WITTGENSTEIN AND SCIENTIFIC KNOWLEDGE

By the same author

STUDIES IN AMERICAN SOCIETY: I (*editor*)

STUDIES IN AMERICAN SOCIETY: II (*editor*)

KNOWLEDGE FROM WHAT?

ABANDONING METHOD

WITTGENSTEIN AND SCIENTIFIC KNOWLEDGE

A Sociological Perspective

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For my father and in memory of my mother

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Preface

In the natural and social sciences alike, there exists a rather rigid separation between those thinkers concerned with the *practice* of knowledge and those concerned with questions about the *theory* of knowledge. This is in contrast to the situation for the early Greeks and, much later, for such seventeenth-century thinkers as Descartes and Locke, where there clearly existed an explicit concern with the connection between the theory and practice of knowledge. Just as clearly, the twentieth century has witnessed an obvious separation between the interests and practices of scientists and philosophers, and consequently between 'science' and 'epistemology'.

This distinction between the theory and practice of knowledge is heightened at present by the gulfs dividing different intellectual disciplines. Such a separation has been especially pronounced in sociology, where an emphasis on imitating certain methodological practices of the natural sciences seems to have reproduced the latter's indifference to what are regarded as 'philosophical' problems. It is perhaps partially because of their collective insecurity about the 'genuine' scientific status of their discipline that sociologists have reacted with either indifference or antagonism to questions about the status of their knowledge.

There is nonetheless one branch of sociology where problems of knowing and knowledge have been an explicit focus of attention: the sociology of knowledge. Here, as well as in the sociology of science which forms one of its subparts, there has been some interest in certain aspects of knowledge, including epistemological questions. As these fields have developed in recent years, however, their practitioners have tended to ignore epistemological questions in favour of questions concerning such matters as the origin of scientific ideas, their communication to other scientists, scientific productivity, the reward systems in science, and related matters. Indeed the direction of these fields is, I believe, very much at odds with many of the earlier formulations of the sociology of knowledge and science.

Many sociologists of knowledge and science have been concerned with the origin of scientific ideas, and with the relation of these 'discoveries' to social and cultural factors and contexts. Robert K. Merton, for example, systematically reviews a number of questions pertaining to the social origins of knowledge, while generally omitting questions about the validity or justification of the knowledge-claims involved.¹ This distinction between the genesis of scientific ideas and their evaluation is ignored by most sociologists. Indeed, the division of labour between philosophy and sociology, authorised by sociologists, is maintained in the practice of sociology. This of course leaves epistemological matters to the philosopher and (more recently) to the historian of science.

By ignoring epistemological issues, sociologists have put themselves in the position of having very little to say about two problems of concern to many contemporary thinkers: first, the problem of the theoretical and empirical foundations upon which *authority* rests in Western society and, more specifically, in contemporary science; and second, and closely related, the problem of *relativism*.

The former problem has been dealt with at length by John Schaar, who argues that legitimate authority is declining in the modern state, and that 'the crisis of legitimacy is a function of some of the basic, defining orientations of modernity itself: specifically, rationality, the cult of efficiency and power, ethical relativism, and equalitarianism'.² Sociologists, I believe, by generally neglecting questions regarding their status as knowers and the status of their knowledge, have effectively cut themselves off from a concern with this issue of legitimate authority. Questions about what it is to 'know' something, and about who is to establish the criteria or standards for showing that one does know or that one group knows better than another, are simply ignored by most sociologists. If one shares with Schaar, as I do, the belief that the modern condition is characterised by the shattering of authority, then one longs for 'an account of reality, an explanation of why some acts are preferable to others, and a vision of a worthwhile future towards which men can aspire'.³ Sociologists have had very little to say about such matters.

An awareness of the absence of moral absolutes and certainties is of course widespread in contemporary society. In ethics, the notions of 'right' and 'wrong' have come to be recognised as culturally dependent, as *relative* to particular societies and groups. But now there is a growing conviction that *science*—which has been viewed by many, including sociologists, as the source of absolutes and certainty—is a fully human

enterprise, where truth is not something lying 'out there' but, rather, a construction of scientific communities. This can be seen, for example, in recent controversies in the philosophy and history of science, involving among others Popper, Kuhn, Feyerabend, Lakatos and Toulmin, controversies which will be considered at length in the following chapters. Despite the enormous attention given these problems today, they are almost totally ignored in the sociological literature. This is somewhat surprising in that Mannheim and other sociologists of knowledge were concerned with similar issues.

Both of the problems mentioned above—authority and relativism—are clearly major problems of our time. On the one hand, by accepting that each separate culture or group should decide by its own standards what properly counts as 'scientific understanding' or 'knowledge' (or 'equality' or 'justice') we opt for relativism. On the other hand, by accepting the existence of universal, abstract definitions of 'knowledge', 'equality' and the like from outside, we land ourselves in absolutism. The question is whether we must choose between these, or whether there exists a middle way which allows us to steer a course between the relativist and absolutist extremes. Further, there is the question of who the 'we' are that are involved in such a choice.

In addition to the problems of relativism and authority, we have a specific problem in contemporary sociology: what Gouldner has referred to as a 'crisis' within our discipline.⁴ As Wittgenstein would say, we do not know our way about. To understand and untangle our problems we need another platform, another vantage point from which to view the activities of science and, more particularly, sociology. In my view, philosophy, and specifically the ideas of Ludwig Wittgenstein, represent the alternative platform from which we can get a different slant on our activities and concerns.

This book has two central goals. First of all, I want to bring the work of Ludwig Wittgenstein to the attention of sociologists and other students of social life. Especially in the United States, Wittgenstein and his writings are generally unknown among social scientists. In those cases where social scientific inquiry is influenced by his work, there is little more than passing reference to Wittgenstein's ideas. I am thinking here of the interesting work by some ethnomethodologists (such as Cicourel), by sociologists such as Alan Blum and Peter McHugh, and by Tracy Strong among the political scientists. A notable exception is the very excellent book *Wittgenstein and Justice* by the political scientist Hannah Pitkin—a book concerned mainly with political theory, and with considerably different objectives from the present volume.⁵

Even in England, where Peter Winch's *The Idea of a Social Science*⁶ has created widespread controversy and where a growing number of mostly younger social scientists are paying more explicit attention to Wittgenstein's work, there is seldom an attempt to confront fully the implications for scientific inquiry and practice. And in none of these books, including Winch's and Pitkin's which link Wittgenstein with sociology and social science, is there anything more than a cursory reference to the life of this complex and fascinating man. It is my belief that we need to consider both Wittgenstein's work and Wittgenstein the man to benefit fully from his wisdom and ideas.

My second goal is to utilise a perspective informed by Wittgenstein's work in order to confront the problems of relativism and authority which are today a matter of debate and controversy among philosophers and historians of science and, to a far lesser extent, among some sociologists. I say that my perspective is 'informed' by Wittgenstein rather than claim that I am conducting a Wittgensteinian analysis, that I hold a Wittgensteinian viewpoint, or something of the like. That is, I do not claim to be fully faithful to a Wittgensteinian 'world-view' (whatever that might mean), nor do I claim to have consistently incorporated Wittgenstein's ideas into all of the work presented here. Rather, I *use* certain notions, ideas, viewpoints, and so on, which are derived from Wittgenstein's writings. And I use them specifically in order to advance certain theses and ideas which may shed light on current debates surrounding scientific practice and knowledge, debates which, I believe, are concerned essentially with issues of relativism and authority. These debates involve Kuhn, Popper, Lakatos, Toulmin, Polanyi and Feyerabend. Although the debates raise important questions about the very foundations of scientific knowledge, they are, as I observed earlier, generally ignored or unrecognised by most sociologists. This is ironic in that men like Kuhn are paradoxically more 'sociological' than are many persons who claim membership in the sociological community. My second goal, then, is to bring these debates to the attention of practising social scientists, and to do so from a perspective that is informed by the work of Ludwig Wittgenstein.

I must acknowledge, however, that Wittgenstein himself gave far less attention to issues surrounding scientific knowledge and understanding than I do in this volume. Science seemed to occupy a privileged position for Wittgenstein, so that scientific practice was largely exempted from the penetrating analyses which he gave to philosophy and mathematics. Perhaps that is not surprising, in that his work is the product of an era in which confidence in natural science was at a

high point. In recent years, however, the adequacy of positivistic science has been called into question, particularly in regard to its epistemological status. It is now increasingly recognised that scientific knowledge is not the only mode of knowledge and that, furthermore, it is a *product* of scientific inquiry rather than something lying out there to be discovered. Given the enormous controversies in contemporary philosophy and history of science concerning the foundations and status of the natural sciences, it is ironic that most social scientists continue to imitate what they (mistakenly) consider the dominant practices and modes of inquiry in the natural sciences. I hope that the present volume will help to contribute to an awareness of the fully *social* nature of scientific practice and, most especially, of the crucial place of *language* in the natural and social sciences alike.

Although the central focus of this volume is on utilising the ideas of Ludwig Wittgenstein in order to shed light on the problems of relativism and authority in science, a number of different topics and issues are considered in the following pages. It is therefore useful to discuss briefly the general structure of the book.

I begin by examining Wittgenstein's life, a necessary prelude to confronting his ideas and their relevance for current controversies about science in later chapters. Then, in the second chapter, I turn directly to a short discussion of Wittgenstein's early work and to a much more lengthy consideration of his development and thought in the later stages of his life, where he dealt with issues and problems more directly relevant to the concerns of this volume. The third chapter introduces and discusses two images of science: the 'dominant image', associated with positivism; and the 'new image', represented by the work of Hanson, Feyerabend, Toulmin and, most especially, Thomas Kuhn. Certain similarities in the work of Kuhn and of two sociologists of knowledge—Karl Mannheim and C. Wright Mills—are considered, and it is argued that both Kuhn's work and the writings of these two sociologists have the consequence of leading directly to relativism. Chapters 4, 5 and 6 all deal, in somewhat different ways, with this general problem of relativism. In chapter 4, 'Relativism and Wittgenstein', I pursue the relativistic implications of the work of Kuhn, Mannheim and Mills somewhat further, and then show how Wittgenstein provides a middle ground between the relativist and absolutist extremes. I also consider the relativism issue in chapter 5, specifically as it concerns Kuhn's argument about the 'incommensurability' of paradigms. Here I develop Wittgenstein's ideas in such a way as to lead us away from the enormous difficulties ensuing from

acceptance of the incommensurability thesis, and towards the formulation of a position less deterministic than the Kuhnian standpoint. In chapter 6, 'The social nature of mathematics', I show that mathematics, like science more generally, and in common with other human practices, is a fully social activity. Contrary to the views of some sociologists, there is no reason to exclude science and mathematics from sociological inquiry. In this chapter I draw heavily on Wittgenstein's philosophy of mathematics, which represents an attempt to find a middle way between Platonism and conventionalism. Also in this chapter I discuss the relevance of Peter Winch's work for questions about scientific practice.

Then, in the last three chapters, I move to a consideration of the general problem of 'authority' in science. In chapter 7, 'The demarcation problem in science', I deal with two questions that are a source of debate in contemporary science: first, what criteria distinguish science from non- or pseudo-science; and second, who should have the responsibility for establishing such criteria? Chapter 8 focuses on the relationship between the individual scientist and the scientific community to which he directs his truth- and knowledge-claims. Following Wittgenstein, a heavy emphasis is laid on the notions of 'possibilities' and persuasion, and the crucial place of language in scientific communication and in the process of persuasion is discussed at length. Finally, in chapter 9, I confront the issue as to what validates the view of science and scientific practice set forth in this volume and, further, the issue of whether the viewpoints presented here do not call into question *all* conceptions of truth and knowledge. Again the position of the individual scientist is considered, not as someone standing alone but as part of a tradition with a history and a collective set of practices. Especially important here is an understanding of the extent to which our ideas, including those of science, are rooted in how we choose to live our lives. The intimate relationship between an individual's life and his work will begin to emerge in the following pages where we turn to a consideration of 'Wittgenstein the man'.

Chapter 5 has appeared previously in *Theory and Society*, and chapter 6 was published in somewhat different form in the *Kölner Zeitschrift*. Permission to use these materials is gratefully acknowledged. For whatever merits this volume may possess, I am indebted to several persons for their useful comments and criticisms. Louis Boon's objections to some of my assertions have helped me to sharpen (and sometimes alter) my views. Nil Disco and I have argued through much of the manuscript, and I have learned much from our discussions. Tracy

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Amsterdam

D.L.P.

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