Introduction

The methods of investigation applicable to moral and social science must have been already described, if I have succeeded in enumerating and characterizing those of science in general. It remains, however, to examine which of those methods are more especially suited to the various branches of moral inquiry; under what peculiar facilities or difficulties they are there employed; how far the unsatisfactory state of those enquiries is owing to a wrong choice of methods, how far to want of skill in the application of the right ones; and what degree of ultimate success may be attained or hoped for by a better choice or more careful employment of logical processes appropriate to the case. In other words whether moral sciences exist, or can exist; to what degree of perfection they are susceptible of being carried; and by what selection or adaptation of ... methods... that degree of perfection is attainable.—John Stuart Mill, “On the Logic of the Moral Sciences,” *A System of Logic*

It was with this statement that Mill launched the subject of the philosophy of social science as we know it. The assertion with which it begins and the questions that it poses remain the focus of both philosophers and social scientists eager to survey the nature and limits of our knowledge of human behavior. Mill’s claim that the broadly empirical methods of natural science are fully appropriate to the aims of the human sciences has, in the century and more since he made it, been subject to a serious embarrassment. For in spite of widespread acceptance of Mill’s methodological dicta in the social sciences, these subjects have remained as unsatisfactory as Mill found them. That is,
they have remained unsatisfactory by Mill's standards. For Mill went on from the passage above to write that “at the threshold of this enquiry we are met by an objection, which, if not removed, would be fatal to the attempt to treat human conduct as a subject of science. Are the actions of human beings, like other natural events, subject to invariable laws?” But we seem no closer to such laws now, after several score more years of attempting to secure them, than Mill and his contemporaries were. The absence of such laws, or even of successively improved approximations to them, remains a continuing embarrassment to those empiricists who agree with Mill that the methods, and the sorts of knowledge which the application of such methods are to eventuate in, must be broadly the same in social and natural science. The absence of such laws was explained by Mill, and continues to be excused by his empiricist successors, on the grounds that the subject of the social sciences is “the most complex and most difficult subject of study on which the human mind can engage.”

This simple and rather obvious answer to the question has not won widespread acceptance, as the ever-burgeoning literature of the last hundred years' reflection on social science has shown. One reason philosophers have not been convinced by this answer is that it makes the differences between the two sorts of subjects a wholly contingent one, a difference only of degree by virtue only of the increased complexity of the subject matter of the social sciences. If Mill is correct, then the philosopher is deprived of a conceptual question that can provide grist for many mills.

More tellingly, the claim that the differences between social and natural science turn only on the increased complexity of the former's subject matter seems both too strong and too weak. Too strong, for it seriously underplays the vast complexity of many natural phenomena for which we now have fairly rigorous scientific accounts, in spite of their recalcitrance to observation or experimentation. Both the range and the degree of precision of explanation and prediction in the natural sciences have increased by several orders of magnitude since Mill wrote the *System of Logic*, and successive extensions of domains have made Mill's excuse for the relative backwardness of social science more and more hollow. Mill's appeal to complexity is too strong, for it suggests that with the increasing complexity of the subject matter of natural science from his own time to our own, progress in natural science should be decelerating and not accelerating. His explanation for the failure of social science is too weak because Mill credits the social sciences with already recognizing the concepts which are apt for describing and explaining human behavior in a scientific way. Human behavior, on Mill's view, is to be systematically explained by appeal to the same cluster of concepts—like motive, desire, belief, reason—that common sense appeals to in its explanation of actions. In fact he is committed to the same variables in the explanation of human activity that Plato embraced in the *Phaedo* over two
millennia before him. By contrast, the chief obstacle that natural science has had to surmount is the absence of its explanatory vocabulary from common language, and the need to classify and describe phenomena in ways that cut across ordinary descriptions, in order to uncover general laws that regulate them. Thus Mill's explanation is too weak in light of the allegation that no significant progress has been made in the provision of a real science of man throughout the whole of recorded history. No progress has been made in spite of the fact that throughout the period we have been acquainted with the explanatory variables presumably required to generate this science.

The failure to explain plausibly the inability of social science to produce empirical laws has serious ramifications for an empiricist like Mill, who assimilates the aims and methods of the social sciences to those of the natural sciences. In the absence of a more plausible explanation he must either rethink his account of the methods of natural science or admit that there are important methodological and substantive differences between these two sorts of subjects. But embracing either of these alternatives involves the surrender of his views about the most central questions of philosophy. In either case the follower of Mill will have to surrender his commitment to the epistemological unity of all the methods of acquiring knowledge, and to the metaphysical unity of all the concrete subjects of systematic knowledge. Embracing either of these two alternatives is too sweeping a price to pay for an explanation of the failures of social science. Accordingly, in this work I hope to offer a new, more detailed and substantial explanation of the inadequacies of social science, an explanation consistent with Mill's conviction that in describing the methods of natural science we thereby also describe those of social science. My explanation is thus subject to the constraints that it must admit the social sciences logically or conceptually capable of adopting the methods of natural science, and that it must allow for the formal possibility of these subjects' producing explanations and predictions of the same increasing degrees of precision that natural science provides. It must allow for these formal possibilities while more plausibly explaining the obvious contingent fact that the human sciences have failed in the employment of such methods to produce anything like such results. In short, my explanation, like Mill's, must be the explanation of what we both take to be a contingent state of affairs, a particular fact about the present state of our knowledge or lack of it about human behavior. Accordingly, my explanation, like Mill's, will hinge on contingent considerations themselves, albeit of the broadest possible sort. For no explanation of a contingent occurrence or fact can itself turn on only noncontingent logical necessities or conceptual truths.

The argument of the first half of this book has the structure of an inference to the best explanation of the failures of the social sciences to attain the sort of success natural science has shown itself capable of. It is thus an inductive argument with a largely negative conclusion about the prospects for
conventional social science. This pessimistic assessment differs from Mill's prognosis of eventual success because it turns on a stronger explanation of why these subjects have yet to produce scientifically respectable results. The work's aims are by no means limited to critical ones, however, for the explanation to be offered of the failures of social science provides a fairly specific guide for the direction in which an empirical science devoted to understanding human behavior should move. The argument does so by revealing an explicit and precise sense in which the social sciences must be life sciences, branches of biology, and can be expected to employ theories and make claims of no less and no greater generality than biological theory does. This positive result will be unexciting only to those with an antiquated or caricatured impression of the theoretical scope and power of contemporary biology. Indeed if my argument is correct, the study of human behavior, conceived as a biological science, will admit of as much formally quantified and mathematical description as the most mathematical economist could hope for. As the second half of this book purports to show, in the end the explanation of the failures of contemporary social science is an argument for the success of sociobiology.

An important prerequisite of the argument to follow is some sort of prior attachment to the broad philosophical doctrines that motivated Mill and still sustain his empiricist followers. As noted above, the failure to find a plausible explanation for social science's inability to produce the desired results by the use of the prescribed methods forces on a follower of Mill the surrender of fundamental convictions in metaphysics and epistemology. Mutatis mutandis, the motivation to search for a plausible explanation here presupposes the same fundamental convictions. In the next chapter I attempt to trace out what these metaphysical and epistemological first principles are; to show that all the apparently methodological disputes in the philosophy of social sciences are but disguised variants of controversies about these broad metaphysical and epistemological principles; and to justify the positions attributed to Mill, and to empiricists generally, by showing that it is impossible to avoid taking sides on these philosophical issues, so that rejecting empiricist views commits one to embracing equally strong and, I believe, intrinsically less reasonable alternatives.

In addition to the constraints under which his philosophical commitment places the empiricist, his explanation of why the social sciences have failed to produce laws and theories of successively greater precision and accuracy is subject to a further condition. His explanation cannot do violence to one particular almost universal assumption about the determinants of human behavior. This is the assumption that these determinants are to be found in the joint operation of beliefs and desires of intentional agents. Mill clearly embraced this assumption, as his own discussion of the issue of free will reveals: "Given the motives which are present to an individual's mind, and
given likewise the character and disposition of the individual, the manner in which he will act might be unerringly inferred; . . . if we knew the person thoroughly, and knew all the inducements which are acting upon him, we could foretell his conduct with as much certainty as we can predict any physical event." \(^3\) This presumption that at least some and indeed most of our ordinary explanatory claims about particular actions, and the reasons which result in them, are true, is so well entrenched that some philosophers have argued that the denial of this claim is logically inconceivable. \(^4\) In Chapter 3 the tenability of this further constraint on accounts of the failure of social science is explored. It is shown that even social scientists who purport explicitly to abjure this common assumption eventually find it unavoidable, and appeal to it tacitly in the very theories they claim to be free of it. Among these social scientists the most prominent are Durkheim and the structuralist followers of Lévi-Strauss. Examination of their views affords a fresh opportunity to reveal the epistemological consequences of denying the relevance of methods drawn from the natural sciences to the pursuit of social science.

Just as preserving this assumption is a constraint on the explanatory purposes of this work, the assumption that beliefs and desires explain the actions of human agents is itself a constraint on theories of human behavior. In Chapter 4 it is shown how this constraint, together with the methodological strictures of empiricism, directs the social scientist to search for \textit{laws of human action}. Important episodes of this search are examined, and I argue that the modern history of economic theory in particular constitutes a sustained attempt to discover laws that will underwrite the singular claims made throughout the social sciences about particular reasons and their consequent actions. An examination of its history reveals that the theoretical shifts in economics are best understood as reflecting the failure to find laws of human action.

The conclusions of Chapter 4 pose a serious trilemma for the empiricist. He must render consistent \((a)\) the common assumption that we are at least sometimes, indeed usually, correct in our specifications of particular desires and beliefs as the causes of particular actions; \((b)\) the failure to find any law of human action to sustain this assumption; and \((c)\) the empiricist view that causal claims must be sustained by laws. Mill’s solution, of course, is to suggest that further work in social science can turn the failure that \(b\) reports into success. The objections to Mill’s solution, however, demand a new way of circumventing the trilemma if empiricism is to retain its claim to our assent. Chapter 5 reveals the formal possibility of a path around the trilemma, through the examination of an apparently true, exceptionless general statement connecting reasons and actions in the way required for a law of human action. The candidate law is shown to be logically incapable of entrenchment in any system of other general statements, that is, in any scientific theory. This conclusion is exactly what would be expected if the explanatory factors
cited in the candidate law did not designate causally homogeneous classes of events, states, and conditions, were not "natural kinds." If terms like 'desire', 'belief,' 'action', do not designate causally homogeneous classes of events, then they may indeed be used to express true singular causal statements, even though there is no law expressible in terms of these notions to sustain the singular claims. There will, on the empiricist's view, however, be other, unknown laws expressed in concepts hitherto and perhaps still unknown that will sustain the singular statements. The hypothesis that the terms we have hit upon to describe particular human actions and their causes do not reflect the features by virtue of which the two are causally connected enables the empiricist to render consistent the three horns of the trilemma he faces.

Nonetheless, the solution to the trilemma holds out what is at best a formal possibility. It lacks force because it has no grounds independent of its ability to outflank the difficulty empiricism faces. Chapter 6 provides this independent force for the solution, turning its merely formal possibility into material actuality. Independent reason is given to suppose that terms denoting reasons and actions are not natural-kind notions. Opponents of empirical methods in social science have long argued that these terms' meanings are given in connection with their exemplification by human beings, by members of the species *Homo sapiens*. In this chapter it is shown that biological theory requires that species' names be treated, not as kind-terms, but as proper names for spatiotemporally restricted particulars. Therefore, *Homo sapiens* is a name for a particular spatially distributed object and is not a purely qualitative predicate of the sort admissible in general laws. Since terms like 'desire', 'belief', 'action', etc., are to be defined through their semantical connection with 'Homo sapiens', they cannot be purely qualitative predicates of the sort admissible in scientific laws and theories. The fact that laws relate natural kinds only thus excludes the possibility of laws of human action in a way that renders consistent empiricism and the truth of most of our singular judgments about particular reasons and their effects in behavior. Chapter 6 concludes by sketching the upshot of its argument about the spatiotemporally restricted character of species names for research programs in the operant conditioning of emitted behavior, the prospects for computer simulation of human activities, and philosophical controversies surrounding the notion of intentionality.

Much of the burden of Chapters 5 and 6 is borne by claims about details of contemporary biological theory. Thus, the failure of theoretical entrenchment for any exceptionless law of human action is established on analogy with the entrenchment of Mendelian laws of genetics. And the claim made in Chapter 6 about the character of species names hinges on understanding the actual character of the hierarchy of exception-ridden empirical generalizations, experimental laws protected by *ceteris paribus* clauses, and universal theoretical laws in evolutionary theory and in mathematical ecology. Im-
portant parallels and differences between these subjects, and work in social science employing formal techniques of precisely the same kind, are revealed and elaborated. This development is intended to show that the exclusion of species-related notions from the vocabulary of laws is not just a philosopher’s trick to solve a philosopher’s problem, but represents a fundamental constraint on scientific theory that nomologically successful subjects like biology have satisfied, and unsuccessful ones, like the social sciences, have not. Satisfying this constraint not only accounts for the success of biology, but will also enable us to discover those regularities that really do govern human behavior, to the extent that they obtain to be discovered.

In its attempt to substantiate this last claim, the focus of this work shifts from explanation of failure to prescription for success. In chapter 7 it is argued that, given practical limits, the empiricist demand that we search for laws of human behavior leads to biology, and in particular, to population biology as the locus of such laws. For these subjects, I argue, provide the narrowest natural kinds in which we can be confident that human behavior falls. This claim, in turn, is the very one which sociobiology needs to underwrite its own claim to preempt all the conventional social sciences. Insofar as sociobiology requires this thesis for its fundamental rationale, empiricism is clearly wedded to this theory. But the empiricist has traditionally been skeptical about sociobiology’s chief explanatory tool, the theory of natural selection. In order to allay suspicions that the theory is tautological or circular, Chapter 7 closes with an analysis of its key theoretical term, ‘fitness’, and of the prospects for reduction of evolutionary theory to physical theory.

The power of sociobiology to curb unreasonable explanatory and predictive expectations, and to provide powerful systematic accounts of human behavior is illustrated in Chapter 8. More important, misunderstandings of both sociobiologists and their critics about what is really crucial to the acceptability of the theory are revealed in a critique of anthropological arguments against sociobiology. The claimed centrality of the problem of altruism to the acceptability of sociobiology is shown to be mistaken. The real issue between the sociobiologist and more conventional social scientists is the former’s implicit claim to preempt the latter’s discipline because sociobiology employs the narrowest natural kinds under which human behavior falls.

Yet insofar as sociobiological theory and its empiricist underpinnings involve denying the explanatory role of reasons and the appropriateness of labeling social explananda as types of actions, it seems open to the complaint that it is self-refuting and inconceivable. For to embrace the theory is to commit an action, to argue for it is to cite reasons as the causes of this action. In the last pages of this work I attempt to show that this charge of self-contradiction misfires, although it does reveal the degree to which concepts inappropriate for a science of man are entrenched in our ordinary views of him. We are thus presented with a forced choice between rejecting the relevance
of this ordinary view for a science of human activity, or providing an alternative justification for the significance of a body of disciplines which cannot provide what the empiricist will accept as knowledge. Short of establishing the truth of the assumptions of empiricism directly, there is no firmer footing for the argument that follows than the choice this invitation provides to those who differ from empiricists in matters metaphysical and epistemological.