on.

As I said, this is a sketch of the beginnings of a debate that has only just, I believe, really taken off. Yet it is a debate of central importance to any discussion of radical science - and in particular, I think, of radical statistics. For just as previously the inadequacies of any political discussion of science and technology that remained merely at the level of "use and abuse" led to the development of a much deeper critique of the political determination of the practice and content of science in general, now we are beginning to see that even this debate cannot be carried out in terms of the "use or abuse" of mathematical techniques, themselves considered neutral and value-free with respect to their application, but that these very techniques must be included within our focus for this critique. We must show that the Marxist notion that the ideas of any epoch are the ideas of its ruling class does not make an exception in the case of mathematics, but extends to all the dominant modes of thought within a particular society.

I haven't used the word ideology very much, and this has been on purpose. For, in one sense, the above argument must lead us to the conclusion that all scientific knowledge is ideological; that the ideological components in science are not to be found in isolated areas such as behaviourist psychology or evolutionary theory, but in fact that no separation can be made between those areas of science which are ideological, and those which are not. Furthermore,

the word ideology tends to imply the distorted propagation of the "true" facts, of the "scientific" facts - the level at which some have tried to challenge Jensen and Eysenck on the grounds that they have "misinterpreted" objective scientific data - whereas, if all such facts are ideological, then no such distinction can be made, and hence to differentiate between ideology and science becomes meaningless (I should perhaps add in brackets that I think the debate over the epistemological basis of Marxism, whether it represents an objective science or not, and so on, is a slightly different one; there is an important distinction to be made, I think, between the notion of science as it is usually presented in discussions about Marxism itself, and science in the sense I have been using it here, where I should perhaps have been more explicit and used the words natural science).

To get out of this dilemma of trying to distinguish between science and ideology, and the trap of relativism - of seeing all values merely in relative rather than absolute terms that it seems to hold - it is useful to turn to notions about the use of language, the apparent - though often superficial - correspondence between language and material reality it is used to, the use of translation to shift communication from one language to another, and the use of codes to symbolise - and disguise - the contents of particular statements and messages. In brief - and again I do not really have time to go into the arguments in any detail here - I think it can suggest that we should see science, not in terms of any attempt to provide an objective representation of material reality, whatever that may mean, but essentially as a way of talking about the material world. That we use the ideas and concepts developed by science to build explanatory models of the world that have their basis, not at the level of objective fact, but within the processes of social communication and social practice. That it is fairly easy - and not particularly radical - to interpret the activities of scientists within this perspective, suggesting that scientists within a particular discipline or sub-discipline have learnt the ability to express their experience of a particular set of experimental data by means of a highly developed technical language, giving them access to a particular mode of technical discourse that performs both a scientific function - in sustaining and developing the discipline and a social and political function, in maintaining the cohesion of the scientific group and its dominant patterns of organisation and control. Finally, from a political point of view, it can be suggested that the important thing to come to terms with is the way in which the language of science operates within society "at large", how it is used, not merely to reify suspect concepts, or to turn the dynamic into the static, but in a deeper sense to control the very conceptual tools that the individual uses to build his explanatory models of both the natural and the social worlds. To say this is not to put the debate back to the level of mere subjectivity - the fact that we each use language does not deny the existence of language as a social phenomenon - but it is to demonstrate the type of thought control that takes place within society in the interests of a dominant social class, in particular as expressed through the concepts of science. Marx, for example, uses the notion of fetishism to indicate how the social origins of a commodity, and the processes of its production that reflect the dominant social relations of production, are hidden from those who use the commodity, and to whom it therefore becomes, to use his own words, "a very queer thing indeed, full of metaphysical subtleties and theological nonsenses". It is possible to suggest that the same process applies to scientific facts and theories, and that their social basis, and in particular the coded form in which they express the dominant social relations of production, become hidden as these facts come to take on an apparently objective or fetishised form.

Nor is this merely a phenomenological critique of the appearance that social reality takes on for the individual, an appearance which is reflected and reinforced in his language. For it also enables us to develop a political critique of the particular forms of the means of production developed by capitalist society; in other words, of the forms of work imposed on the individual, on the political determination of the division of labour, and of the extent to which the dominant political forms of hierarchical organisation and authoritarian control become incorporated into the very design and lay-out

of the factory floor or the assembly line. For the increasing economic problems faced by capitalist society place a growing emphasis on the needs to maintain profitability, through methods of technical innovation, and ways of raising the efficiency of the production process. As techniques for achieving this make increasing use of various forms of scientific analysis and argument - from industrial psychology to statistical analysis - so we find the material constraints used by a dominant capitalist class to define the limits of both social and political action of members of the working class are directly defined by the characteristics of the scientific method. So the relation between science and society is to be understood, not merely in the technological applications of research results obtained in the laboratory, seen in a relatively technical uni-dimensional sense, but as something much more fundamental - the basic design categories which permit the development and reproduction of the class relationships of capitalist society.

If this all sounds a bit theoretical, then I think it has important political implications. So long as the model we use is one in which science is seen as having an "impact" of some type of society - a sort of billiard-ball effect - the implication is that it has been able to do this by coming from the outside, in other words that the processes of science and those of society are different. The focus for public debate become those exposed areas of controversy - the public enquiry, the community action group, and so on - where the issue confronted tends to be an isolated one, a reflection, in fact, of the way in which capitalism takes its contradictions into "problems" which then, it claims, become accessible to piecemeal solutions. Within the British Society for Social Responsibility in Science, for example, we have spent some time discussing notions of whether it was valid to talk in terms of developing a community science, very much in the advocacy role that I believe has been suggested for radical statisticians. This would be carried out by scientists making their particular forms of scientific knowledge and expertise available to local communities engaged in various types of political confrontation.

There is a sense, however, in which such activities lie in danger of becoming peripheral to the focal point of class struggle, which remains - or perhaps one should say, with the growing problems of inflation and unemployment, is once again becoming - the point of production. The practical implication for those engaged in the type of theoretical debate about the nature of scientific knowledge that I have been describing, is the need to link up directly with those engaged in this struggle. Exactly how this link-up can be made, and can be made effective, depends on a variety of factors, and will no doubt be a focal point for discussion at this conference. In the BSSRS, this has been successfully achieved on the issue of industrial health, where a critique of the scientific procedures used to determine what are claimed to be "acceptable" levels of factory hazards has been carried out in close co-operation with shop stewards committees, providing the debate with a directly political component. Hopefully there are similar channels open to socialist statisticians, and I think that the word radical can be a bit misleading in this context, as it can too easily become an all-purpose label, a danger that we are now realising in radical science. The identification of these channels is, I think, a prime task that this conference faces.