SCIENCE AND THE GOOD

THE TRAGIC QUEST FOR THE FOUNDATIONS OF MORALITY

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Preface
The Argument, in Brief

Who could deny it?

Modern science since the Enlightenment has been nothing short of a wonder. Its achievements in solving enduring riddles over the past half-millennium have been astonishing. Put aside for a moment some of the malevolent ways science has been used—the method itself, within many spheres of inquiry, has generated a range of new knowledge and insight that is nothing if not breathtaking.

For most of us, the intricacies of scientific knowledge are unfathomable, endlessly so. It is a realm far out of reach of the understanding of most mortals, which is why science can be, ironically, so mystifying. Much of the authority of science in the modern and now late modern world derives from both its extraordinary track record and from the esotery of it all—a knowledge possessed, albeit in fragments, almost exclusively by those rare individuals credentialed with advanced degrees in particular scientific fields.

Is it any wonder that we would give science, and those who

speak for it, the benefit of the doubt? But even for a subject as important as human morality?

The possibility is arresting, to say the least.

Indeed, it is quite a bracing experience to go into a bookstore or browse online and see titles claiming to show "how science can determine human values," to uncover the "science of moral dilemmas," to disclose "the biological basis of morality" or "the science of right and wrong," to reveal "the universal moral instincts caused by evolution," to explain how a certain molecule is "the source of love and prosperity," to describe "how nature designed our universal sense of right and wrong," or to demonstrate "what neuroscience tells us about morality."[1] These claims are all taken from the titles of recent books and articles, and these claims are pervasive.

What pluck! These titles would seem to defy the age-old rule called "Hume's Law" that you can never derive an "ought" from an "is": that there is a decisive boundary separating prescription from description.

Could it be that this is no longer true? Have new technologies and new ways of thinking rendered the rule obsolete?

The very idea that scientists or philosophers of science could reach into the physical universe and demystify the nature of "the good" to reveal the physiological and evolutionary mechanisms behind ethics or the neurochemistry underneath morality is exciting, and in some ways intimidating, even if the idea is not fully persuasive.

The purpose of this book is to examine those claims. They are rooted in a longstanding and impassioned quest to find a scientific foundation for morality. When did this quest originate and why? How has it evolved? What is its current standing? What has it accomplished, and where is the quest leading us? What is at stake

is not merely academic. Rather, what is at stake is the yearning to coherently address some of the knottiest problems of the modern world—not least, *how and upon what foundation do we build a good and just society?*

The Argument, in Brief

The heart of our argument is found in the story of this four-hundred-year quest to establish a science of morality. The story begins at the advent of the modern West, in a time when Europe was riven with conflict over the right, just, and moral ordering of society. Traditional religious beliefs and medieval philosophy had not only conspicuously and tragically failed to bring order and peace to an increasingly pluralistic world but had made such hopes ever more elusive. Against these failures, the emergence of science promised a new way forward in all spheres of life. After all, science had achieved extraordinary success in understanding the natural world and in addressing a range of human problems. Why couldn't it also solve enduring moral problems, not least of which was the puzzle of how to fashion a good and peaceable society? This is important, for what is at stake in this question was nothing less than the possibility of a new foundation for human flourishing.

Some of brightest minds of the Enlightenment looked to science to address these persistent questions. Over the next few centuries, the quest followed several paths. Some thought that moral reality could be established experimentally by observing which human laws promoted peace and concord. Some thought a mechanical theory of the mind would reveal everything we need to know about the moral realm. Others looked to the measurement of human pleasure to define morality. Still others thought

that the dynamics of human evolution produced morality as a tool of survival.

But after four hundred years, the ideal of understanding moral reality scientifically through observation and demonstration—in the way that truths in astronomy and medicine were understood—continued to confound. The various paths to ground morality in science seemed to end—in part because none had succeeded, and in part because science fragmented into specialized disciplines, none of which focused on morality. By the end of the nineteenth century, the prospects of establishing a scientific foundation for morality were not at all hopeful.

In the 1970s, however, with the reintegration of multiple scientific disciplines along with several of the older, more philosophical paths, the quest reemerged with renewed vigor. A new synthesis, aided by advancing technology, had created new enthusiasm for fulfilling this time-honored quest.

But has the new moral science actually brought us closer to achieving its aspirations?

Sadly, no. What it has actually produced is a modest though interesting descriptive science of moral thought and behavior. We now know more, to take one example, about what is happening at the neural level during moral decision-making.

Yet many of its proponents claim much more for these types of findings than the science can justify. While some of this overreaching is due to honest mistakes or misunderstandings about what science has shown, some of it appears fraudulent, designed to capitalize on science's prestige and the public interest in practical moral advice. In the end, the new moral science still tells us nothing about what moral conclusions we *should* draw.

This is not happenstance. There are good reasons why science has not given us moral answers. The history of these attempts,

along with careful reflection on the nature of moral concepts, suggests that empirically detectable moral concepts must leave out too much of what morality really is, and moral concepts that capture the real phenomena aren't empirically detectable. Whether they realize it or not, today's practitioners of moral science face this quandary, too.

But here the story takes a surprising turn. While the new science of morality presses onward, the idea of morality—as a mind-independent reality—has lost plausibility for the new moral scientists. They no longer believe such a thing exists. Thus, when they say they are investigating morality scientifically, they *now* mean something different by "morality" from what most people in the past have meant by it and what most people today still mean by it. In place of moral goodness, they substitute the merely useful, which is something science *can* discover. Despite using the language of morality, they embrace a view that, in its net effect, amounts to moral nihilism.

When it began, the quest for a moral science sought to discover the good. The new moral science has abandoned that quest and now, at best, tells us how to get what we want. With this turn, the new moral science, for all its recent fanfare, has produced a world picture that simply cannot bear the weight of the wide-ranging moral burdens of our time.

Part I
Introduction

CHAPTER 1

Our Promethean Longing

CAN SCIENCE be the foundation of morality?

The social implications of this question are enormous. We live in a time rife with disagreement, conflict, and violence—clashes that are almost always rooted in competing conceptions of the good. How, then, do we resolve such disagreements? Is there a way to arbitrate these disputes? Surely in a day of cosmopolitan sophistication, there must be some way to mediate them—some compelling logic that could provide a common foundation for moral belief and commitment.

There are many for whom this question is absurd on the face of it—who say there is a prima facie case against science ever being the foundation for morality. Their quick dismissal ignores the fact that some of the brightest minds in science and philosophy are confident that science *can* be the foundation of morality. Indeed, public discourse is awash with books that claim this very thing. All of this suggests that we may be at the start of a new age in which science provides clarity and insight into vexing moral questions.

The skeptics' quick dismissal also ignores how central—and passionate—the quest for such a foundation has been to Western

thought over the last four hundred years. Over centuries, the pursuit has been nothing if not ardent.

The question, then, matters, and it matters a great deal. But why?

The Dilemma of Difference

When one looks at this history carefully, one can see that, from the beginning, the animating force behind the quest for a scientific foundation for morality has been the desire to address the problems of moral difference and complexity and, more to the point, the conflict and confusion they generate. Many, to be sure, are also motivated by a pure search for truth. But even the search for truth is always embedded in a time and place and is strongly influenced by the contingencies of history and culture. Those contingencies always point to the overriding concern with the problem of difference.

The quest maps roughly onto the story of modernity. That story is, among other things, a story of the shrinking of the world in ways that bring in closer proximity different cultures and different ways of life. While the plurality of cultural difference has always existed, the past half millennia has amplified that development in ways that previous generations could not have imagined. The problem is that the coexistence of cultures is always accompanied by competing claims on shared public space, contradictory interests, and the inequities of power and privilege. Precisely because difference nearly always plays out at fundamental levels of human belief, and because the conflicts matter so concretely in human experience, they are nearly always accompanied by suspicion, tension, the suppression of legitimate claims and interests, latent antagonism, and sometimes open conflict and

violence. The accumulated costs of these differences are beyond comprehension.

In the early decades of the twenty-first century, those differences are intensified to the point that we would say that the now globally interconnected world is constituted by these deep social, cultural, and political differences. As is plain to see, these differences are anything but abstractions but rather continue to bear on issues fundamental to the well-being of all human beings—order, security, freedom, fairness, health, and wholeness. Is there an issue of public policy or foreign policy that is not morally fraught? Immigration, health care, racial inequality, care for the elderly and for the poor, education, aid to victims of natural disaster, international trade, and war are all laced with difficult moral questions that have no easy answers and that more often than not lead us to fundamental disagreements over what is right and wrong, good and evil, just and unjust. And underneath the many specific questions are more fundamental disagreements about what constitutes the good life, the good society, and the good world.

No one's motives are entirely pure. All of us operate with, at best, mixed and conflicting intentions. Yet most antagonists have been and are sincere in their desire for human flourishing, at least on their terms. Whatever else may motivate them, they also happen to disagree fundamentally and mostly sincerely on what is true, right, and good. Here, too, the costs of these disagreements are often beyond reckoning.

The Problem of Complexity

The dilemma of difference is only made more confounding by the sheer complexity of the modern and now late modern world.

The explosion of knowledge that came with modernity is difficult to fully comprehend. Between 1517 and 1550, approximately 150,000 new books were published in Europe. This was at least four times as many as had appeared during the entire fifteenth century. Between 1517 and 1523 alone, one could find 400 printers, 125 places of publication, and approximately 900 authors.[1] At that time, this represented an extraordinary growth in the world's knowledge. Five hundred years later, of course, the growth in information and knowledge has surged exponentially.

We now live in an age of information superabundance. It is often noted that more information has been produced in the last thirty years than in the previous five thousand. Around 1,000 books are published internationally every day, and the total of all printed knowledge doubles every five years.[2] Yet printed documents only make up .003 percent of total information. The Internet and other digital technologies, of course, have only intensified the production, collection, and distribution of information. The world has produced 300 exabytes (300,000,000,000,000,000,000 pieces) of information—and produces between 1 and 2 exabytes[3] of unique information per year, which is roughly 250 megabytes for every man, woman, and child on earth. To make this a little more concrete, 300 billion emails, 200 million Tweets, and 2.5 billion text messages course through our digital networks every day.[4] Add to this the 85,000 hours of original programming produced every day by over 21,000 television stations and the 6,000 hours of YouTube video produced every hour.[5] The weekday edition of the *New York Times* contains more information than the average person in seventeenth-century England was likely to come across in a lifetime.[6]

We are overcome by a tsunami of information. Is there clarity, wisdom, or truth to be had in the midst of this complexity? If so,

how do we sort through it all? The puzzles posed by difference and complexity are built into the modern world. Given the conflict, disorder, confusion, and human suffering that follow in the wake of our deepest differences, and given the massive complexity of modern knowledge and information, questions arise: What is Justice? Fairness? Equity? How do we live together at peace with our deepest moral differences? And if we can't agree on shared principles or ideals and their application, on what grounds do we adjudicate our disagreements?

The Promise of Science

Some see science as the only method that offers any hope of being such a rational arbiter. After all, the methods of science—observation, experimentation, theory building—have delivered a persuasive picture of the physical universe. This has brought a consensus in the physical sciences that stands in stark contrast to the disorderly tumult of moral opinion. Iranian scientists, for example, accept and employ the same view of physics as do scientists in France; Chinese scientists and Norwegian ones operate with the same understanding of chemistry. Yet the moral viewpoints across these cultures differ in the extreme.

And so we arrive at this bright thought: perhaps science can do for morality what it has done for physics, chemistry, biology, astronomy, and mathematics, and the technologies that are based upon them. This is the question that animates this book. Can the methods of science provide rational and compelling answers to questions of right and wrong, good and bad, and how we ought to live? Can science be the foundation of morality?

What Is at Stake

There is, then, on the surface, a bland, inoffensive, even somnolent academic quality to this question. But the question behind the question is, can science rise above our differences, cut through the complexity, and serve as the foundation of a just and humane social order? Can there be a "science of human flourishing"?[7] This is the enduring question at stake in the quest to find a scientific foundation for morality.

Bertrand Russell once reflected on the possibility of a "scientific society," saying that

> While upheavals and suffering have hitherto been the lot of man, we can now see, however dimly and uncertainly, a possible future culmination in which poverty and war will have been overcome, and fear, where it survives, will have become pathological. The road, I fear, is long, but that is no reason for losing sight of the ultimate hope.[8]

If science can demonstrate a foundation for morality, then there is the potential that confusion will lessen and conflict will subside. For if there is a true science of morality, then the good life can be found and demonstrated to be so, thereby settling disagreements just as disagreement about the composition of water was settled by the demonstrations of chemistry. We will know the nature of the good, how to live a good life, and how to build a just and peaceable social and political order. Empirical investigation will generate a *pax scientia*.[9] As one enthusiast put it, "Only a rational understanding of human well-being will allow billions of us to coexist peacefully, converging on the same social, political,

economic, and environmental goals."[10] This is the Promethean longing that animates this question and the debate surrounding it.

We want to be clear. Our question is not, "Can science teach us anything about morality?" On the face of it, that is a hard question but a fair one, and rather uncontroversial. Anyone with intellectual curiosity might be interested in this—and why not? On the one hand, you have morality—the sum and substance of the good in human behavior and society—which is found (differently) in every human civilization, and yet its nature and workings remain a great and unsolved puzzle. On the other hand, you have science, a method of rational inquiry that systematically builds knowledge from testable explanations. Clearly science's centuries-long record of accomplishment in understanding the conundrums of the universe is beyond comparison. So why not morality? Perhaps science can help unravel this riddle as well.[11]

Those who argue that science is or should be the foundation for morality are generally making an epistemological claim about the superiority of science over other forms of knowledge. Debate about this claim is almost as intense as the disagreement it is supposed to resolve. Why? What is at stake here is the viability of a certain comprehensive view of reality called *naturalism*. Naturalism is the idea that, at bottom, everything that exists can be understood in the terms used by science. So, of course, naturalists tend to see science as the primary, best, or only way to know things.[12] Naturalism is in competition with perspectives that look to other, often *non*scientific and *non*empirical bases for truth, knowledge, understanding, and wisdom. Among these nonscientific bases are intuition, common sense, introspection, various traditions, religion, and pure reason.

At this point, the relationship between science and morality

becomes a critical, if not central, battle in the larger culture war. This larger conflict was never merely about a handful of unconnected issues like abortion, homosexuality, public funding for the arts, the relationship between church and state, and the like, but rather about the animating visions of the "good society" and the moral authority upon which these competing visions are based. These questions touch on what people most cherish, which helps to explain why passions become so inflamed. Few people will easily or willingly compromise on what is sacred to them, and it is precisely for this reason that attempts at persuasion have little effect. As in other areas of cultural conflict, *ir*rationality, dogma, and fanaticism can be found on all sides, not least among those who claim the authority of autonomous reason and scientific impartiality. The question about the relationship of science to morality goes right to the heart of these tensions.

Importantly, it is not just competing ideas of truth that are in play. There are also powerful interests at stake, for how these questions are answered will say much about the allocation of power and privilege.

Points of Clarification

The Question

So just to be clear, we are not asking the question, "Can science tell us anything about morality?" Surely it can, especially about the descriptive aspects of morality—what people think about morality and what physical processes underlie moral thought and behavior.

Neither are we asking, "Can ethical naturalists—those who hold that good and bad or right or wrong are part of a purely natural world—be moral?" On the face of it, the question is absurd.

To be human is to be an active agent within a moral universe, and just like people of religious faith, ethical naturalists are capable of both the most noble and the most despicable acts imaginable.

Rather, our focus and main question is whether science can do for morality what it does for chemistry and physics—resolve differences with empirical evidence. In short, "Can science demonstrate what morality is and how we should live?"

To challenge that project is in no way to challenge the validity of science itself. To repeat: nothing we argue here poses any threat to the value or validity of science itself, or to the naturalism its methods presuppose. After all, even if we are correct that science can't tell us about some things, it doesn't follow that science can't tell us anything at all. Compare: a metal detector cannot tell you everything about what's buried at the beach, but it can tell you about the buried metal things. Similarly, science may not be able to tell us how to live, but it can tell us about physical reality and its laws.

Neither would it follow that there are no longer any rules for rational inquiry. Even if science cannot tell us what we want to know about morality, there are other means of assessment: our ordinary experience, our nonempirical yet introspective awareness, our understanding of human motivations, our basic rational facility for understanding and abstracting the essential features of things, and theory-building with the data obtained from these sources. To be sure, none of these can be taken as a faultless source of truth. Instead, just as in the practice of science, each must be examined, compared to the broader evidence, and reevaluated in light of new experiences. Nevertheless, this is a far cry from mere fantastical speculation. The metal detector analogy is again helpful: just because there are things buried that your metal detector cannot tell you about, it doesn't follow that just anything goes in

identifying the other buried objects. It's still reasonable to use shovels to find other buried items, and it still isn't reasonable to use Ouija boards.

Our Approach

The subject of this study is the *discourse* surrounding the relationship between science and morality. This discourse is certainly an academic discourse, which is why it must be understood academically, but it does not fall neatly within any particular academic field: it is not psychology, biology, neurochemistry, or any of the sciences per se, nor is it ethics per se, nor philosophy or history. It exists on the peripheries of all of these fields—marginal at best to the mainstream of these academic disciplines, especially ethics and philosophy. Rather, the discourse we seek to understand is a *hybrid* whose contributors are philosophers, ethicists, psychologists, biologists, neurologists, physicists, and so on.

Because the discourse itself is interdisciplinary, it would be entirely inappropriate to approach it from a narrowly disciplinary perspective. Our own backgrounds, in the historical sociology of knowledge and culture (Hunter) and in philosophy (Nedelisky), give us as much of a claim to engage this subject as practitioners in any other field. Our particular areas of expertise are not within the cluster of fields that dominate this discourse—psychology, biology, neurochemistry, and ethics. But as will become clear, we do not attempt to innovate within these fields, and our arguments seldom require technical expertise. Our task is to understand, contextualize, interpret, and engage this body of knowledge from the vantage point of our home disciplines. In this respect, we regard our position as outsiders to this club as a distinct advantage—for two reasons.

First, the subject is far too important to be relegated to special-

ists. It is consequential for everyone, and to close it off from broader public (and scholarly) discussion is the surest way to achieve academic insularity, and thus to guarantee self-confirming assessments of validity and significance. We need to open the windows and let the fresh air of broad intellectual inquiry blow through.

Second, one of our central objectives in this book is to bring a perspective that only those outside the particular academic circle that dominates in this discourse can bring, and to do so in a way that is accessible to a broader public.

Our Method

What do we mean when we say that, in its totality, the literature, debate, and discussion promoting a science of morality—especially today's "new moral science"—*has come to constitute a discourse*?

Put simply, we mean that the conversation about the science of morality has taken on a life of its own that goes beyond any particular academic discipline. The questions asked and answers proposed may draw on any number of fields, but ultimately these questions and answers are what they are, apart from the narrow focus of neuroscience, academic ethics, or evolutionary biology. This discourse is not just a body of evolving knowledge but a mood, a disposition, a set of affinities, an arrangement of rules, and a collection of institutional and symbolic resources; hence, it is its own culture, with a distinctive life of its own.[13]

In this respect, it is not unlike the discourse that constitutes, say, conservatism or liberalism or identity politics or Christian fundamentalism. In this case, the discourse and the discursive community that generates and propagates the new moral science, while certainly made up of moral scientists, philosophers, and polemicists, is not reducible to any one of them. Some contribute a little and others contribute a lot. Some are closely aligned with

the leading ideas of the discourse, and others distance themselves from it on this or that point. Among those who give voice to this discourse, some are exceedingly careful and circumspect while others tend toward bluff and bluster. About any discourse, one can always say, "I can tell you five ways that this person or that person doesn't fit." Such a view misconstrues the nature of culture and, in particular, the discourse that constitutes the new moral science.

How, then, does this discourse take form and find expression?

Like any discourse, it is constituted by its own distinct and complex cultural economy. At its heart are networks of scholars and public intellectuals, more often than not, attached to colleges and universities, and the work they produce. Today, these scholars typically find a home in graduate faculties and programs in psychology and philosophy with concentrations in moral psychology. These are often organized in college or university labs, of which there are dozens, including the Moral Psychology Research Lab at Harvard; the Morality Lab at Boston College; the Values, Ideology, and Morality Lab at the University of Southern California; and the Social and Moral Cognition Lab at Columbia.[14] These are similar to grant-funded projects such as the New Science of Virtues project at the University of Chicago[15] and the Cambridge Moral Psychology Research Group.[16] These departments, laboratories, and programs connect via pan-university networks such as the Moral Psychology Research Group,[17] the Moral Research Lab,[18] and Yourmorals.org. Out of these programs and networks comes extraordinary scholarly output, much of it published in strictly academic journals such as *Nature*, *Science*, *Cognition*, *Brain*, *Journal of Personality and Social Psychology*, *Cognition and Emotion*, *Journal of Neuroscience*, *Cognitive Science*, *Journal of Research in Personality*, *Emotion*, *Journal of Applied Social Psychology*, *Ethics*, *Social*

Neuroscience, and *Journal of Moral Education*, as well as more popular journals such as *New Scientist*, *Scientific American*, and *Discovery*. The subject is covered in the mainstream press as well, including prestige news media like the *New York Times* and *New York Times Magazine*, the *Washington Post*, *Slate*, and National Public Radio. Then, of course, there are immense numbers of academic and popular books making larger arguments about the new moral science. Among the most visible authors have been Frans de Waal, Patricia Churchland, Jonathan Haidt, Joshua Greene, Steven Pinker, Marc Hauser, Owen Flanagan, Paul Thagard, Alex Rosenberg, Michael Ruse, Sam Harris, Paul Zak, and Michael Shermer. Not least, the blogosphere is full of discussion about the new moral science.[19] The discourse is also carried by innumerable conferences. The vast majority are academic, though some bring together public intellectuals, such as the important Edge conference on "The New Science of Morality" in 2010.[20] Providing a much greater megaphone are platforms that address the public, including many TED conferences and the Aspen Institute's Ideas Festival.[21]

Financial support for this work comes from sources like the Edge Foundation, the Nour Foundation, and the National Science Foundation. By far the most generous funder of the new moral science has been the Templeton Foundation. Founded by the late billionaire Sir John Templeton, it exists to carry forward its founder's mission to discover new "spiritual information" through science.[22] It has done this by injecting hundreds of millions of dollars into a variety of research programs, many of which could be classified as scientific approaches to morality, including millions to the psychological study of human flourishing and the science of character and character development.

But while the Templeton Foundation may be the biggest

funder, arguably the most strategic foundation for cultivating the broader discourse within which the discourse on science and morality finds a platform is the Edge Foundation, founded and led by John Brockman.[23] With its stated mission of reframing public culture broadly in light of science, and with nearly nine hundred scientists, philosophers, and public intellectuals contributing to its website and various publications, the Edge Foundation is the most important organization promoting the plausibility of a new science of morality to the general public.

Why does this discourse matter?

While this discourse may be marginal to mainstream academic philosophy and ethics, it is thriving on the margins. It has generated and sustained many careers inside the academy, yet its greatest impact is outside the disciplinary guilds. As it is popularized, it assumes a disproportionate influence in shaping public opinion and discussion. Its concepts, assumptions, history, self-understanding, propositions, and inferences underwrite much of the billion-dollar industry that is positive psychology and the happiness movement—which in turn influences education, business, the military, and other institutions.

The idiom and sensibilities of the new moral science are also the idiom and sensibilities of the managerial elite of the dominant technocratic regime. It is especially influential with the middle strata of policy administrators, who desperately need a common language with which to speak authoritatively across so many differences.[24] Yet we also see it in other spheres in the reduction of performance, effectiveness, efficiency, and significance to the idiom of quantification, whether in business (metrics of performance for individuals, divisions, corporations), in education (metrics of literacy and numeracy, graduation rates, college acceptance, etc.), in medicine and health care (metrics of efficiency), in

higher education (rankings of colleges and universities, rankings of departments and programs in fields, rankings of scholarly output and influence, etc.), in philanthropy (metrics of performance and influence), and so on. The new moral science is of a fabric with this widespread ethos, the regime upon which it is based, and the elites who depend upon it. Yes, the new moral science is marginal to the mainstream of philosophy, but it provides an intellectual legitimation for the unspoken technocratic hope found everywhere in contemporary public culture.

This is this sense in which the new moral science constitutes a discourse. The actual content of this discourse is certainly complex and varied, drawing on many academic sources—not least philosophical and ethical—and containing a wide range of disagreements and debate. Yet while it is far from monolithic, the discourse is also marked by a shared stock of evolving knowledge (e.g., what neuroscience has allegedly shown), a distinct cluster of dispositions and affinities (e.g., the tendency to understand the structure and function of the brain as a computer), and a loose set of rules and norms generated and disseminated within a cluster of different institutional structures. This is the evolving discourse we seek to understand.

In every discourse, there is a range of actors—from serious scholars to unabashed polemicists, from the few who influence public discussion to many who are invisible. In this book, we focus on those we consider the most serious and influential contributors. We want to represent and understand the new moral science in its most compelling form.

A Technical Matter (for Specialists)

Perhaps the best-known objection to a science of morality is the "Is/Ought Problem," also known as "Hume's Law."[25] As David

Hume explained back in the eighteenth century, people sometimes try to infer something about *what one ought to do* from claims about *what is* the case. But these are two different kinds of claims, and inferring an "ought" claim from an "is" claim requires an explanation to justify it. But people seldom give a justifying explanation. Hume argues there can be none.[26]

In general terms, the Is/Ought Problem should be a barrier to a science of morality because science studies what is, not what ought to be. It is concerned with factual observations of the world, not value judgments about ideals, goods, or duties. If it is impossible to get an ought from an is, and science can only study what is, then science cannot show us what we ought to do. This is the usual thumbnail sketch of the objection.

On the face of it, this looks like a formidable objection, yet as we will see, the history of the quest demonstrates that Hume's Law is far from universally accepted. The discourse that seeks to discover a scientific foundation for morality continues unabated, Hume's Law be damned.[27]

We believe the failure of Hume's Law to persuade is partly driven by historical and cultural circumstances: we *need* a science of morality to help us make sense of and navigate the often-chaotic difficulties of the modern world. Yet it is also driven by technical distinctions within philosophy itself. We will not wade into these philosophical technicalities at any great length. (Those who are interested can read the footnotes.[28]) Rather, we concentrate on the relationship between the legitimacy of the moral concepts being used and the degree to which they can be empirically investigated. This is, after all, what would make a science of morality especially interesting or promising: being able to empirically settle what we ought to do.

Our Agenda

This book should be read as both text and subtext. The text is about the relationship between science and morality. The subtext is an affirmative genealogy about a yearning to address some of the most difficult and challenging problems of the contemporary world—the challenge of pluralism, of confusion, and of the need for a common language for understanding the world and a common foundation for building a good and decent and just society.

As we say, these questions are too important to leave to scientists and scientifically minded ethicists alone. Members of academic guilds are often too close to the technical minutia of the debates of their field and too tied to the rules of the guild to see the wider significance of the subject in which they are experts. The fact is, these questions affect everyone, so everyone has a stake in the issue, not just those with PhDs in these areas.

We aim, then, for several things in this book. First and foremost, we want to understand, as history, the effort to give morality a scientific foundation. For all of the recent fanfare and the heated debate surrounding it, the question of whether science can provide a footing for moral questions is anything but new. This quest is one of the central strands in the story of the Enlightenment and of Western modernity. The current discussions on the subject are informed by centuries of audacious and innovative effort. This quest must be taken seriously on its own terms.

But it is also a quest that must be seen in its larger historical, cultural, and sociological milieu. Elements of the story have been told before, and very well, but we know of no account that attempts to give a narrative spanning the entire history. This narrative is crucial for several reasons. It explains the original motivations for the quest to find a scientific foundation for moral-

ity and shows how those motivations persist to the present day. The history of those aspirations and their repeated failures lets us see the prospects for this sort of science in a broader, clarifying perspective. Finally, understanding the longstanding motivations of the quest makes it easier to recognize the magnitude of the departure taken by present-day moral scientists. Though they use the traditional language of morality, they are doing something fundamentally different with it. The history of the quest brings this into relief. To this end, we bring together the methods and perspectives of intellectual history, philosophy, and the sociology of knowledge to tell a story of the roots, transformations, cultural logics, and unintended consequences of this historical quest. In this way, the quest to find a scientific foundation for morality is a window into the nature of the modern project and its fate.

We also sketch out what science has taught us about morality and the inherent challenges that present limitations to what can be known scientifically. We consider the philosophical and scientific adequacy of these efforts in light of the standards to which advocates themselves aspire.

Often, we find, the rhetoric gets well ahead of the science. The propensity to overreach is common within the academic scholarship, as is the tendency in the larger discourse to blur the boundaries between scientific description and moral prescription.

Within the science itself, of the many challenges that emerge, two are particularly daunting: the problems of definition and demonstration. Can we define morality in ways that the scientific and scholarly community can agree on, and that are adequate to the reality people experience? And once defined, can morality be empirically measured—its presence, its salience, its strength—in ways that are convincing? As we will see, these challenges operate at cross-purposes to each other. A kind of uncertainty principle

seems to apply: the closer we get to a satisfactory definition, the further we get from empirical demonstration, and vice versa.

Our examination of the current state of this quest also leads to a perhaps surprising revelation: many of those pursuing a science of morality today are actually engaged in a very different project from what their historical predecessors were up to. Today's moral scientists no longer look to science to discover moral truths, for they believe there is nothing there to discover. As they see it, there are no such things as prescriptive moral or ethical norms; there are no moral "oughts" or obligations; there is no ethical good, bad, or objective value of any kind. Their view is, ironically—in its net effect—a kind of moral or ethical nihilism.

But here we have a puzzle. For one, few of the new moral scientists would use the term "moral nihilism" to describe their position, and fewer still would describe themselves as moral nihilists. What is more, the new moral science habitually uses the language of morality and moral prescription. How do we explain this seeming contradiction?

The resolution is found in the cultural logic they follow. As they would have it, even if there isn't anything we objectively "ought" to be doing, we still have to decide, on some basis, how to live and what to do. Without any real ethical standards, we look to social objectives as guides. The project, then, is about how science and technology can help us achieve these social goals. The role of science is to reveal how our moral psychology and neurochemistry work—or can be put to work—toward achieving those goals.

The problem is that these social objectives are, in the end, morally arbitrary, reflecting either fluctuating social tastes or the whims of those in power. In the end, as these thinkers see it, the "good" is a social engineering project, the foundation of which is an unmitigated, though rarely acknowledged metaphysical

skepticism. This leaves the new moral science in a place where it is incapable of either critiquing the distortions of power and privilege or affirming higher moral ends that draw us to the possibilities of greater human flourishing—for everyone, but especially those without power and privilege.

From our vantage point we fully recognize the problems that attend a facile moral realism, the idea that moral reality exists in human life independent of experience, history, and social circumstance. That said, we are convinced of the irreducible normativity of human experience, and that out of that normativity it may be possible to discover enduring, even if not universally held, moral truths.

A Final Question

It is hardly surprising to learn that tension and disagreement permeate highly academic philosophical discussions. Yet given all that is at stake here, the quarrels spill out into public discourse in ways that expose deep social and political divisions. For all of the difficult philosophical abstraction intrinsic to it, the quest to find a scientific foundation for morality unfolds within the vascular intricacies of contemporary social life. It is of a fabric with the history and culture that surround us. The final question, then, is: What does the quest reveal about our own time? What might it portend of our future?

The question "Is there a scientific foundation to morality?" has generated endless discussion and debate. But by attending to the difficulties of this very old question and to the longings that animate it, we may yet achieve a little more clarity about this confusing world we live in, even if we don't find a great deal more certainty.

Part II
The Historical Quest

CHAPTER 2

Early Formulations

Ideas don't appear out of thin air. They neither surface in discourse nor fade from collective memory of their own accord, but arise, take shape, and find expression under specific social and historical conditions. Ideas are always situated in society and history in ways that make them more or less plausible, more or less persuasive. This is clearly the case for the idea that science could be a foundation for morality.

In the West, the quest to find a scientific footing for morality begins in the fifteenth century. It is a rich and complex story with a compelling backdrop. There are innumerable actors and absorbing subplots in this history, and, while it is beyond our scope to provide an intricate account of this complexity, it is important to highlight certain key moments and key figures that mark the larger arc of this narrative. The reason is simple: the circumstances that gave rise to this Promethean longing are in some ways still with us. The impetus that gave rise to scientific attempts to ground morality keeps resurfacing in important ways—as do the arguments.

Early modern Europe was a place of profound social and intellectual transformation, as longstanding medieval worldviews and

authority structures began to break apart in the face of new challenges. These challenges included: (1) the inability of old ways of knowing—philosophy, religious authority—to resolve exploding moral and political conflict; (2) a need for a convincing basis for shared international trade laws as global commerce swelled and broadened; (3) a sense that the world was bigger and more complex—in terms of natural, cultural, and moral phenomena—than older medieval conceptions could account for.

To many, situated as they were at the height of the Scientific Revolution, the solutions to these challenges would be found in the methods of science.[1] Science was discovering nature's secrets in leaps and bounds—in astronomy, biology, and physics—and working miracles in medicine, engineering, and technology. And because science supports its claims with observable, demonstrable evidence, it seemed an especially promising method for resolving entrenched disagreements. The new metaphysical picture of the world that accompanied the new science fit uneasily with the old ways of understanding morality, pushing out these old views and creating space for new approaches.

Thus, the new science and its accompanying metaphysics began to take the place of the medieval picture and methods. But there is much to be gained from a closer look at the details and texture of this transformation.

The Backdrop: Aristotelian Scholasticism

For the last few centuries of the Middle Ages and into the first of the modern era, a particular school of thought prevailed throughout Western Europe. This was Aristotelian scholasticism, or "scholasticism" for short. Scholasticism was both a broadly shared metaphysical picture of the world and a method of inquiry. It

arose in the monastic schools developed during the Carolingian Renaissance of the eighth and ninth centuries and was built from a specifically Christian understanding of reality, expressed in terms of metaphysical concepts devised by Aristotle. The leading intellectuals of the age, including Duns Scotus (1266–1308), William of Ockham (1288–1347), and, most significantly, Thomas Aquinas (1225–1274) embraced, developed, refined, defended, and taught versions of this view of reality, helping establish it as the dominant paradigm of moral and intellectual inquiry.

As a rule, the scholastics sought to understand reality for the purpose of contemplation. Their goal was less to make discoveries and more to understand the things of this world with which they were already familiar.[2] Any given phenomenon was thought to be explainable by identifying four kinds of causes (or explanations), originally postulated by Aristotle, that together make up a complete explanation. These causes were the material, the efficient, the formal, and the final. Consider, for example, a human being. The material cause of a human being is the matter—in today's terms, the carbon, oxygen, hydrogen, and other elements—of which the human is made. The formal cause is the form or essence of humanity that, when combined with the matter, causes that carbon, oxygen, and so on to be something more than just a collection of chemicals: namely, a human being. The efficient cause is that which brought this particular human into existence—for instance, the procreative union of the person's father and mother, and the subsequent development in utero. And the final cause of the human is the purpose or function of humanity: for the scholastics this would have been, roughly, to know, contemplate, and commune with God.[3]

Understanding forms and final causes wasn't thought to be epistemologically problematic. Consideration of a familiar object

was usually sufficient to allow someone to understand that thing's purpose or end. That an object *seemed* intended to achieve some end was taken as evidence that this was so.[4]

In the scholastic picture of the world, then, common sense was basically correct. The natural world was constituted by different kinds of objects and qualities that were not reducible to other phenomena. Wind, fire, rain, the earth, a man, a horse, a flower, and so on were qualitatively different realities. They needed to be understood systematically, but a sound theoretical understanding was to build on common sense rather than undermine it.

Following from this, it was the teleological properties of things—their final causes—that provided a framework for an ethics. If something was designed in a particular way for a particular good purpose, then one had some obligation to help realize that thing's true being.[5] Roughly put, moral laws flowed from the nature of things.[6]

The heritage passed down from scholasticism, then, located the source of morality in God, and his moral laws allegedly were revealed in the essences and purposes of things. There were disagreements often enough, but nothing that led to a discrediting of the scholastic methods of inquiry.[7] The absence of widespread, fundamental disagreement about the moral law was no doubt in large part due to the power and reach of Catholic hegemony. Rome had always been able to resolve or quash disputes before they undermined the overarching system; for many centuries, Rome maintained sufficient social, political, and intellectual authority to mitigate if not prevent division. This was not to last.

Conflict and Complexity

The transition in Europe from the late medieval to the early modern period was a time of significant social, political, economic, cultural, and intellectual changes. These included a growing sense that scholasticism was no longer adequate to make sense of the world.

One of the more significant causes of this sense of inadequacy was the pressure of religious and political conflict. Through the late medieval period, Europeans generally agreed with their neighbors on basic religious principles—agreement that, again, was reinforced by the power of the Roman Catholic Church and the political apparatus of its various client states. There were signs of fissure, however, not least brought on by its own corruption, decadence, and abuse of power. The ecclesiastical reforms of John Wycliffe, Jan Hus, and Girolamo Savonarola in the fourteenth and fifteenth centuries, though unsuccessful, seeded a dissent that finally gained traction at the beginning of the sixteenth century, when an obscure Augustinian monk and scholar named Luther initiated a movement that eventually fractured the authority of the Catholic Church across Western Europe. By the middle of the sixteenth century, Europe's dozens of microstates had adopted a wide range of religious allegiances. A Catholic nobleman recognizing the authority of the pope might have nearby political rivals who were Lutheran or Calvinist, with whom he would disagree over the relative authority of the church and scripture, the holiness of ordinary life, who is qualified to interpret scripture, and other issues.

The source of the conflict was of course mixed, with motivations that were as much political as theological. But the

theological disagreements were not insignificant.[8] Differences over what God had revealed to humankind about ultimate truth proliferated and deepened, and in turn, conflict between rival political-religious states escalated into numerous European wars from the early sixteenth century through the middle of the seventeenth century. The Thirty Years War and the French Wars of Religion are well-known events, but sometimes forgotten is the bloodiness of those conflicts. Killing in God's name produced huge death tolls. Upward of 4 million people, out of a total regional population of 16 million, were killed during the thirty-seven years of the French Wars of Religion; 7 million died because of the Thirty Years War, out of a population of 20 million. In all, the wars of religion claimed between one-third and a quarter of those then living in Western Europe.[9] Few families were spared casualties. The urgency to ameliorate such gratuitous destruction was palpable. It simply could not go on.[10]

Another source of pressure was early modern capitalism and the increased trade that resulted from exploration and colonial conquest. What moral principles would underwrite international trade laws capable of governing commercial interactions with peoples from distant lands?[11] This is a different version of the problem of disagreement. After the Renaissance, state budgets swelled, regional commerce grew, international trade flourished, and international finance became more complicated.[12] These developments generated a need for just and ethical contracts to keep trade dependable and civil and tax law universally fair. Exploration only intensified such problems. When the Turks took Constantinople in 1453, the Silk Road that had given Europe access to the wares of India and the East was blocked, compelling European nations to find new trading routes by sea. Richard Tuck put the problem vividly:

> The Indian Ocean and the China Sea were an arena in which actors had to deal with one another without the overarching frameworks of common laws, customs, or religions; it was a proving ground for modern politics in general, as the states of Western Europe themselves came to terms with religious and cultural diversity. The principles that were to govern dealings of this kind had to be appropriately stripped down: there was no point in asserting to a king in Sumatra that Aristotelian moral philosophy was universally true.[13]

European states needed an ethics that could bridge both internal, religiously motivated disagreements and external differences with distant trading partners.

Yet another source of pressure was the increasing awareness of the complexity of the natural world. The exposure to peoples, cultures, flora, and fauna previously unknown to Europeans was another consequence of global exploration. The old biological taxonomies passed down for centuries from Aristotle, Pliny the Elder, and Galen were simply inadequate to account for the influx of new specimens and life forms. At the same time, new cultural encounters revealed that many moral and social practices thought universal were in fact merely European customs. Europe was confronted with strange new creatures and tales of distant lands, and Europeans became curious about what else awaited discovery.[14] Clearly, the ancients had not taken the full measure of the world's contents.

A Turning Tide

To many early modern thinkers, the pressures on scholasticism appeared ubiquitous and unyielding. The ethical theories of the

scholastics grounded morality in natural laws, which were alleged to be graspable by consideration of the essences of things—that is, by appreciating the ends to which things were made. But these essences weren't so obvious as to compel agreement on the moral laws that followed from them. Religious conflict in Europe demanded ethical systems capable of overcoming disagreement, and contemplative, academic scholasticism began to seem impractical as a foundation for a common legal culture capable of adjudicating complex and competing economic interests.[15] In short, to those concerned with the dilemmas posed by the early modern era, scholasticism seemed an inadequate resource for potential solutions.

The Promise of the New Science

The aims and methods of scholasticism also fit poorly with the aims and methods of early modern science. Here, capitalism was again a factor, as the transition out of feudal systems strengthened the connection between innovation and the exploitation of material resources.[16] Scholastic methods were oriented to fundamentally different goals. As the seventeenth-century English scientist Francis Bacon put it, the scholastics had spun out "cobwebs of learning admirable for the fineness of thread and work, but of no substance or profit."[17] What was needed from scholars was a new commitment "to use and not to ostentation."[18]

The scholastics' logic of inquiry had depended on the Aristotelian syllogism, a method that proceeded by making universal claims, often supported by quotations from prominent figures from the classical Christian tradition, and then using these universal claims as premises from which to draw particular conclusions. A well-known example illustrating the structure of these syllogisms is as follows:

1. All men are mortal.

2. Socrates is a man.

Therefore,

3. Socrates is mortal.

Bacon argued that the scholastics had the relationship between the universal and the particular exactly backward. Starting with allegedly true universal claims fails to allow for the possibility of disconfirming counterexamples. Bacon argued that we should instead begin with extensive observation, taking careful note of the entire range of possibilities. Only after this sort of data had been gathered and studied could one hope to justify a universal claim.[19]

Bacon's inductive method, rooted in careful observation, was only the starting point for the formation of a new science. Active experimentation soon followed. The genius of experimentation was that it could focus on specific hypotheses and provide repeatable tests that anyone could observe to confirm or disconfirm their truth. Its range of application seemed limitless.[20]

The invention and acceptance of new tools, such as the microscope and telescope, and new techniques of examination, such as dissection, generated an abundance of new and exciting insights into things that previously had been seen as commonplace. Among the most important of these were discoveries concerning the workings of the human body. Biologists such as Andreas Vesalius (in *De Humani Corporis Fabrica*) and Amato Lusitano (in *Curationum Medicinalium Centuriæ Septem*) delved deeply into the details of human anatomy, and much of what they found had obvious application in treating human illness.

The Scientific Revolution drew inspiration in part from a renewed interest in the thought and mores of ancient Greece and Rome. This neoclassicism grew first in Italy during the

Renaissance but would then sweep through Europe. One consequence of this renewed interest in classical thought was an increased focus on mathematics and its role in explaining nature.[21] Ancient Platonists had held that mathematics was what was most fundamental or real about the world. Galileo in Italy, Kepler in Bavaria, Boyle and Newton in England, and Gassendi in France, among many others, adopted a similar view, which led them to astonishing innovations in astronomy, physics, and chemistry—innovations rooted in precise mathematical formulation of lawful relationships between basic physical properties.[22] These successes encouraged the application of mathematics to natural phenomena, where it had never been utilized before. As Galileo put it,

> Philosophy is written in that great book which ever lies before our eyes—I mean the universe—but we cannot understand it if we do not first learn the language and grasp the symbols, in which it is written. This book is written in the mathematical language, and the symbols are triangles, circles, and other geometrical figures, without whose help it is impossible to comprehend a single word of it.[23]

The discoveries made possible by representing basic physical qualities in numerical units led to a significant shift in the conceptual resources for describing reality.

The notion that the universe was structured mathematically was akin to the idea that the universe was parsimonious or theoretically elegant. The idea of parsimony, now commonplace in science, is that theories positing fewer concepts or moving parts to explain some phenomenon are more likely to be true than

those positing more. Kepler, for instance, assuming that reality was mathematically elegant in this way, sought out and found a simpler model for celestial mechanics.

It is difficult to describe how radical a shift in perspective this was. Against the scholastic view, which held that material entities possessed animating, purposive qualities that explained their movement and behavior, René Descartes argued that the material world was inert, inanimate, lacking mental or experiential qualities, and devoid of inherent purpose. Observable reality was constituted by elements whose features were fully physical and describable in quantitative terms,[24] a claim powerfully illustrated by Gassendi's argument that all features of things could be accounted for in terms of the features of their smallest parts—the *corpuscles*—that composed them.[25] Philosophers in a Cartesian spirit distinguished the so-called primary qualities of things, including extension, solidity, motion, and the like, from their secondary qualities, which included the properties of everyday experience such as the sensory qualities of color, taste, and smell. The "real" world in which human beings live was no longer seen as a world of substances whose ultimate qualities could be directly experienced. It had become a world of atoms and particles equipped only with mathematical characteristics and moving according to laws fully expressible in mathematical form.[26] As Descartes put it, "Give me extension and motion, and I will construct the universe."[27]

No one was more important to the new science than Isaac Newton. In astonishingly simple equations, his *Principia Mathematica* captured the rules that explained the behavior of much of the physical universe. The significance of his discoveries surrounding the movement and interaction of physical objects reinforced the idea that reality was wholly constituted by matter in

The Modern Natural Lawyers of the Seventeenth Century

The expansive theology, ethics, and social structure of medieval Christianity had provided a larger plausibility structure for scholasticism for many centuries. Indeed, Christianity and scholasticism had become so intertwined that their pictures of the world were seen as more or less the same thing.[33] But by the seventeenth century, the credibility of both scholasticism and Christianity among European intellectuals was waning. To be sure, scholasticism didn't disappear overnight: it remained solidly ensconced in European universities for many years following the Scientific Revolution. But the tide had turned.

As the authority of scholasticism began to wane, so did the credibility of ethical accounts grounded in Christian theology. The idea that nature was a purposeful realm ordered by intrinsic teleological dispositions could no longer be sustained. How, after all, does one demonstrate final ends? What are the units of measurement? How does one represent teleological properties mathematically? Since the old ways of thinking about morality (or reality) no longer provided answers, the new scientific methods seemed like a plausible source for an alternative account of morality.

In the early seventeenth century, a number of important philosophers and legal theorists initiated the first self-consciously scientific approaches to morality. The main figures here were Hugo Grotius (1583–1645) and Samuel von Pufendorf (1632–1694).[34] Against the view that moral laws governing humankind were derivable from the evident natures and final ends of the created order, the early natural lawyers began with a view of nature as a nonpurposive realm of atoms on which God imposes, by an

act of will, motion and an extrinsic order of efficient causes or regularities.[35] Their task was to bring natural law into line with this concept of nature and human nature, and to do so in ways that located moral laws in those rules necessary for the existence and survival of civil society, rather than in realization of transcendent higher goods.

Grotius and Pufendorf explicitly recognized a need for a moral theory, rooted in scientific objectivity, that could create a stable political society in the face of disagreement, skepticism, and the pragmatic failure of scholastic philosophy.[36] They hoped that by insisting on observable evidence to support moral claims, they would offer a way to temper some of the most violent conflagrations of human unsociability.[37]

Grotius's solution to seemingly ubiquitous disagreement—both within Europe and between European nations and their trading partners in the East—was to identify bases for law and morality that were acceptable to all parties by virtue of their being more or less observably evident[38]—ethical claims so obvious that none could deny them.[39] His argument was rooted in two claims about humanity: that humans are prone to controversy and conflict, and that humans have a desire to live together in society. His moral ideal, then, was to find a way to limit conflict while permitting human sociability. The moral laws were whatever principles could best resolve these conflicting aims. And since we can determine that some resolutions are better than others, the moral laws are empirically discoverable.[40] Because, by Grotius's lights, we will be able to determine which proposed systems of laws best balance our desire for society with our susceptibility to conflict; the laws depend on no other source. He famously said that these laws would hold even if there were no God. This marks one of the first instances of a modern thinker

asserting that ethics could be grounded in something other than God.[41]

Grotius saw the epistemological basis for his two claims about humanity as broadly empirical—at least on similar footing as empirical study as it was then understood. "My first care," he wrote in *The Rights of War and Peace*,

> was to refer the Proofs of those Things that belong to the Law of Nature to some such certain Notions, as none can deny, without doing Violence to his Judgment. For the Principles of that Law, if you rightly consider, are manifest and self-evident, almost after the same Manner as those Things are that we perceive with our outward Senses.[42]

Grotius's moral theory thus came from a self-conscious effort to follow some of the major methodological elements of the current science, including a commitment to detailed observation, elegance in formulation of lawlike phenomena, and publicly verifiable bases for key claims.[43] What was Grotius's proposal?

> Laws . . . tell us what is or is not in accordance with the kind of society of rational beings that we all want. They do so in the first instance in a negative way. That is lawful which is not unjust; and to be unjust is simply to violate rights. (I.I.iii.1, p. 34)[44]

The key concept here was "rights," where for Grotius a right was "a moral Quality annexed to the Person, enabling him to have, or do, something justly."[45]

Implicit in Grotius's view was a realist metaethics—which is to

say, he thought that what made moral claims true was the existence of real moral properties that actually inhere within every individual.[46] The problem, of course, was that it was never clear how rights could be understood in terms of quantitatively representable physical features, or in terms of any sort of fundamental matter. In the mechanistic world-picture that was rapidly becoming scientifically and philosophically dominant, Grotius's theory had the same sorts of shortcomings as did the old Aristotelian metaphysics.

Transitional Figures

This is where the thinking of Thomas Hobbes (1588–1679) marks a departure. He too was deeply concerned by the conflict of the age. Without coming together to form a peaceable society, he believed, humankind would live in a state of nature—a war of all against all—with everyone individually vying for resources against all others. The bloody wars of religion taking place on the continent, as well as the English civil wars of religion, were grotesque manifestations of such conflict, and doubtless influenced Hobbes's perspective: indeed his great work *Leviathan* was published in the final year of the wars. In such a state, everyone is at constant risk of death. Hobbes's motivation to propose a system of morality that could avoid the perils of disagreement is clear. He had a minimalist view of ethics, viewing mere survival as the chief good for human beings.[47]

Like the other modern natural lawyers, Hobbes hoped to establish an ethics that could win the assent both of rival religious factions and of moral skeptics within a framework that would be describable in terms acceptable to the new science.[48] But if Grotius's picture of objective morality had fit uneasily with the increasingly compelling mechanistic world-picture, what sort

of moral theory would do? Here Hobbes could be seen as offering a solution.

He began by denying that morality is an inherent part of the natural world or human nature, or that there is any morality prior to humankind's crafting of laws.[49] As he put it, "For these words of Good, Evill, and Contemptible, are ever used in relation to the person that useth them: there being nothing simply and absolutely so; not any common Rule of Good and Evill, to be taken from the nature of the objects themselves."[50] Instead, the moral law is whatever human beings make it to be through consent and convention.

How then to account for the realm of the moral? Hobbes attempted to reduce all moral motivation—action toward the good and away from the bad—to the movement and interaction of material particles. His basic position was that human action toward something perceived as good can be understood as the movement of all those particles that make up a human body. The cause or impetus for each such movement can be traced back to the material interaction of particles, rather than to an immaterial will.[51] To get a sense of what Hobbes had in mind, think of an individual as being composed of tiny billiard balls. Sensation of an object consists in other billiard balls entering the body through the senses, colliding with some of those inside the body, and initiating a causal sequence of collisions. These collisions spread through the body in various ways, and if enough balls are bounced in the same direction, this constitutes the body moving in that direction. If the body moves toward the object of the sensation that started this series of events, then Hobbes counted this as desire for that object; if away, he counted it as aversion.

The next step was to provide a moral psychology that would

they do not represent an independent reality. Instead, they are "archetypes made by the mind, to rank and denominate Things by."[57] And because moral ideas are constructed by human thinkers, we can have precise knowledge of them and can clearly see what can be deduced from them. This is why Locke claimed that moral knowledge was capable of demonstration.[58] As with Hobbes, Locke's account of the moral qualities *good* and *evil* was hedonistic. In other words, he defined "good" as that which brought us pleasure and "evil" as that which brought us pain.[59] On this basis, Locke argued that the authority of morality and law came from what sorts of behaviors would bring us rewards versus which behaviors would bring us punishment. Rewards bring pleasure and therefore are good, while punishments bring pain and therefore are bad. As the Marquis de Condorcet summarized it,

> In the same manner, by analyzing the faculty of experiencing pain and pleasure, men arrived at the origin of their notions of morality, and the foundation of those general principles which form the necessary and immutable laws of justice; and consequently discovered the proper motives of conforming their conduct to those laws, which, being deduced from the nature of our feeling, may not improperly be called our moral constitution.[60]

A Coming of Age

By the eighteenth century, Europe's intellectuals were increasingly confident that humanity had matured to the point of being able to make judgments without recourse to the external authority of tradition, the church, or God. The rhetoric, of course, was

always more inflated than reality could justify. Propagandists were more common than intellectuals. But the Enlightenment was clearly gaining ideological momentum, and its accomplishments in math and science were undeniable. Again and again, the new science demonstrated that its method for systematically understanding the natural world was superior to any alternatives. Philosophy also had established itself as a powerful force independent of theology, one capable of challenging the authority and legitimacy of the old regime. This was a *siècle des lumières* in which light was expected to increasingly dispel the shadows of superstition. Enlightenment intellectuals were confident that the world and human experience were fully intelligible to natural reason and that reason alone would lead to a more humane civilization.

The philosophers in Great Britain, the *philosophes* in France, and the *Aufklärer* (enlighteners) in Germany were those who, in the words of Diderot's *Encyclopedia*, "trampl[ed] on prejudice, tradition, universal consent, authority, in a word, all that enslaves most minds, dares to think for himself, to go back and search for the clearest general principles, to admit nothing except on the testimony of his experience and his reason."[61] The tone and ambition of these intellectuals and their audiences varied from Paris to Berlin and from Edinburgh to Philadelphia, but they shared a sense that the "dread and darkness of the mind . . . require not the rays of the sun, the bright darts of day; only knowledge of nature's form dispels them."[62] The promise of emancipation from the bondage of ignorance, superstition, and error seemed ready to be fulfilled.[63]

An important shift had taken place in their understanding of the ends or purposes of morality. For ages, it was taken that the highest end of humanity was to contemplate God and to perfect

the natures of individuals, both alone and in society, in accordance with divine intention. Moral law comprised the principles that tended toward the fulfillment of these ends. But these teleological ideals had been abandoned by the new philosophy. Now the end of morality was happiness in this life, rather than union with God or perfection of a God-given telos. A worldly, secular ethics grounded in a broadly naturalistic foundation was replacing an otherworldly, theologically based ethics.

Toward this end, what religion and metaphysics had made obscure, now science must illuminate. In this spirit, the *philosophes* continued to seek new sources for moral theory, now within the ambition of a comprehensive science of man and nature.[64] In this larger endeavor, the study of morality was to proceed in much the same way as any other scientific study.

Underwriting this optimism was a philosophical naturalism, a sense that the only things that enter into explanation are empirically describable, physical things.[65] Here, as in many other arenas of thought, Locke's empiricism was taken as a guide. In an account of the growth and progress of rational thought in humankind published in 1794, Condorcet observed that Locke had "grasped the thread by which philosophy should be guided . . . that all ideas are the result of the operations of our minds upon sensations we have received." For this reason, he wrote, Locke's empiricism would soon be "adopted by all philosophers" with the hope that by applying it "*to moral science, to politics and to social economy*, they [would be] able to make almost as sure progress in these sciences as they had in the natural sciences."[66]

At least initially, Locke's ideas made the science of humanity an extension of physical science.[67] D'Alembert wrote that Locke had "reduced metaphysics to what it ought to be in fact, the experimental physics of the soul."[68]

If Locke's empiricism was the proper guide, Newton's achievement was the ideal. Following Newton, the goal of the science of man was to identify the basic features of human moral life and the laws or principles that related them, so as to permit a general explanation of moral phenomena. This research program had greater ambitions than mere understanding. Once moral scientists had achieved a Newtonian level of explanation, the predictive power and control that were becoming possible in the physical sciences would become available in the moral sciences as well. This would make possible a universal practical science that would transform law and politics.[69]

CHAPTER 3

Three Schools of Enlightenment Thinking

And One Lingering and Deeply Disturbing Worry

And so it was that the Enlightenment spawned optimism about the power of human reason to systematically comprehend the natural world and serve as an authoritative guide to the practical realities of human affairs. By the eighteenth century, this optimism extended fully and explicitly to the ideal of building a moral science of humanity and, in this, a scientific foundation for morality itself.

Over the next two centuries, important differences would emerge in the strategies for building a scientific basis for morality. The differences concerned the specific way each strategy attempted to connect the moral realm with the empirical realm. The three most influential strategies were sentimentalism, utilitarianism, and evolutionary ethics.

- *Sentimentalism* identifies basic moral phenomena—good, bad, right, wrong, etc.—with feelings or sentiments, rather than with things or actions themselves.
- *Utilitarianism* begins with Hobbes's and Locke's understanding of good and bad in terms of pleasure, and adds

providing the proper description of the relevant natural phenomena and then finding the most general principles that account for them."[7]

Perhaps the two most prominent features of Hume's philosophical work are his naturalism and his skepticism.[8] His naturalism can be seen in his radical attempt to rely only on empirical knowledge, rather than on appeals to reason or metaphysical intuition. His skepticism follows. How? In Hume's view, all of our knowledge comes from perception. "Nothing is ever present to the mind but its perceptions; and that all the actions of seeing, hearing, judging, loving, hating, and thinking, fall under this denomination."[9] For Hume, we don't have any immediate experiential contact with reality—all we have are our perceptions of reality. Perception, then, mediates reality for us.[10] True empiricism, for Hume, meant that we can know only our perceptions, not the actual objects the perceptions purport to be about.[11]

The skeptical turn in Hume's empiricism had important consequences for the evolving understanding of morality.[12] Consider the contrast between Shaftesbury and Hume. For Shaftesbury, there was an objective—that is, mind-independent—order of value that could be comprehended through reason. In his view, that logic was teleological. The goodness of an action or event or phenomenon was that which contributed to the well-being of the whole of which it was a part. In this light, moral sensibilities—the human predilection to evaluate and judge things morally—reflected and gave expression to that moral order. Hume's empiricism, by contrast, led him to conclude that moral evaluation simply expressed a person's feelings and attitudes with respect to a person or situation. Such sentiments were the sum and substance of moral life, and they could never be connected to any objective, mind-independent moral order.[13]

So how does moral evaluation actually come about? According to Hume, reason is necessary for understanding the facts of a situation or dilemma and for tracing out the potential consequences of a course of action. Yet reason by itself cannot determine what is virtuous or vicious; in fact, no moral conclusions could ever be inferred by factual premises alone. This is "Hume's Law": no ought from is. Nor, he argued, could reason move us to moral action in the way that sentiment could. As he famously put it, reason is the "slave to the passions," beholden to such sentiments as fear, desire, repugnance, hope, joy, love, hate, and the like. "To have the sense of virtue," he wrote, "is nothing but to feel a satisfaction of a particular kind from the contemplation of a character."[14] Thus,

> when you pronounce any action of character to be vicious, you mean nothing, but that from the constitution of your nature you have a feeling or sentiment of blame from the contemplation of it.[15]

And:

> An action, or sentiment, or character is virtuous or vicious; why? Because its view causes a pleasure or uneasiness of a particular kind. In giving a reason, therefore, for the pleasure or uneasiness, we sufficiently explain the vice or virtue.[16]
>
> [These] moral distinctions depend entirely on certain peculiar sentiments of pain and pleasure.[17]

In short, good and evil are not unlike heat and cold. We don't have knowledge of them except through certain feelings. We come to understand the moral good by experiencing the pleasure

of social approval, and we understand evil by experiencing the uneasiness and pain of disapproval. Our experience can be physical or psychological and direct or indirect, as in the emotion we imagine experiencing when we contemplate a person, a situation, or an action. A trait gives rise to approval when it is immediately agreeable to the person who has it or to others, or is beneficial to its possessor or to others. Our understanding of virtue and vice, then, turns on our emotional response to an action, situation, or character. What, then, does morality allow and what does it condemn? This is now an empirical question: when we learn what people morally approve and disapprove of, then we find the claims of morality.[18]

On the face of it, this would seem to lead to a facile relativism, for people clearly differ in what they approve and disapprove of. But Hume downplayed both moral error and moral disagreement. Humanity, he argued, is united by a shared disposition among individuals to agree in their sentiments of approval and disapproval. This disposition or ability to agree he calls "sympathy." Consider, he asked,

> the nature and force of *sympathy*. The minds of all men are similar in their feelings and operations; nor can any one be actuated by any affection, of which all others are not, in some degree, susceptible. As in strings equally wound up, the motion of one communicates itself to the rest; so all the affections readily pass from one person to another, and beget correspondent movements in every creature.[19]

Through both our resemblance to others and our proximity to others, sentiments are sympathetically communicated and shared. This varies, of course; the more we resemble others and

the closer we are in proximity, the greater the sympathy. The converse is also true. In the end, however, no one forms moral judgments in isolation but rather in an interaction with others as we sympathize with the effects of certain persons or actions on those around us. We are all mutually influenced by the moral evaluations of others. This is how a common moral understanding comes into being.

Over time and through continual and extended social intercourse, human societies develop complex moral systems. Hume divided the virtues (and thus vices) into two types. "Natural" virtues were not dependent upon a formal society but arose organically and cooperatively within small associations. These included benevolence (by which he understood generosity, humanity, compassion, gratitude, friendship, fidelity, zeal, disinterestedness, and liberality), greatness of mind ("a hearty pride, or self-esteem, if well-concealed and well-founded"), and such natural abilities as wit, prudence, eloquence, and good humor. Beyond these were artificial virtues, which arose in impersonal circumstances that find expression in the conventions that make cooperation toward the common good possible. These included honesty with respect to property (or equity), fidelity to promises, allegiance to one's government, conformity to the laws of nations (for political leaders), modesty and chastity (for women), and good manners. "All these are mere human contrivances for the interest of society."[20]

Though this account of morality provided a naturalistic analysis of its nature and components, Hume's subsequent influence took a circuitous path. But in his own time, his account of justice crucially shaped Adam Smith's new theory of the foundations of jurisprudence[21] and his account of morality in terms of human

pleasure and pain inspired Jeremy Bentham (1748–1832) to craft the paradigm version of utilitarianism.

Utilitarianism

When Hume observed that "moral distinctions depend entirely on certain peculiar sentiments of pain and pleasure," he gave a rather large role to the pleasure and pain that moral agents feel when considering the character traits of others. These reactive feelings, he thought, revealed what human morality was really oriented around: virtuous and vicious character traits.

Bentham, too, wanted a science of morality, but while he took inspiration from Hume,[22] what he gathered from the text was not what Hume had left there. Bentham said of Hume's *Treatise* that "the foundations of all virtue are laid in utility, is there documented," and that "no sooner had I read that part of the work which touches on this subject, than I felt as if scales had fallen from my eyes."[23] Although humans might habitually judge good and bad in terms of character traits, Bentham thought this practice wasn't defensible. Instead, he reasoned that morality ought to be based on the pleasurable and painful consequences of actions, and little else.

Thus, Bentham sought to do away with Hume's trait-focused approach. But in making what ought to be done solely about what brings about pleasure and prevents pain, he also sought to do away with an even older understanding: that some things were prohibited or compulsory regardless of how much pleasure might result or pain avoided by doing otherwise. For instance, in the old scholastic view, the nature of human beings was thought to reveal *natural moral laws*—that they must be treated in certain ways—and on a Grotian picture, it might be that human rights set

these sources, he wrote, "Morals is what a gentleman pleases. Every man dreams he understands morality and wishes not to be awakened."[31]

Bentham took from Hume the centrality of utility in morality, but unlike Hume, he said, "I see not . . . what need there was for the exceptions." Claiming to see in human moral behavior nothing more than responsiveness to pleasure and pain, he devoted considerable effort to a comprehensive analysis of the language of metaphysics and believed he had reduced all important terms either to fictions or to underlying physical phenomena.[32] On these grounds, Bentham was convinced that moral properties—goodness, obligation, rights—were reducible to utility; to terms amenable to scientific study.[33] Through this reduction, he believed that it was possible to provide a more precise classification and quantification of the basic moral feelings[34]—hence Bentham's *felicific calculus*: the classification of kinds of pleasures and pains, and the quantification of their values. He thought that the value of a given pleasure or pain would vary with its intensity, duration, certainty, and proximity, and with respect to whether the experience of it was followed by more of the same kind. In this way, moral theory, which had been a subjective and contestable enterprise for centuries, could now admit of objective, empirical standards.[35]

Ultimately, Bentham found the notion of a *principle of association* useful for explaining how feelings of simple pleasures could be united into a sum that constitutes human happiness.[36] Pioneered by Hume and other earlier Enlightenment thinkers, *associationism* was a psychological view of how ideas related and produced new ideas. Just as Newton had explained mechanics purely in terms of physical objects and their physical properties, without appeal to supernatural or agential influence, so too the associationists hoped to explain thought purely in terms of

ideas, their properties, and their relations to each other. Bentham needed to be able to claim that feelings of pleasure across many individuals would converge. If one person's feelings of pleasure differ too much from those of another, it becomes hard to plausibly maintain that the right thing for each person to do is that which promotes the most overall happiness. Why should I do what promotes others' happiness if it doesn't promote my own happiness as well? Bentham's solution was to draw on observations made by earlier moral scientists. Hartley had said that "association tends to make us all ultimately similar; so that if one be happy, all must."[37] Again drawing on Hume's pioneering work in moral psychology, Bentham and his followers saw *sympathy* as the mechanism by which humanity could be united in the object of its happiness. Sympathy was taken to be a naturally occurring and universally present feature of humanity whereby each individual can share standards of pleasure and pain.[38] Because of the sympathy that each human bears to the others, it is supposed to become plausible that what makes each one happy aligns with what makes all happy.

Further Developments in Mill and Sidgwick

Around the beginning of the nineteenth century, the early utilitarianisms of Bentham and others came under severe criticism. One major criticism was that utilitarianism offered an impoverished conception of human pleasures and values. Bentham analyzed pleasure into just two basic components: duration and intensity. As a result, he thought we could easily compare pleasures and pains against each other so as to determine which pleasures were the most worth pursuing. Whichever pleasure was most intense and lasted the longest was the best. By reducing value in this way, Bentham came to think that the simple child's game of push-pin

was equal in value to music and poetry, so long as the intensity and duration of pleasure brought by both are the same.[39] Philosophers objected that this conception obscured many significant distinctions between pleasures that transcended mere intensity and duration. Thomas Carlyle, for example, called Bentham's utilitarianism "pig-philosophy," since it seemed to place human experience on a par with those of any creature capable of experiencing pleasure.[40] Bentham, it seemed, had failed to provide an adequate definition of morality.

John Stuart Mill (1806–1873) proposed a new version of utilitarianism designed to weather these criticisms. Like others of his time, Mill thought the only way to determine what happiness consisted of was through scientific investigation, so he did not attempt to intuit basic moral principles apart from experience. Instead, he began with what he took to be the most essential tenets of commonsense morality and inductively derived the principle of utility as the law on which they must ultimately rest. Mill put the principle of utility like this:

> The creed which accepts as the foundations of morals "utility" or the "greatest happiness principle" holds that actions are right in proportion as they tend to promote happiness; wrong as they tend to produce the reverse of happiness. By happiness is intended pleasure and the absence of pain; by unhappiness, pain and the privation of pleasure.[41]

His argument or "proof" of this principle proceeded roughly as follows. The only proof of a thing's desirability is that it is desired. Everyone desires happiness—and *only* happiness—for its own sake (anything else that is desired is desired as a means to happiness).

Since everyone desires happiness for its own sake, happiness for its own sake is all and only what is desirable for humanity in general. So, since happiness is all that is worth desiring, it only makes sense to evaluate actions in proportion to how much or little they realize happiness.

Mill claimed that the only way to determine which pleasures were better than others was by figuring out which pleasures were preferred by most people who had tried all of the pleasures in question. These sorts of appeals to actual human preference would show that people tend to prefer the higher pleasures—those that require greater use of distinctively human capacities. The empirical evidence, he wrote, showed that music and poetry were of greater value than push-pin.

Reinforcing the broader utilitarian account of morality in the spirit of scientific inquiry was Henry Sidgwick (1839–1900). In his book *The Methods of Ethics* (1874), Sidgwick set out to "discuss the considerations which should . . . be decisive in determining the adoption of ethical first principles."[42] He sought a "rational procedure by which we determine what individual human beings 'ought'—or what it is 'right' for them—to do."[43] His method of inquiry was intentionally designed to resemble scientific inquiry in certain broad, structural respects. For instance, he took the commonsense moral views of nineteenth-century Britain—on which there was broad agreement—to constitute data for a theory.[44] Similarly, he sought to systematize ethics, much as scientists had systematized certain empirical domains of study.[45]

At the same time, however, Sidgwick introduced doubt about the empirical basis for ethics, ultimately arguing that utilitarianism required *nonempirical,* intuitive justifications for its basic claim.[46] While not strictly scientific, this claim was still purportedly objective and thus better able to provide a more decisive res-

olution to ethical problems than the Christian popular ethics of earlier generations.

Evolutionary Ethics

While the Enlightenment was waning at the end of the eighteenth century, its intellectual ambitions certainly didn't end with it. The explosion of scientific knowledge, the astounding advances in industry and technology, and the growth in the power and reach of the British Empire set against a backdrop of confidence in the trajectory of human progress all made fertile ground for bold new theories of human understanding. To this point, one of the shortcomings of the Enlightenment quest to formulate a scientific foundation for morality was the failure to explain *why* we have the moral thoughts and feelings that we do. But evolutionary theories of species development would permit deeper scientific explanations. This was part of the promise of Charles Darwin's (1809–1882) groundbreaking works, *The Origin of the Species* (1859), *The Descent of Man* (1871), and *The Expressions of the Emotions in Man and Animals* (1872).

Darwin's extensive observations as a naturalist and his systematic account of the evolutionary development of all living things in a theory of natural selection depicted humans as part of the same order as all other life. Humankind, long held to be categorically unique and distinct from the broader animal kingdom, could now be seen as continuous with it. Human attributes and behavior should therefore admit of the same sort of natural explanation as the attributes of any other species. Morality was no exception. Like any other biological capacity or behavior, human morality must be somehow explicable as an adaptation to environmental conditions.[47] This was the promise.

Stephen, noting that any society's survival was partly dependent on its observance of rules of conduct and interaction, argued that Darwinian evolutionary theory could provide justification for the accepted and dominant morality. He thought that these rules were the bulk of morality, that "morality is the sum of the preservative instincts of a society."[59] But why, he asked, should individuals work together for the common good?[60] He didn't think Darwinian theory offered any contribution to ethics that would result in revision to the accepted morality. Instead, its value lay in explaining the origin, development, and value of humanity's moral sense.[61]

Unlike the moral scientists of the Enlightenment, Herbert Spencer was not content merely to provide a theory of our moral feelings and thoughts or an account of how moral sentiments motivate us. Spencer, deeply embedded in Victorian social mores, also wanted to use evolutionary theory to justify the existing morality—to explain why it is that human moral principles and judgments were true.[62] Evolution, for Spencer, provided an account of humanity's slow development from savagery to its height in Victorian civilization.

Spencer's writings on social evolution owed more to Malthus and Lamarck than to Darwin. Indeed, his earliest work on the subject predated *On the Origin of Species* by seven years. Spencer and Darwin admired each other's work and corresponded throughout their adult lives. Not incidentally, Spencer was also a close friend of Thomas Huxley and John Stuart Mill. In his view, the study of society and its morality could become scientific only when it was based on the idea of natural evolutionary law. Indeed, change in all aspects of the universe was subject to the laws of evolution, and though there were limitations, social evolution was roughly analogous to biological evolution: it moved from simple

to complex, from undifferentiated to differentiated, in response to the natural and social environment.

Spencer's ethical theory was intensely individualistic and utilitarian. As a utilitarian, he viewed happiness as the highest moral ideal. Yet as it did for Mill, liberty provided the conditions for optimal happiness. Behavior "restrained within the required limits, calling out no antagonistic passions, favors harmonious cooperation, profits the group, and, by implication, profits the average of individuals." In short, wherever freedom as a precept of justice is extolled and practiced, humans thrive.

As to the "science of right conduct,"

> I conceive it to be the business of moral science to deduce, from the laws of life and the conditions of existence, what kinds of action necessarily tend to produce happiness, and what kinds to produce unhappiness. Having done this, its deductions are to be recognized as laws of conduct; and are to be conformed to irrespective of a direct estimation of happiness or misery.[63]

This perspective made him hostile to the socialism of his day—and to any government intervention in human affairs beyond protection from foreign adversaries. Such interventions interfere with the natural evolutionary process.

Edward Westermarck came a generation after Spencer, but in the same tradition. By the early twentieth century, anthropology and sociology had begun to reject the linear and progressive evolutionary ideas of societal development featured in the cruder versions of social Darwinism. Westermarck was an exception. Influenced by Adam Smith, he spent much of his life doing fieldwork searching for universal human moral sentiments. He wanted

to map the human variability in these sentiments, which he did by distinguishing between a culture's explicit moral practices and the general moral principles and emotions that underlay them.[64]

For Westermarck, whether a given action was right or wrong was relative to the culture practicing it. Variation in environmental factors and nonmoral beliefs explained how the same universal human moral emotions could lead to widely diverse behaviors.[65] By showing that a practice most people in Western cultures would find abhorrent (such as patricide) can be rooted in shared moral emotions (respect and care for one's parents), Westermarck pointed toward an appreciation of the diversity of human moral practices that was still linked to common evolutionary origins, and that created room for underlying objective moral truths.[66]

Enduring Problems

By the beginning of the twentieth century, interest in evolutionary ethics had begun to decline, for several reasons. First, evolutionary theory was in turmoil because it lacked a mechanism to explain evolutionary development. Darwin's own proposal, natural selection, had not yet won the day, and it wasn't clear that it would do so. With central components of evolutionary theory in question, people understandably paid less attention to its implications for ethics during this time. Second, various academic disciplines began to fragment through specialization, making it less likely that biologists studying evolution would engage in philosophical theorizing about the relation of evolution to ethics.[67] Third, belief in the inevitability of human progress underwent a sea change. Nineteenth-century accounts of evolutionary ethics often had a strong progressive bias. But the staggering human

causalities of the first world war, made possible by technological progress, made this sort of optimism about human ethical development much more difficult.[68]

There were philosophical reasons as well.

One was that it wasn't clear how some crucial aspects of morality could have developed through the evolutionary process. For instance, as Alfred Russel Wallace argued in 1870, "It is difficult to conceive that such an intense and mystical feeling of right and wrong (so intense as to overcome all ideas of personal advantage or utility), could have been developed out of accumulated ancestral experiences of utility."[69] St. George Mivart, a prominent English biologist, similarly argued that while it was possible to give evolutionary accounts of how animals came to behave in ways that are pleasurable, valuable, or conducive to the thriving of their species, such behavior, to count as genuinely moral, would additionally have to be done with the intention of doing what is right *because* it is right. Evolutionary explanations, he argued, could offer no way of explaining how the additional element of moral intention came to accompany mere instincts toward pleasurable or fitness-enhancing action.[70] In 1905, Theodore de Laguna claimed that evolutionary ethicists "committed the dangerous error of conceiving the significance of morality as exhausted in its material conditions . . . confusing the external limits of morality with its inner content."[71]

Another objection concerned the autonomy of ethics. Sidgwick spoke for many when he wrote that "the investigation of the historical antecedents of [moral] cognition, and of its relation to other elements of the mind, no more properly belongs to Ethics than the corresponding questions as to the cognition of Space belong to Geometry."[72] T. H. Huxley drew much the same conclusion in 1893, writing that "evolution may teach us how the good

and the evil tendencies of man may have come about; but, in itself, it is incompetent to furnish any better reason why what we call good is preferable to what we call evil than we had before."[73]

Critics continued to pile on. Finally, in 1903, G. E. Moore famously argued that evolutionary ethical theories committed what he called the "Naturalistic Fallacy."[74] The Naturalistic Fallacy is taking or positing some naturalistic property—a property studied by the natural sciences—to be the meaning of the term "good." According to Moore, many forms of evolutionary ethics took the meaning of "good" to be some naturalistic property, such as "highly evolved" in Spencer's case. This was a fallacy, Moore claimed, because even if the naturalistic property in question happened to coincide with goodness—if, say, all and only those things that were highly evolved happened also to be those things that were good—nevertheless, that doesn't show that the *meaning* of "goodness" *is* the naturalistic property. The coincidence of the terms may be just that—a coincidence.

Moore supported his diagnosis with what is called the "Open Question Argument." This argument aims to show that any analysis of goodness in terms or ideas other than goodness itself will be open to a certain sort of doubtful question, which then shows that the analysis has failed. To see what Moore had in mind, let's consider again the example from Spencer—the claim that "good" means something like "highly evolved." This analysis is open to the question "But is it good to be highly evolved?" The question is significant. But if the analysis were correct, questioning it in this way wouldn't make sense. Consider, for instance, this correct analysis: a vixen is a female fox. It is pointless to ask, "But is a female fox a vixen?" Such a question seems obtuse, since the statement "a female fox is a vixen" is unquestionably true. Any *correct* analysis of a concept, Moore argued, isn't open to this sort

dom came with the corollary that animal behavior could offer insights into human behavior. This eased the transition toward an exclusively empirical approach to psychology, since mental phenomena were unobtainable in animal studies, and these studies produced important truths about animal behavior—perhaps most notably, the groundbreaking experiments by Pavlov and others demonstrating the role of conditioning.[78]

John Watson took the empiricist sentiment in psychology to its limit. In a polarizing speech at Columbia University in 1913, which founded behaviorism as a unified research program, he argued that if psychology would be a legitimate science in the tradition of Newton's physics, it must jettison all talk and concern for the alleged constituents of inner mental life—thoughts, feelings, will, consciousness—and focus strictly on external behavior. Only external behavior could be observed and therefore studied with rigorous empirical experiments:

> I believe we can write a psychology, define it as [the science of behavior], and never go back upon our definition: never use the terms consciousness, mental states, mind, content, introspectively verifiable, imagery, and the like. . . . Psychology, as the behaviorist views it, is a purely objective, experimental branch of natural science which needs introspection as little as do the sciences of chemistry and physics. . . . It can dispense with consciousness in a psychological sense.[79]

The rise of behaviorism suppressed research into the relevance of evolution for psychology. The rationale was this: Just before the rise of behaviorism, the apparent relevance of evolution for psychology consisted in evolution's role in explaining the presence