THE UNIVERSITY OF CHICAGO

VOLUNTEERING AWAY HUMANITY: A PRAGMATIST CRITIQUE OF SCIENTISM

A DISSERTATION SUBMITTED TO
THE FACULTY OF THE DIVISION OF THE SOCIAL SCIENCES
IN CANDIDACY FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

COMMITTEE ON CONCEPTUAL AND HISTORICAL STUDIES OF SCIENCE

BY
PARYSA CLARE MOSTAJIR

CHICAGO, ILLINOIS
AUGUST 2020

To my father,

my first philosophy teacher

TABLE OF CONTENTS

ACKNOWLEDGMENTS

I am extremely grateful to the members of my advisory committee, Professors Robert Richards, Anubav Vasudevan, Michael Rossi, and Philip Kitcher, each of whom has been generous with their valuable time and insights. Thank you, Bob, for being a constant source of encouragement and care in both professional and personal matters. Thank you, Anubav, for introducing me to pragmatism and helping me, through several long conversations, to form a strong and consistent understanding of its many implications. Thank you, Michael, for lessons in how to construct a historical argument in the context of a dissertation in philosophy. And thank you, Philip, for your generosity in mentoring me as an unknown visiting student at Columbia University, and for your patience in sustaining your intellectual support after I left.

It would be difficult for me to concisely explain how much the Fishbein Center has enriched my life. As well as the copious financial support and opportunities for professional development it has given me, it has also provided me with an emotionally supportive community. I have never once doubted that the members of my department were invested in my overall well-being and success, which has made the inevitable trials and tribulations of graduate school so much easier on me.

On that note, thank you to Beth Calderon, Adrian Johns, Alison Winter, and again Bob Richards and Michael Rossi, for your efforts in making our department feel like a home (and even, at times, inviting its members into your own homes). The positive, inclusive, and compassionate climate of our intellectual community is a privilege not afforded many people in academic environments. I have felt recognized and acknowledged as a complete and complex person with intrinsic value, which has been an immense source of happiness and security for me.

Thank you to faculty, staff, and fellow students at the Stevanovich Institute on the Formation of Knowledge for my stimulating time there as as a graduate fellow, and to faculty and fellow students at the Philosophy Department at Columbia University, especially

Professors Philip Kitcher and Lydia Goehr, for my enlivening time there as a visiting scholar. Thank you to faculty and fellow students in the Sociology Department at the University of Chicago, especially Professors John Levi Martin and Andreas Glaeser, for helping me explore your important field of study. Thank you to the excellent students in the undergraduate program in History, Philosophy, and Social Studies of Science at the University of Chicago for engaging and illuminating my research interests in our classes together.

Thank you to Bill Sterner, Margot Browning, Ashley Clark, Shana Crandell, Alex Ensign, Jessica Velasquez, Carmine Grimaldi, Amelia Parker, Josh Mendelsohn, Aidan Sigman, Maryam Sabbaghi, my fellow students in the Fishbein Center, and my many housemates at Concord House, for your friendship and for countless conversations about history, philosophy, politics, science, art, and the academy. Particular thanks are due to Bill Sterner and Margot Browning for our wonderful Friday reading groups, in which you taught me so many of the ideas I've written down here.

Thank you, Nima, for taking such good care of me.

ABSTRACT

This dissertation draws on the work of John Dewey and other pragmatists to construct an extended critique of scientism. Rather than focusing on the legitimacy of non-scientific knowledge, it questions the ontological premises which provide the foundation for scientistic claims of the superior value and adequacy of scientific inquiry over other forms of knowledge and non-cognitive practices. By arguing that nature and experience are continuous, the dissertation argues that the qualities of experience which scientism usually considers to be distorting importations of experience—such as volitional, moral, emotional, and aesthetic qualities—are equally real qualities of the objects of nature. Science is not therefore a means of separating the real qualities of nature from the distortions of human experience.

The dissertation goes on to provide a positive picture of science as a method of selectively emphasizing the specific qualities of nature which are amenable to manipulation and control, so as to secure more favorable conditions for human life. However, just as science is an important practical tool for creating improvements in human environments, there are multiple distinct practical tools for enriching human life which take very different forms. Aesthetic media serve as examples of such practices. Later chapters show that aesthetic works of art, by virtue of their particular capacities for negotiating and manipulating elements of experienced qualities, can make important improvements in human social, political, moral, emotional, and conceptual environments. By showing the important influences of art and literature, the dissertation argues that scientistic claims of the superior or exclusive value of scientific knowledge are misguided, and that equally important practices of human enrichment can take very different forms.

CHAPTER 1

RE-INTERPRETING SCIENTISM

> SCIENTISM. *Chiefly depreciative.* The belief that only knowledge obtained from scientific research is valid, and that notions or beliefs deriving from other sources, such as religion, should be discounted; extreme or excessive faith in science or scientists. Also: the view that the methodology used in the natural and physical sciences can be applied to other disciplines, such as philosophy and the social sciences. Cf. POSITIVISM.

Critiquing scientism is a complex task. Unlike many other topics of contention, scientism is not confined to specific academic disciplines or areas of public life, but manifests in varying forms across the humanities, social sciences, natural sciences, non-academic literary publics, and public policy (Boudry and Pigliucci, 2017; Stenmark, 2001; Bannister, 1987; Hayek, 1952; Olson, 2008; Hyslop-Margison and Naseem, 2007; Wieseltier, 2013; Pinker, 2013). Neither can it be determinately located in time. Some theorists claim that scientism's recognizable manifestations are limited to the twentieth and twenty-first centuries, others place scientism's beginnings in nineteenth-century Europe, while others still have extended their analysis of scientism's central components back into the early modern and even the medieval period (Canales, 2015; Sorell, 1991; Olson, 2008; Bannister, 1987; Hayek, 1952; Dewey, 1972; Wellmuth, 1991). Scientism is usually considered a result of distinctly European social thought, but it has a strong presence at points in the political histories of India, Brazil, and other non-European countries (Hayek, 1952; Olson, 2008; Sorell, 1991).

Since this dissertation is a conscious philosophical response to scientism, this chapter will introduce what it takes to be its most significant structuring components. There are multiple questions we could ask in order to arrive at an understanding of scientism adequate to begin a criticism of it. Firstly, what is scientism? How have people characterized the claims, attitudes, and beliefs that are central to a scientistic worldview? Is it uniformly understood

as a negative phenomenon, or do some scholars defend it? Secondly, where can we see examples of scientism occurring? In which disciplines, debates, and bodies of literature does it appear? Finally, what is the history of scientism? Which individuals, societies, and periods accepted or employed its central ideas and perspectives? How did these ideas travel and change through time and space, and what can we learn from the similarities and differences across manifestations? Although this discussion will necessarily be briefer than these questions merit, I hope to produce a reasonably clear and stable understanding of the phenomenon of scientism and its perceived problems, before moving onto my critique.

Another intention of this chapter is to present my own understanding of scientism and its problems, which will diverge somewhat from many of the views and treatments of scientism presented in the prior exposition. Many scholars focus on scientistic claims concerning the (il)legitimacy of scientific and non-scientific *knowledge*. This is for good reason: most of the historical instantiations of scientistic arguments and suggestions revolve around what they take to constitute reliable methods for acquiring accurate representative knowledge of nature, reality, or the world. However, when discussing *knowledge about nature (or reality, or the world)*, two other questions arise in addition to what constitutes knowledge: First, what constitutes *nature*? And second, what constitutes *experience*? In debates about scientism, these three factors—knowledge, nature, and experience—are inextricable, constituting both epistemological and ontological components of a worldview that is more complex than some of its proponents may have realized. In present and historical discussions about whether any legitimate methods of knowledge-acquisition exist beyond science, and why scientific methods are (or are not) exclusively able to provide knowledge about nature, there are several assumptions, largely hidden, about the thing—nature, reality, or the world—we are extracting knowledge *of*, and the thing—experience or mind—that is doing the extracting. These assumptions, as I will show, concern the posited relationship between experience and nature (or the mind and the world, or consciousness and reality). The relationship between experience and nature, and the features of its two components, have been thoroughly de-

constructed over the course of the last century and a half by pragmatist philosophers, who have tended to indicate a widespread and centuries-old problem with philosophical characterizations of experience and nature as the source of multiple misunderstandings concerning knowledge—characterizations which, by virtue of their historical depth, are also the ideas "in which Western civilization has been bred" (Dewey, 1972, p. 4). In this chapter, I will recast the problem of scientism as rooted not just in the issue of legitimate forms and methods of *knowledge*, but in a deeper philosophical problem of the ontological status of experience, mind, and their qualities, particularly in their relationship with nature. This will establish a philosophical basis upon which to undertake my subsequent critique of scientism. Throughout this work, I will employ the insights of pragmatist philosophy, and especially those of John Dewey.

1.1 What is Scientism?

The Oxford English Dictionary—quoted in the epigraph to this chapter—suggests a few things about scientism: Today, it is generally negatively considered; it involves a rejection of non-scientific sources of knowledge; it involves the extension of scientific methods to other academic disciplines; it involves excessive faith in science and scientists; and it has some significant relation to positivism.[1] Although there is no single definition of scientism upon which scholars agree, scholarly treatments of scientism largely echo the dictionary's characterization. In terms of valence, while a minority of those writing consciously about scientism can be found "sporting the term *scientism* as a badge of honor" (Boudry and Pigliucci, 2017, p. 6; see also Pinker, 2013; Rosenberg, 2011; Ross, 2017), the majority take scientism as a stance to be avoided. In the introduction to their anthology on scientism, Maarten Boudry and Massimo Pigliucci include in their definition of scientism "the thesis that all ways of acquiring knowledge and understanding are (or should be) scientific," "the

1. Two varieties of positivism, one from the nineteenth and another from the twentieth century, will be discussed later in this chapter, as will their links with scientism.

conviction that the methods of science are the only worthwhile modes of inquiry, and will eventually supplant all others," and "an excessive deference toward the deliverances of science and anything to which the honorific label *scientific* is attached" (Boudry and Pigliucci, 2017, p. 2). Tom Sorell includes in his definition the broad claim that "there are no limits to science" (Sorell, 1991, p. 4). Stenmark includes in his definition the claims that "the only kind of knowledge we can have is scientific knowledge" and that "science alone can answer our moral questions and replace traditional ethics" (Stenmark, 2001, p. x). All this points to the tendency in scientistic worldviews toward an exclusive recognition of scientific knowledge, an attempt or desire to expand scientific methods to other knowledge-practices which are traditionally separate, and an excessive faith or deference to science.

But characterizations of scientism extend beyond the definition found in the dictionary. In philosophical characterizations especially, one finds included the claim that "science is unified" (Sorell, 1991, p. 4), and the belief in progress towards a scientific "Theory of Everything" (Boudry and Pigliucci, 2017, p. 2). This indicates a relationship between scientism and forms of positivism, which are discussed below. There are also questions of science's relative value in terms of benefits to society and humankind. Scientism includes the claims that "science is the most valuable part of human learning" in virtue of its benefits to humanity, enabling people to "get the better of undesired effects and produce desirable ones," and that in comparison "the non-scientific is of negligible value" (Sorell, 1991, pp. 7–9). There is, in addition to epistemological and valuative claims, an important ontological claim of scientism that "the only things that exist are the ones science has access to" (Stenmark, 2001, p. x), which will be discussed at length in this work. This suggests that, while discussions of scientism are largely framed around the issue of legitimate knowledge and methods for developing knowledge, there are additional non-negligable claims of scientism that include beliefs in the superior worth of scientific practices and in the one-to-one relationship between scientific knowledge and what we can call 'real.'

1.2 Where Do We Find Scientism?

The most obvious place to find manifestations of scientism is in scientific research programs, one prominent example being sociobiology. Sociobiologist E. O. Wilson has described sociobiology as "the systematic study of the biological basis of all social behavior," including human phenomena as varied and complex as politics, art, morality, and religion (2000, p. 4). Demonstrating multiple scientistic perspectives, including beliefs in the unity of scientific knowledge and the eventual replacement of other practices and forms of knowledge with scientific methods and understandings, Wilson has claimed that "sociology and the other social sciences, as well as the humanities, are the last branches of biology waiting to be included in the Modern Synthesis" (ibid., p. 4). More surprisingly, Wilson encourages a evolutionary-scientific approach to the study of ethics, to correct the fact that "the study of ethics has advanced so little since the nineteenth century" (1998, p. 254). There is a scientistic implication that evolutionary biology "can be not merely a source of facts but also a source of norms as it can replace traditional ethics" (Stenmark, 2001, p. 35). Similar examples of scientistic attempts to replace the methods of other disciplines like philosophy and the humanities, in order to more adequately answer their questions and make progress on their problems, include: neuro-scientific explanations of human emotions, aesthetic values, and moral values (which will be covered in depth in the next chapter); physical scientific appeals to "the accretion of matter" and "the big bang" as solutions to metaphysical questions like, "Why is there something rather than nothing?" (Ruse, 2017, pp. 255–56; Haack, 2009, p. 19); arguments that science can demonstrate the purposes (or purposelessness) of life or nature; and evolutionary or neuroscientific explanations of religious and spiritual beliefs (Stenmark, 2001, Chapters 5 & 6).

Scientism is not only found in scientific research programs attempting to answer philosophical questions or replace humanistic inquiry. It is also found in philosophical research seeking to redefine its own work in scientific terms. One example is the argument that folk psychology and common sense psychological concepts in the philosophy of mind ought to

be replaced by neuro-scientific categories of the brain (see Churchland, 2016). This means that our intuitive understandings of our own and other people's behavior in terms of "beliefs, desires, perceptions, expectations, goals, sensations and so forth" are not adequate for undertaking philosophical research or providing adequate explanations of behavior (ibid., p. 299). Churchland's argument for this claim is that "the generalizations of folk psychology are imprecise, often unsubtle and oversimple," and therefore "too low in explanatory power and too much at odds with empirical evidence to be worth retaining by philosophers as a theory of the mind" (Sorell, 1991, pp. 140, 142).

Scientism also characterizes the central practices and assumptions of some social sciences which take "the nonobvious and truly general explanation in terms of abstract concepts" as "the definition of brilliant theorizing" (Martin, 2011, p. 8). As well as prioritizing abstraction and generality, such approaches reject explanations that conform to first-person understandings of the actions they seek to explain (what Churchland might call folk-psychological explanations), and look instead for accounts "removed from the self-conceptions of actors," presenting the latter as "helpless puppets of large-scale systems" (ibid., pp. 6, 16). We therefore find sociologists answering the question, "Why does Monsieur Rouget, age 24, blond hair, brown eyes, a worker in a large factory, vote Communist?" by "adding successive predictive attributes of Monsieur Rouget (his age, occupation, nationality) until the proportion of persons with these attributes voting Communist approaches 1.0," rather than interpretating the reasons and perspectives of the socially-situated humans involved (ibid., p. 18). We also find in education theory a "devaluing and dismissive view of educational research that is not characterized by data collecting, counting, measuring, and predicting" (Hyslop-Margison and Naseem, 2007, p. vii). This emphasis on the quintessentially natural scientific practices of measurement, generalization, and predictive explanation in social scientific theory influences social and educational policy, where programmes like the No Child Left Behind legislation "typically and incorrectly identify such issues as incompetent teachers and unacceptable levels of student achievement as problems that can be resolved through

empirical forms of research and measurement" (Hyslop-Margison and Naseem, 2007, p. 6).

Philosophers and other humanists have offered many reasons why knowledge-practices in the humanities cannot be adequately subsumed under the natural sciences, nor fairly compared in terms of their 'advancement' (see Kitcher, 2017; Sorell, 1991; Ruse, 2017; Haack, 2009; Hayek, 1952). While these cannot be covered at length here, it is worth dwelling for a moment on the most prevalent and significant reason given: Philosophy and other humanities are engaged in a very different form of activity than the sciences, with significantly different intended results. Rather than setting out to accumulate and synthesize observable facts with which to formulate general predictive theories, philosophy and other humanities are more often engaged in attempts to (among other things) "unsettle the categories that are taken for granted," encourage social change by shifting understandings, provide "a kind of understanding that derives from imaginative identification" (Kitcher, 2017, p. 115), provide "a kind of self-knowledge" or wisdom concerning our own intellectual shortcomings (Sorell, 1991, p. 128), or simply make explicit the connections and implications of our intuitive modes of thought. In response to Churchland's scientistic approach to philosophy, for example, Tom Sorell argued that, in order to make her argument, Churchland is assuming that 'folk psychology' concepts are exclusively predictive-explanatory concepts, and that the kinds of philosophy which employ these concepts are exclusively predictive-explanatory practices (in exactly the same way neuroscience is). However, Churchland's emphasis on explanatory generalizations has obscured the variety of central functions of folk psychological concepts—for example, as expressive or interpretive apparatus in addition to predictive-explanatory ones—as well as the variety and complexity of knowledge goals in philosophy which works with these concepts—for example, in providing a kind of "understanding that would enable a novelist to create a particular character or that would enable an actor to behave in character" (ibid., p. 144). Churchland's scientistic approach overlooks the relevance of these features for a philosophical analysis engaged in an importantly distinct knowledge-practice to scientific forms of predictive generalization.

This does not in any way preclude the possibility—in fact, the advisability—of the humanities taking account of, and integrating, the results of scientific work into their own investigations (Sorell, 2017). But the response frequently made against scientism is that the failure to recognize the distinctive value of the "diversity of intellectual work" (Sorell, 1991, p. 128) apart from the sciences, by arguing that the humanities and their methods do not constitute knowledge, or that science can replace or correct misdirected or mismanaged humanistic approaches, is an unfair devaluation and misapprehension of the humanities and interpretive social sciences.

1.3 What is the History of Scientism?

The Oxford English Dictionary quoted in the epigraph indicated that scientism has a significant or defining relationship to positivism. The latter it defines as follows:

> POSITIVISM. *Originally (now historical)*: a philosophical system elaborated from the 1830s by the French thinker Auguste Comte (1798–1857), recognizing only observable phenomena and empirically verifiable scientific facts and laws, and rejecting inquiry into ultimate causes or origins as belonging to outmoded metaphysical or theological stages of thought; a humanistic religion based on this system. *In later use*: any of various philosophical systems or views based on an empiricist understanding of science, particularly those associated with the belief that every cognitively meaningful proposition can be scientifically verified or falsified, and that the (chief) function of philosophy is the analysis of the language used to express such propositions.

The earlier form of positivism, as explicitly stated, originated with Auguste Comte, a spectacularly influential philosopher and social theorist of the nineteenth century. The latter form of positivism referenced in the definition (especially because of its mention of the scientific verification and falsification of cognitively meaningful propositions) likely refers

to the logical positivism and logical empiricism introduced to American philosophy in the inter-war years of the early twentieth century by the Vienna Circle and Berlin Group.

In line with this, research on the history of scientism has usually taken either the early nineteenth century or the early twentieth century as in some important sense the context of origin for scientism, with historians only rarely placing the origin of scientistic perspectives and practices prior to the nineteenth century (for a notable exception, see Wellmuth, 1991). This is for good reason. The term "science" did not arrive at its now-recognizable meaning until the nineteenth century (Harrison, Numbers, and Shank, 2011, pp. 2–3; Olson, 2008, pp. 1–2; Hayek, 1952, pp. 13–14). Rather, various practices we now regard as science were distributed across the categories of "natural philosophy," "natural history," and "mathematics" (Dear, 2005, p. 392). Similarly, the term "scientist" first appeared in print in 1834 as a "name by which we can designate the students of the knowledge of the material world collectively," after attempts at the three annual meetings of the British Association for the Advancement of Science had rejected the candidate terms, "philosopher," "savans," and "natur-forschur" (translated from the original German as "nature-poker" or "nature-peeper") (Whewell, 1834, p. 59). The term "scientific method," too, "appeared only rarely in the vocabularies of English speakers prior to the last quarter of the nineteenth century," though the Baconian terms "fact" and "induction" were more widespread (Thurs, 2011, p. 311). All this points to a distinctive identity which science, its practitioners, and their methods developed fairly recently, and almost certainly not before the nineteenth century. Without a clear conceptual paragon with which to compare "science" to other knowledge-practices, scientism as the excessive appeal to, faith in, and methodological expansion of 'the sciences' could not have existed in a now-recognizable form. A related reason for attributing scientism a nineteenth-century origin is that this was the period in which science was invested with widespread cultural authority, whether as a result of the increasing emphasis on the scientific method as a means of obtaining knowledge superior to "other, less reliable sorts of information about the world" (ibid., p. 315), or as a consequence of sci-

entific practices' "application to socially important technological innovation" (Olson, 2008, p. 2). The heightened cultural authority of science, then—a crucial element of contemporary manifestations of scientism—also began in the nineteenth century. The rest of this section will examine twentieth- and nineteenth-century versions of scientism, to provide a clearer historical picture of scientism as it manifested and evolved in the relatively recent past.

Twentieth-Century Scientism

One scholar who places the emergence of some of the central features of scientism in the early twentieth century is Jimena Canales. Canales argues that the first half of the twentieth century was the period "marking the rise of authority of science vis-a-vis other forms of knowledge" (Canales, 2015, p. 8). An example of the kinds of disagreements concerning the possibility of non-scientific disciplines to participate in the construction of knowledge was the disagreement between philosopher Henri Bersgon and physicist Albert Einstein over their contrasting theories of time, which received great public attention in the years following their debate at the Société française de philosophie on April 6$^{\text{th}}$ 1922. Bergson had "made an illustrious career by showing how time should not be understood exclusively through the lens of science" (ibid., p. 4). His philosophical theory of time explained a variety of experienced phenomena that science could not, namely "memories, premonitions, expectations and anticipations" (ibid., p. 3). Einstein's view, in contrast, was that "the universe (and our knowledge of it) could stand just as well without us," that our lived experience of time, including intuitive notions of simultaneity and absolute time, had little to contribute to a valid theory of time, and that there was therefore little, if any, worth to Bergson's philosophical input (ibid., p. 7). In words that would be much quoted in the proceeding decades, Einstein declared, "Il n'y a donc pas un temps des philosophes" (ibid., p. 5). Einstein was widely interpreted to have won the debate between himself and Bergson, a victory which then kept in abeyance "not only Bergson's but many other artistic and literary approaches, by relegating them to a position of secondary, auxiliary importance" (ibid., p. 6). This was

a period, then, marked not only by the decline of philosophy's relevance to the construction of theories of the world (especially relative to science), but also by the consolidation of "a world largely split into science and the rest," where 'the rest' had lost its authority to speak on matters regarding the nature of reality (Canales, 2015, p. 7).

This denigration of Bergson-style philosophy was welcomed and encouraged by members of a philosophical movement—logical empiricism, or logical positivism—that was gaining popularity among philosophers of science and physicists in Vienna and Berlin the 1920s, and was to gain popularity in American universities from the 1930s after several of its prominent members, including Rudolf Carnap, Hans Reichenbach, and Richard von Mises, fled Europe and took up university positions in the United States. In 1922, Hans Reichenbach, who was later to become a central figure in this movement, published an essay with Léon Bloch in the French journal, *Revue philosophique de la France et de l'Étranger*, explicitly rejecting the criticisms which had been made of Einstein's theory of relativity on the basis that it "contradicts ordinary common sense." Clearly responding to Bergson's critique while not naming him, they wrote, "we refuse to see a criticism there" (Reichenbach and Bloch, 1922, p. 5). Neither philosophy's desire, nor its ability, to incorporate ordinary, intuitive concepts were deemed relevant for arriving at a satisfactory understanding of this ubiquitous feature of the world—time.

In addition to its rejection of non-scientific input in constructing a theory of time, early twentieth-century logical empiricism was a defining moment in the history of scientism for its beliefs in the unity of science, the limitlessness of scientific knowledge, the need to extend scientific methods to other disciplines (such as philosophy, human and social sciences, and psychology), and its more general rejection of non-scientific forms of knowledge. The particular version of scientism proposed by the logical empiricists was typically a form of meaning-empiricism (alluded to in the Oxford English Dictionary entry for 'positivism'), in which science is taken to be an all-encompassing source of knowledge by definition (Sorell, 1991, p. 6). In a paper others in the movement praised as "penetrating" (Neurath, 1987,

p. 4), Carnap limited meaningful statements to three categories: "tautologies" which included mathematical and logical formulae; "logical contradictions" which included the negations of tautologies; and "protocol sentences" which included observation-based statements that could, in principle, be verified by the methods of empirical science (Carnap, 1959, p. 76). Any statement not belonging in one of these categories was defined by the logical empiricists to be "automatically meaningless" (ibid., p. 76). This philosophical position denied the possibility of meaningful statements, let alone knowledge, to any practice that exhibited independence from the natural sciences, since "all statements whatever that assert something are of an empirical nature and belong to factual science" (ibid., p. 77). It follows from this that, as Carnap had earlier stated in his *Aufbau*, "there is no question whose answer is *in principle* unattainable by science," dismissing immediately any notion of areas of knowledge that are not conducive to factual scientific investigation and analysis (1969, p. 290). This position was echoed by another logical positivist, Otto Neurath, who equated the two questions, "What do [these sentences] mean?" and "To what other sentences and, ultimately, to what protocol sentences can they be reduced?" (1987, p. 5). Many kinds of questions and answers found in philosophical investigations—ones involving metaphysics, ethics, aesthetics, or appeals to intuition, imagination, or valuation, which could not be translated and handed over to scientific testing—were, in fact, "pseudo-sentences" and were not capable of yielding knowledge (Carnap, 1969, p. 291).

This left genuine philosophy—"scientific philosophy"—with a significantly reduced role: "to clarify meaningful concepts and propositions, to lay logical foundations for factual science and for mathematics" (Carnap, 1959, p. 77); in Reichenbach's words, "to analyze the results of science, to construe their meaning and stake out their validity" (Reichenbach, 1949, p. 310). Any "philosophy of norms, or philosophy of value, on any ethics or esthetics as a normative discipline" is incapable of producing knowledge, since claims concerning norms and values are "not empirically verifiable nor deducible from empirical statements," and are therefore "pseudo-statements" (Carnap, 1959, p. 77; Carnap, 1969, p. 291). Logical

empiricists would sometimes admit that there are practices lying outside science, but they tended to represent them as derivative or inferior versions of a practice of which science was the paragon. Von Mises, for example, calls metaphysical and religious systems "'primitive' attempts at the solution of problems that are not yet treated by science," which needed to be rationalized through the application of scientific concepts and methods (Sorell, 1991, p. 17). Neurath even went so far as to recommend implementing "an *index verborum prohibitorum* which lists, e.g., 'norm', 'transcendental', 'categorical imperative', 'intuition', 'immanent', 'reality', 'appearance', etc." in child education programs, in the hope that metaphysics (in which he apparently included values and intuitions) would "become a foreign subject for them, to be studied only in an historical way" (1987, pp. 8–9).

The combination, in logical positivism, of beliefs in the exclusive capacity for science to produce knowledge, the benefits of reducing philosophy to an extension of science, and the meaninglessness, primitiveness, and even harmfulness of traditional philosophical questions, make it a quintessential historical instance of scientism in philosophy. But the early-twentieth century has also been underscored as a moment when American sociology experienced a scientistic transformation (Bannister, 1987). While objectivity had been a professional norm for many decades, sociology in the inter-war years was measured by three special senses of objectivity: "first, in treating only the observable externals of human behavior; second, in applying rigorous methods, preferably statistical, in the production of social scientific knowledge; and finally, in observing strict neutrality in matters of ethics and public policy" (ibid., p. 45). American sociology experienced the characteristic importation of scientific methods (in the form of statistics) into a traditionally non-scientific field, but it also became scientistic in a way that strongly resembled the scientistic turn in American philosophy; namely, "the premise that human volition and the subjective consciousness have no place" in the discipline (ibid., p. 46). This "elimination of the psychological dimensions of experience, and finally of the willing, feeling self" extended not only to the content of sociology, but also to the methods. That is, not only were first-person subjective notions of social reality set aside

in order for sociology to "confine itself to the measurement and tabulation of environmental change and responses to it" (Bannister, 1987, p. 47), but the ideology of methodological objectivity as necessarily involving the researcher's social and political neutrality also "eclipsed the humanitarian, moralistic rhetoric of earlier reformers" (ibid., p. 49). Following the lead of University of Chicago professor William F. Ogburn, the American Sociological Society "attempted to purge the discipline of social workers, agricultural sociologists, and other 'unscientific' elements" while the University of Chicago's Sociology Department churned out doctoral students who would become "some of the leading quantifiers of the next generation" (ibid., pp. 48, 47).

Nineteenth-Century Scientism

The early twentieth century experienced a growth in scientistic attitudes and approaches in philosophy, sociology, and among various educated publics, but there are reasons to believe these excesses were "anticipated in classifications of learning and science" of the periods preceding them (Sorell, 1991, p. x). F. A. von Hayek claimed that central elements of early-twentieth-century scientism, including "[t]he enthusiasm for physicism (it is now called physicalism) and the use of 'physical language,' the attempt to 'unify science' and to make it the basis of morals, the contempt for all 'theological,' that is anthropomorphic, reasoning, the desire to organize the work of others, particularly by editing a great encyclopedia, and the wish to plan life in general on scientific lines are all present" in the works of the early to mid-nineteenth-century French philosophers, Henri de Saint-Simon and Auguste Comte. Hayek even commented, "One could sometimes believe that one is reading a contemporary work of. . . an Otto Neurath" (1952, p. 123).

In the nation-building that occurred during and after the French Revolution, combined with France's ensuing wars with the relatively more industrialized Britain, an enthusiasm for science, technology, and industry developed among intellectual and political elites, especially in their combined capacities for military and civil engineering. This change in intellectual

atmosphere led Saint-Simon to comment in 1813, "Such is the difference in this respect between the state of. . . even thirty years ago and that of today that while in those not distant days, if one wanted to know whether a person had received a distinguished education, one asked: 'Does he know his Greek and Latin authors well?,' today one asks: 'Is he good at mathematics? Is he familiar with the achievements of physics, of chemistry, of natural history, in short, of the positive sciences and those of observation?' " (quoted in Hayek, 1952, p. 110). In this context, people began increasingly to seek solutions to political, religious, and social problems (of which France had many) using the methods of the sciences. This latter trend found particular concentration in the works of Henri de Saint-Simon and his disciple, Auguste Comte, whose ideas became the basis for science-fanatic socio-political ideologies hoping to "bring order out of the chaos of post-revolutionary French society by establishing a social science" (Olson, 2008, p. 41).

Saint-Simon claimed that the "social turmoil" France was witnessing during and after the French Revolution was due to its society's resistance to the predestined structural changes of a new era of civilization: "Inevitably, [the crisis] will last until the new system is fully operative" (Saint-Simon, 1976, p. 152). The new system was the political organization of society and the economy according to "positive" knowledge.

> Hitherto, the method of the observational sciences has not been applied to political questions. Every man has brought to them his own point of view, method of reasoning and judgment, and as a result there has been neither accuracy in the solutions found for political problems nor universality in the results applied in this sphere. . . The method of the experimental sciences should be applied to politics. (ibid., p. 87)

According to Saint-Simon, there were two ways the application of positive knowledge would correct the political and social problems of Europe. Firstly, inaccuracies would be removed, since the method of the sciences was more precise than others, based not on perspective or conjecture, but on objective demonstration. This would enable the generation of

genuinely workable solutions to social problems. Secondly (and relatedly), partiality of interests would be removed, since science and positive knowledge would dictate policies which "increase the happiness of the whole of mankind" rather than only "a part of mankind at the expense of the rest" (Saint-Simon, 1976, p. 79). All members of society would be "coordinated according to their respective functions" with a unified science "directing them towards a great common industrial purpose" (ibid., p. 164). Scientific interests were considered "common to all mankind," and so a society organized according to scientific knowledge would be innately pacifistic, and would draw the voluntary cooperation of all classes (ibid., p. 79). It would not require coercion to be accepted since it would be evident to all through objective demonstrations that it was accurate and in the universal interest of all humanity to pursue and obey it. In fact, with the full establishment of this new system of social organization, there would no longer be any "governance" per se, since power would not be necessary to enlist everyone's cooperation. A mere administration of human industrial activity would be needed, according to observable, verified, positive scientific knowledge. This perfected industrial-technological world would be "managed rather than governed" (Olson, 2008, p. 41), and "all classes of society would be happy [with] spiritual power in the hands of the scientists" (Saint-Simon, 1976, p. 81):

> [P]olitics from now on will no longer be a matter of vague conjectures, a plaything of circumstances. Its fate will no longer be determined by any power, form or prejudice. The ground it covers will be known; the way it is conducted will be respected; and the science of societies will therefore have a principle. It will at last have become a positive science. (ibid., p. 109)

A host of Saint-Simon's disciples in the early nineteenth century adopted his grand ideology of a social order structured by the universal dictates of science. Most notable among them was August Comte, who radically increased the popularity of Saint-Simonian positivism. Like Saint-Simon, Comte attributed the social turmoil in France to the incompatibility of competing socio-political systems, and believed that forms of thought and knowledge

developed through stages, with positive thought and method as the ultimate stage. The first stage, theological thought, underpins the feudal system, and regards the universe as governed by "single and direct volitions of beings, real or imaginary, possessed of life and intelligence," of which the notion of a single God is an example (Mill, 1907, p. 10). Metaphysical thought underpins the republican system, and regards phenomena as possessing and being moved by "realized abstractions"—by an essence that inheres in them and their "supposed tendencies and propensities" (ibid., p. 11). The positive mode of thought and knowledge would underpin a new social and political order, and recognize that "all phenomena without exception are governed by invariable laws" (ibid., p. 12). While theological and metaphysical thought were defined by methods consisting in "the preponderance of imagination over observation" (Olson, 2008, p. 73), positivism would replace the imagination that grounded both these systems with observation. Like Saint-Simon, Comte argued that positivism's reliance on observed facts would allow it to produce "unanimous and permanent assent" (ibid., p. 74) and resolve the political and social problems caused by the conflicting principles of inferior forms of thought. Positive science and its observational method would render consistent the competing principles in these prior, incompatible traditions, by giving both conceptions a new positive interpretation, and would pave the way for an improved, stable social order.

Comte stated that all partiality of perspective must be banished from positive science, including (and especially) any traces of value-judgments like "admiration or reprobation," since "all preoccupations of this sort directly and unavoidably tend to hinder or mislead examination" (ibid., p. 64). He argued that only positive science could bring about consensus in the political structure of society, because "there is no freedom of conscience in the sciences, in the sense that the mind is not free to refuse assent to what has been proved" (ibid., p. 69). Only a positive social science, and a subsequent social organization according to exclusively objective dictates of science, could overcome the intellectual anarchy of various philosophies competing for political authority—which included theology, metaphysics, and moral philosophy—by producing claims that would be universally accepted by all who

understood them. Science was therefore the path to social progress and peace. In the *Positive Philosophy*, Comte stated that even human emotions would come under the domain of scientific direction and control. The powerful affects of human life must be subordinated to a "naturalistic morality derived from our sociological understanding," which would produce both individual virtue and social integration, the likes of which "cannot even be imagined without the guidance of the doctrines themselves" (Olson, 2008, p. 77). In this sense, positive science would transform society starting from within the individual, rippling outwards into society's institutions. The "moral regeneration" of individuals and their affects according to scientific dictates would "prepare the way for... political reorganization" (ibid., p. 77).

This need for objectivity, and its consequently necessary and universal assent, led Comte to attack the kind of 'introspective psychology' practiced by John Locke, David Hume, David Hartley, Thomas Reid, and Dugald Stewart in the United Kingdom, and by Etienne Condillac and Victor Cousin in France. He called it "pretend science" and "illusory psychology." "There can be nothing like the scientific observation of the passions," he argued, "except from without" (ibid., p. 68). As well as being factually misleading, the problem with introspective human science was its lack of ability to produce consensus, due to its non-observability. In a statement that would be echoed over a century later by socio-biologist E. O. Wilson, Comte complained that traditional, introspective, philosophical methods had made no progress and should hand their problems over to the positive sciences:

> After two thousand years of psychological pursuit, no one proposition is established to the satisfaction of its followers. They are divided, to this day, into a multitude of schools, still disputing about the very elements of their doctrine. This interior observation gives birth to almost as many theories as there are observers (ibid., p. 69).

For Comte, only a scientific study of observable phenomena (that is, from a third-party perspective) would be adequate to produce consensus and therefore be the basis for a political reorganization of society. Comte advocated the abandonment of appeals to subjective

internal experience (that is, first-person introspective psychology) in favor of an exclusive study of externally observable, objective phenomena (that is, knowledge derivable from a third-party perspective). Specifically, he promoted two positive scientific ways to study human affect and intellect: (a) the study of the biological organs that produce them, called "phrenological psychology," or (b) the study of "the series of intellectual and moral acts" that are "their more or less immediate and more or less durable results," constituting a kind of proto-behaviorist approach (Hayek, 1952, pp. 172–73).

Comte's positive science would also abandon the search for "the causes of phenomena," which was a hangover from the pre-positive, metaphysical tradition, and devote itself to "the study of [phenomena's] laws—that is, their invariable relations of successions and resemblance" (Olson, 2008, p. 67). He argued that "social phenomena are subject to natural laws, admitting of rational prevision" (ibid., p. 74). Discovering these laws by means of scientific experimentation was not possible, due to the high degree of interconnection of parts within a social system, but the study of society could still be undertaken by the scientific method of observation of external phenomena. Specifically, one could examine "pathological" cases of social processes, such as political revolutions, or compare societies separated by time or space. In this way, the positive social scientist could uncover the universal laws of human social development. Comte stated, in a letter to a friend, his conviction that "there were laws governing the development of the human race as definite as those determining the fall of a stone" (Hayek, 1952, p. 178).

Disciples of Saint-Simonian and Comtean thought extended far beyond the academy into business and politics, including: state administrators responsible for the building of the Suez Canal, Barthélemy Prosper Enfantin and Charles Joseph Lambert; Parliament Senator, Michel Chevalier; President of the Constituent National Assembly, Philippe Buchez; founder of the Crédit Lyonnais, Henri Germain; and founders of the Crédit Mobilier, Émile and Isaac Pereire. The influence of Saint-Simonian thought therefore extended far into French society, echoing in the late nineteenth- and early twentieth-century works of Ernest Renan

who sought to scientifically organize humanity ("organiser scientifiquement l'humanité") (Schottler, 2013, p. 96), and Felix Le Dantec who claimed that "the word philosophy should not have, in the twentieth century, any other definition that that of the word science; the conquests of scientific method have been such to this time that we must expect everything from her" (Dantec, 1912, p. 69 (translated from the original)).

Scientism also entered British thought in the late nineteenth century. Comte's work was greatly admired by philosophers Harriet Martineau, J. S. Mill, and George Henry Lewes; and Herbert Spencer was heavily influenced by Comte, though he engaged with his work critically (Hayek, 1952, p. 187). Martineau's translation of Comte's *Positive Philosophy* in 1853 did much to spread the influence of positivism in the United Kingdom. Her translation was praised by Comte himself as being a significant improvement on his own exposition. Her preface to the work was highly revealing in terms of the motivations that turned people towards positivism in the U.K. (and potentially on the continent) at this time. British people, she claimed had been "alienated for ever from the kind of faith which sufficed for all" in previous periods, and no "ground of connection as firm and clear" was presenting itself as a replacement. Expressing fear of the "moral dangers" of such a state of absence of grounds for convictions, she claimed that evil, ignorance, and selfishness would be overcome by the objective dictums of positive science, the latter of which would carry us to the ideals of beauty, glory, serenity, courage, and nobility (Martineau, 1853, p. v). Science would "raise human hope and human effort to the highest attainable point" (ibid., p. v). Once scientific truth-seeking was perfected, "the natural conscience, thus disciplined, will train up all other moral attributes to some equality with it." Twelve years later, in 1865, J. S. Mill, also an admirer of Comte, composed a lengthy exposition and critique of Comte's entire corpus, in which he stated that, in England, Comte's positivism had already long been "of sufficient importance to induce almost all who now discuss the great problems of philosophy... to take what is termed the Positivist view of things into serious consideration, and define their own position, more or less friendly or hostile, in regard to it" (Mill, 1907, pp. 1–2). He

stated similarly that "all French writers who adhere to the common philosophy, now feel it necessary to begin by fortifying their position against 'the Positivist school"' (Mill, 1907, p. 2). Saint-Simonean and Comtean ideas of scientific social planning resounded through Thomas Huxley's public lecture at the opening of the University of Birmingham in 1880, in which he stated that "nature is the expression of a definite order with which nothing interferes, and... the chief business of mankind is to learn that order and govern themselves accordingly" (Huxley, 1888, p. 15).[2]

By the early nineteenth century in France, and the mid-nineteenth century in the U.K., we witness some of twentieth-century scientism's central tenets, including claims that: the only valid form of knowledge comes from "scientific demonstration," with all alternatives reduced to "blind faith" (Saint-Simon, 1976, p. 157); scientific methods of "demonstration" and "observation" ought to replace the traditional methods of disciplines for the study of society and humanity; knowledge-practices would have to be purged of non-scientific appeals to introspection, values, causes, or other non-observable phenomena; and knowledge would have to be limited to the form of general law-like relations. We see also the claim that such a scientific transformation would provide a basis upon which to direct human activities, and would resolve problems of interest-based conflict and coercion, by presenting universally accepted facts through objective demonstration. In ways that will be explicated in Chapter 3, the twentieth-century scientism of the logical empiricists also had at its core a notion of value-neutrality that was parasitic on their belief in the factual objectivity of scientific knowledge. And although we perhaps do not see the same fervor, the Saint-Simonian and Comtean idea that it is the destiny of humankind to organize itself according to positive scientific knowledge, and that to resist doing so is a major cause of human suffering and

2. Positivism did not experience the same popularity in nineteenth-century German-speaking countries, where a very different philosophy of science—one which did not reject causal claims, religious beliefs, moral values, or knowledge derived from introspection—was influential, called *Naturphilosophie*. It is an interesting question how Comtean ideas ended up threaded through the theories of the mostly native German-speaking logical empiricists in the early twentieth century, though it has been suggested that the increasing popularity of varieties of materialism in mid- to late nineteenth-century Germany may have been a vector (Hayek, 1952, Chap. 5; Olson, 2008, Chap. 5).

political and social turmoil, has echoes well into the twentieth century.

1.4 Recasting Scientism

Scientistic systems and research programs throughout the nineteenth, twentieth, and twenty-first centuries share a set of contentious beliefs concerning the legitimacy of various forms of knowledge and of acceptable methods for acquiring legitimate knowledge. It is no surprise, then, that definitions of scientism have revolved around theories of knowledge, and that critiques of scientism have often responded by emphasizing the legitimacy of diverse types of knowledge. In order to understand the existential and ontological claims lying beneath scientistic attitudes, a good place to start is by reviewing what forms of knowledge—including content, categories, and methods—they have tended to diminish or proclaim invalid.

Firstly, we have consistent calls throughout nineteenth- and twentieth-century scientisms to eliminate elements of so-called knowledge that are 'internal,' 'introspective,' or 'subjective,' as opposed to 'external,' 'observable,' and therefore 'objective.' Comte, for example, rejected "introspective psychology," "imagination," and "admiration or reprobation" as illusory and likely to mislead and hinder understanding. Instead, social and political theory was to proceed by studying humanity "from without"—that is, by means of externally observable phenomena which can be conclusively demonstrated to a third party. Logical empiricism was based on similar principles, characterizing knowledge as involving the "transition from [one's] own subjective experience to the objective external world" (Reichenbach, 1938, p. 90). Any claim which could not be attached to a protocol statement, rendering it capable of observation-based demonstration, was proclaimed meaningless. After Ogden, sociology, too, reduced the study of human beings to the measurement of "observable externals of human behavior," rejecting 'volition' and 'subjective consciousness' (Bannister, 1987, pp. 45–46), an approach which has lasted into twenty-first century sociology (Martin, 2011).

A second, related feature common to many scientistic views is the rejection of value-judgments from an analysis of humanity, largely by virtue of their dependence on 'internal'

perspective over 'external' observation. According to Comte, values were a feature of the study of humanity which resulted in intellectual anarchy. A "naturalistic morality" instead needed to be derived from the observed facts of positive scientific analyses, which would in turn lead to "moral regeneration" (Olson, 2008, p. 77). Ogden's style of sociology also demanded "strict neutrality" when analyzing social and political trends, since this was the only means of obtaining objective knowledge (Bannister, 1987, p. 45). The logical empiricists of that period also rejected the possibility of including values in knowledge-practices, since such statements were not scientifically observable or demonstrable, and were therefore meaningless. Neurath even sought to eliminate values from the vocabulary of the next generation through his prohibited-words list.

A third consideration that perhaps synthesizes the previous two is the irrelevance of ordinary, common-sense experience and understandings for the kind of knowledge sought by scientistic thinkers. Comte rejected the kind of understanding of human volition "where this understanding is made possible by the fact that we have a mind like theirs, and that from the mental categories we have in common with them we can reconstruct the social complexes which are our concern," limiting legitimate knowledge instead to the search for invariable laws of observable behaviors (Hayek, 1952, p. 50). The philosophy of Churchland, too, rejected ordinary folk psychological concepts as misleading, favoring categories of neuroscience completely removed from our everyday understandings of our own and others' behavior. In response to criticisms that Einstein's theory did not account for our ordinary experiences of the nature of time, Reichenbach explicitly refused to acknowledge the relevance of common sense understandings for theories of the structure of nature. The logical empiricists' disregard for the contributions of common sense and ordinary experience was, in fact, a complaint made by pragmatist philosophers, and was a major reason for their (and many others') sympathy with Bergson's position in his debate with Einstein. George Herbert Mead explained in a letter that he and Bergson shared the problem of "bringing the immediate experience which has in the past been relegated to the field of psychology

into that of the reality which science assumes without question" (Canales, 2015, p. 197). Weighing in on the debate in 1922, Alfred North Whitehead wrote that "we must reject the distinction between nature as it really is and experiences of it which are purely psychological" because "[o]ur experiences of the apparent world are nature itself" (ibid., p. 188). The pragmatist objection to the early twentieth-century versions of scientism they saw was that they opposed scientific knowledge to the obvious qualities of ordinary, common-sense experience, by excluding 'internal' perspectives, qualities, and values.

A host of experiential qualities and processes, including volition, folk-psychology, moral and aesthetic values, imagination, intuition, have been deemed by scientistic thinkers to be illusory, misleading, or irrelevant when seeking to understand the structure or qualities of nature. This has a great deal to do with the theories of knowledge they have employed, and the methods, categories, and subject-matter such theories of knowledge have permitted. However, these kinds of claims have typically carried with them an assumption—sometimes explicitly stated—that there is a fundamental divide between human experience and nature—between "my own subjective experience. . . [and] the objective external world" (Reichenbach, 1938, p. 90). As I elaborate below and develop in the next chapter, this distinction is relied upon to justify a distinction between elements of experience—often limited to sensory and logical qualities—which correspond to the *real* qualities of nature, and elements of experience—often including values, and volitional and common-sense qualities—which belong only to the human mind. The latter qualities are then declared 'mere appearance' or misapprehensions, and opposed to the 'reality' of the former qualities, while the methods of ascertaining the latter qualities (which can include reflection on values, emotional responses, intuition, common-sense apparatus like folk-psychology, and imagination) are declared misleading or distorting, and are opposed to the reliable methods of the observation-based sciences.

As we've already seen, the pragmatists of the early twentieth century took issue with this narrative, preferring to retain a clear connection between ordinary experience and na-

ture. One pragmatist who extensively deconstructed this narrative, and offered a thoroughly developed alternative, was John Dewey. He argued that our foundational concepts of experience, nature, and knowledge are derived from a historical context furnished with radically different social issues, values, and discoveries, rendering the concepts inadequate for our own times, needs, and problems. The complaint made by pragmatists was that their philosophical contemporaries tended to view experience or mind as primarily "a psychical thing, infected throughout by 'subjectivity' " (Dewey, 1972, p. 6). Experience was viewed as a process which "centers in, or gathers about, or proceeds from a center or subject which is outside the course of natural existence, and set over against it" (ibid., p. 22)—an "antithetical subject" which is variously called a soul, spirit, mind, ego, consciousness, or knower. If experience is outside the course of nature, then nature (or the world, or the universe), in turn, must be "'external' to experience" (ibid., p. 18). The most direct connection with scientistic views on knowledge is that the epistemological counterpart to the stated view of the division between experience and nature is 'the spectator view of knowledge': a concept of knowledge as a process of "viewing from outside" (ibid., p. 42), which consists in putting together "a transcript" of nature, which is *outside* the mind or experience (ibid., p. 41). From this framework, in which the experiencing being is set apart from the nature they are seeking to know, the problem naturally arises of whether or not the experiencing being is representing the world *accurately*. From this arises a corresponding division between reality and appearance. *Experience* of an object, as something apart from the object and different in kind, "has the power of changing 'reality' into appearance, of introducing 'relativities' into things as they are in themselves" (ibid., p. 25). Although Dewey outlined this erroneous perspective in order to critique and reconstruct academic philosophy, its influence is also clear in scientistic worldviews and knowledge-practices that have led to a preoccupation with that which is 'external' to and independent of the mind, and therefore an 'objective' representation of events.

Although the critique is not dependent on identifying a precise historical origin of the

ideas, John Dewey and other pragmatists (cf. Rorty, 1979) have suggested that this framework for understanding experience, nature, and knowledge derives from the seventeenth century, and have pointed to Bacon, Descartes, and Locke as influential thinkers for its consolidation. Some theorists have traced the separation of the experiencing being and nature, and the problems of knowledge that arise from it, to an earlier period in the Middle Ages (cf. Wellmuth, 1991), but this is not to contradict the argument, since "[w]hen Descartes and others broke away from medieval interests, they retained as commonplaces its intellectual apparatus" which, being religious, were "deliberately and systematically other-worldly" (Dewey, 1972, p. 22). Among these inherited notions was that of the mind as a separate entity and of knowledge as a process "exercised by a power that is extra-natural and set over against the world to be known" (ibid., p. 22). Without any available substitute for the soul at that time, to utilize as a means of situating the human being in nature (such as the evolutionary understanding made available in the nineteenth century of humankind as "continuous with other forms of life" (ibid., p. 22)), seventeenth-century thinkers were all but forced to transpose these literally *super*-natural concepts into "the new terminology furnished by science" (ibid., p. 3).

We can see the separation of mind and nature—and the consequent view of knowledge as the attempt to produce an accurate representation of an external world—in Francis Bacon's comparison of the mind to "a false mirror, which, receiving rays irregularly, distorts and discolours the nature of things by mingling its own nature with it" (Bacon, 1861a, p. 54). The mind, "far from the nature of a clear and equal glass, wherein the beams of things should reflect according to their true incidence. . . is rather like an enchanted glass, full of superstition and imposture, if it be not delivered and reduced" (Bacon, 1861b, p. 276). Descartes, too, employed a foundational distinction between the experiencing being and nature, to the point that "there might be very little correspondence between [a person's] understanding of the objects they studied and the natures of the objects" (Sorell, 1991, p. 30). Descartes took particular issue with the senses, arguing that "all of sense-experience could be explained

on the assumption that things acting upon the senses really were very different in nature from how the sensible qualities made them seem," and that "it was unnecessary to suppose that corresponding real qualities actually inhered in the objects observed" (Sorell, 1991, p. 29). Descartes' novel concept of the mind–body problem instituted "a distinction between two worlds"—one of the mind and its processes, and one of nature (Rorty, 1979, p. 52). Locke's subsequent project of understanding the possibility and limitations of knowledge of the external world—including his characterization of the mind as a blank slate which receives content from the objects of nature, and his distinction between the ideas of the mind which resemble the objects of nature (primary qualities) and those of its ideas which do not (secondary qualities)—also rested on a fundamental distinction between the mind and nature (Locke, 1690, Book II). Although important differences exist between thinkers of this period—Bacon was suspicious of "the mind" and all its features, while Descartes took the geometrical qualities of the mathematical sciences to be reliable indicators of nature's qualities, and Locke placed his trust in the senses—they share a common framework in which experience and nature are severed, rendering multiple elements of the former unreliable indicators of the real qualities of the latter.

The inheritance of an understanding of experience as set apart from nature has led to the philosophical construction of the problem of 'knowledge in general'—that is, for any instance of knowing, "how is one to get beyond the limits of the subject and subjective occurrences" and come into a veridical knowing-relationship with nature?—and the development of theories of knowledge to address it. Philosophy has seen the development of theories which "divide culture up into the areas which represent reality well, those which represent it less well, and those which do not represent it at all (despite their pretense of doing so)" (Rorty, 1979, p. 3). As we've seen, and as Chapter 2 will show in more detail, the practice of setting limitations on the elements of experience that adequately represent reality, as opposed to those constituting appearances of the mind, is not confined to philosophy. The rejection of some elements of experience as mere importations of a mind whose purpose is

to survey a world detached from it is also behind many scientistic characterizations of the multifaceted qualities of experience—such as values, intuition, folk psychology, and common-sense categories—as misleading, irrelevant, or illusory when arriving at a theory of nature, as they attribute them to an 'internal' mind as opposed to an 'external' nature.

Dewey argues that this picture of experience, nature, and knowledge, along with its constructed problems of how one comes to know, no longer make sense within a post-evolutionary framework which understands human beings as creatures who are continuous with nature, and require active participation in nature to further their own existence. These "lessons of evolution," however, had yet to be incorporated into the philosophical canon. In an evolutionary framework, the continuity of experience and nature would prevent the adoption of premises which lead to the formation of the 'problem of knowledge in general.' If there is not "a knower in general, who is outside of the world to be known, and who is defined in terms antithetical to the traits of the world," then the problem of knowledge becomes about as plausible as an analogous "problem of digestion" (Dewey, 1972, pp. 23–24). If we "conceive the stomach and food-material as inhabiting different worlds," we could construct a problem as to "the possibility, extent, nature, and genuineness of any transaction between stomach and food" (ibid., p. 24). But if we recognize that the picture of experience (or the stomach) as separable from the world is contrary to the lessons of evolutionary theory, then "the problem of how self or mind or subjective experience or consciousness can reach knowledge of an external world is assuredly a meaningless problem" (ibid., p. 23). Experience and nature, just like the stomach and food, are parts of continuous material which interact in a locally specific way. Just like digestion, the processes of knowledge do not consist in forming accurate representations of nature, through which to distinguish reality from appearance, but in successfully interacting with elements of nature in such a way as to further one's own life. Everything in experience is equally 'real' by virtue of its being a natural occurrence.

This does not mean that no questions arise whatsoever concerning knowledge. The renewed understanding of experience, nature, and knowledge dissipates the problem of knowl-

edge 'in general,' but there still exist "specific instances of success and failure in inquiry" (Dewey, 1972, p. 23). Maladaptations of digestion can occur and lead to disease; and maladaptive knowledge-processes can lead to erroneous responses to the environment. But instances of neither sort have to do with the distinction between what is 'real' and what is 'distortion.' Knowledge does not involve the object and "a would-be knower of it, unfortunately condemned by the nature of the knowing apparatus to alter the thing he would know" (ibid., pp. 42–43). It is "an affair of the dynamic interaction of two physical agents in producing a third thing, an effect;—an affair of precisely the same kind as in any physical conjoint action, say the operation of hydrogen and oxygen in producing water" (ibid., p. 31). When it comes to the problem of hallucinations, dreams, perspectival difference, and other problems of perception, it is not reality and appearance that are at stake. These phenomena are not "something outside of the regular course of events; they are in and of it. They are not cognitive distortions of real things; they are *more* real things" (ibid., p. 27). The significant "problem of knowledge" in the post-evolutionary framework has to do with the *consequences* of such real things on future activity. For example, if one were to hallucinate that one were being persecuted, then "to use the hallucination as a sign of organic lesions that menace health means the beneficial result of seeing a physician," while "to respond to it as a sign of consequences such as actually follow only from being persecuted is to fall into error" (ibid., pp. 39–40). The problem raised by this is not the unreality of the hallucination as an indication of a natural occurrence; it is the fact that, in the case of responding as though one is being persecuted, "conditions do not exist for producing the future consequences which are now anticipated and reacted to" (ibid., pp. 39–40). Neither is there anything unreal about the classic example of a straight stick in water appearing as bent: "Light is really, physically, existentially, refracted into these forms" (ibid., pp. 42–43). To attribute a hallucination, dream, or experience of a stick in water as bent exclusively to the subjectivity of an experiencing being is "like contending that when a bottle bursts, the bottle is, in some self-contained miraculous way, exclusively responsible" (ibid., p. 27).

As Chapter 3 discusses in more detail, "one can discover the conditions conducing to success and failure" in inquiry, to the point of honing one's method of anticipating the associated consequences of experiential qualities. This kind of honing can give rise to sophisticated and reliable techniques of prediction and control over the conditions of life, the likes of which we see in scientific methods of inquiry. The elements of scientific methods focused on by scientistic theorists, such as observation, measurement, and testing, have proven valuable in predicting and controlling elements of nature, thereby securing desired outcomes. Scientific practices are therefore able to separate reliable from spurious *connections* between qualities. A variety of claims of scientism, however, do now follow. Science orders nature according to its connections and consequences, not according to the real and the apparent. The elements of experience dismissed by scientism as irrelevant to a theory of the world are, in fact, parts of natural occurrences: values, goals, common-sense categories of thought are all elements of nature. The processes of experience dismissed by scientism as less valuable are, also, parts of natural occurrences: imagination, intuition, valuation, even metaphysics are all elements of nature. Just as Whitehead and Mead complained of Einstein and his sympathetic interpreters, any attempt to understand the world cannot point-blank refuse to take account of the qualities of ordinary, everyday human experience by suggesting that, for example, such qualities of time "do not exist." And any attempt to reject practices like philosophy, the interpretive social sciences, and the humanities as potential sources of *knowledge*—either on the basis of their use of "internal" methods of imagination, intuition, and valuation, or on the basis of their attention to "internal" or "non-observable" content like aesthetic and moral value, common-sense categories of belief and desire, ordinary experiential qualities of anticipation, expectation, and memory—fails once we have incorporated the lessons of evolution into our concepts of experience, nature, and knowledge. Qualities as diverse, complex, and personal as "[p]oignancy, humor, zest, tragedy, beauty, prosperity and bafflement, although rejected from a nature which is identified with mechanical structure, remain just what they empirically are, and demand recognition" (Dewey, 1985a, p. 295).

Philosophy, the humanities, arts, and interpretive social sciences are no more capable of separating reality from appearance than the positive sciences. This fact was behind the pragmatist critique of Bergson and the Romantics, who confronted scientistic attempts to reduce the non-observable and non-measurable elements of experience to mere appearance with their own contrasting claims that the philosophical or aesthetic elements of experience were, in fact, *more* real than those recognized by science (see Dewey, 1972, p. 38 and Dewey, 1985b, pp. 293–95). But although, like science, they have no access to a superior reality, philosophy, the humanities, and the practice of interpretation are equally capable as the sciences of yielding knowledge. Far from dealing with mere appearances to be explained by way of 'external' concepts and methods of observation and measurement, these various human practices are important, generative processes that contribute—just as science does—to the intelligent direction of human life.

To take values as an example, since they are not to be dismissed as appearances, but taken account of and negotiated in the course of human life just as much as any physical material aspects of the world, it is no surprise that various practices, knowledge-practices included, would have developed to perform this task. Practices like the humanities seek to understand the connections and consequences of values as they occur, just like the positive sciences venerated in scientistic worldviews seek to understand the connections and consequences of qualities in the material environment. Ethics, aesthetics, and literary and historical studies all look beyond the immediate occurrence of a quality of 'good' or 'bad' in an object or event, to understand "its relationships, the conditions which mediate it and the things to which it is in turn mediatory" (Dewey, 1985a, p. 297). They go beyond the simple enjoyment of values as they occur, to construct *knowledge* of them—a "theory of values" (ibid., p. 298). Experience makes it evident that "some things sweet in the having are bitter in aftertaste and in what they lead to... Good things change and vanish not only with changes in the environing medium but with changes in ourselves," and an aesthetically pleasing object, "except when it has been cultivated through prior criticism, dulls itself; it

is soon satiated, exhausted, blasé" (Dewey, 1985a, p. 298). Just like the positive sciences seek to understand the reliable connections, consequences, and means of production of the *material* or *physical* qualities of things, to secure favorable conditions for human life, the humanities are practices which attend to the conditions of occurrence, and the sustained consequences, of immediately *valued* things. Nothing about these latter practices—neither their contents nor their methods—disqualifies them, in principle, from their status as a producer of knowledge about nature, its objects, and its processes. The worth of the knowledge they produce cannot be underestimated "in a complicated and perverse world, [where] action which is not informed with vision, imagination, and reflection, is more likely to increase confusion and conflict than to straighten things out" (Dewey, 1972, p. 46).

As we return to the issue of the humanities (and other non-sciences) as forms of *knowledge*, we can understand better how the epistemological and ontological claims of scientism are intertwined. The rejection of non-scientific forms of knowledge has as much to do with an understanding of the world it is knowledge *of*, as with the nature of knowledge itself. The impetus for denying various contents, categories, and methods as legitimate practices of knowledge rests, at heart, on an implicit (and at times explicit) assumption concerning the *reality* of experiential qualities and processes, which derives from a view of experience and nature as discontinuous. When the experiential human being is interpreted as continuous with nature, knowledge is not measured according to a representative ideal of a detached natural world, but according to the successful anticipation of future consequences which are relevant to the well-being and desired outcomes of the knower, permitting the inclusion of experiential qualities like values and common-sense concepts into our knowledge practices, and validating practices, such as the humanities, which engage with them. To challenge the ontological basis of scientistic ideologies is therefore also to challenge scientism as more commonly understood: as the rejection of non-scientific knowledge practices. The challenge to the *ontological* assumptions of scientism is the approach taken in this work.

This new perspective brings with it another consequence that will be important for the

central theses of this work—the recognition that "[t]here is more to experience than knowing," and that "knowing, as systematic inquiry, can be properly described only when we appreciate its function within the larger context of experience" (Bernstein, 1966, p. 61). In a post-evolutionary philosophy, knowing takes its place as an activity undertaken by a living being engaged in a plethora of experiential interactions with a complex environment during the course of living. Experience, far from primarily consisting in activities of *knowing*, involves multiple "ways of doing and suffering" (Dewey, 1972, p. 26). The experiencer "becomes a knower... when anticipation of future consequences operates as its stimulus" (ibid., p. 42). This is not to diminish the importance of knowledge-practices in human life. "[T]urning presence-in-experience over into presence-in-a-knowledge-experience" enables control over the qualities of experience and nature, and is therefore indispensable for an organic life which "goes on in and because of an environing medium" (ibid., p. 7). Processes of knowing can be successful or unsuccessful in intelligently anticipating consequences and controlling the environment. But most encounters in experience in their immediate presence—the dream, hallucination, or refraction of light through water—are non-cognitive, natural occurrences in the course of living, which become objects of knowledge when the experiencer pays particular attention to their qualities with reference to anticipated outcomes (ibid., pp. 37–39). The function of instituting knowledge-processes in the course of the broader totality of cognitive and non-cognitive experience is not to discover reality, but "to project new and more complex ends—to free experience from routine and from caprice" (ibid., p. 45). We therefore "distort our experience as *lived* if we think that the paradigm for every experience is thinking or knowing" (Bernstein, 1966, p. 62). With an experiential process rich enough to include imagination, intuition, emotion, and valuation, we can therefore not only ask what forms of *knowledge* might be possible for the manipulative control of experience and nature, but also what *other kinds of practices* can be undertaken towards a variety of forms of enrichment and success in human life. As Chapters 4, 5, and 6 explore, art has a capacity to provide human life with opportunities for profound critical renewal and

progress, a capacity that has often been overlooked or eclipsed because of a subtly scientistic preoccupation with cognitive objects and cognitive states of experience.

1.5 Overview of Chapters

Chapter 2 presents a recent example of scientism in more detail. Neuro-scientism is a form of scientism according to which neuroscience research can reduce or replace ordinary common-sense knowledge about human social, emotional, religious, aesthetic, or moral experience, by replacing such appearances or illusions with the neuro-scientific correlates that constitute the real qualities of these phenomena. The chapter then critiques this belief in science's ability to reveal the real qualities of nature or humanity, by exposing an assumption in the concept of experience employed in scientistic worldviews. This critique develops the argument presented in the last section, of an assumed divide between experience and nature. Chapter 2 provides another framework through which to understand the intuitive divisions we institute between the elements of an integrated experience that make contact with nature, or represent it well, and those that don't. Instead of understanding this distinction as a reflection of an ontological divide between qualities that are distortions or importations of experience and qualities that inhere in the objects of nature, I follow John Dewey in arguing that such a distinction arises from operations of inquiry which select qualities of the experience-nature interaction that are permanent, certain, simple, and widely shared, so as to provide a secure basis for subsequent action and control. The chapter concludes that the explanatory reduction of the arts and humanities found in neuroscientistic projects and presentations loses its rationale under this Deweyan ontology.

Chapter 3 addresses the topic of value-judgments in scientific inquiry. Presenting a theory of science as a use-oriented practice brings with it a need to clarify its implications for a theory of scientific objectivity, impartiality, and neutrality. This chapter shows how Dewey's theory of science rejects traditional notions of 'value-free science' by presenting scientific methods not as *ab extra*, absolute standards for discovering and representing nature, but as

techniques for guiding human interactions with their environment which have been honed and adapted in accordance with their successes and failures in producing desired results. Rather than compromising trust in scientific methods and research, however, this theory of science protects the authority and broad reliability of scientific knowledge across a wide variety of contexts and circumstances, precisely by virtue of a robustness derived from this selective process. The resulting theory of science and values is one in which scientific research, as an intrinsically use-oriented method, bears intrinsic accountability for its broader social and political effects, while scientific methods nevertheless remain reliable and authoritative resources for deciding suitable courses of action and public policy.

Chapter 4 makes a significant shift in focus. Instead of clarifying the nature of knowledge and science, as prior chapters have done, Chapter 4 takes up a different branch of the Deweyan critique of scientism, by responding to the overemphasis on cognition, and the implicit scientistic assumption that experience can be adequately characterized as primarily or exclusively an activity of knowing. Chapter 4 presents a more complete account of experience and its qualities in which cognition plays one functional role. In demonstrating the ubiquity of non-cognitive experiential processes, Chapter 4 sets up a framework in which non-cognitive activities, like artistic expression and appreciation, also play distinct and important functional roles in human life by virtue of their unique, non-cognitive capacities for enrichment and development.

Chapters 5 and 6 attempt to demonstrate, through extensive examination of concrete examples, the claims made in Chapter 4 of the importance, power, and indispensability of non-cognitive qualities and processes in experience. Both chapters use aesthetic experience and artistic practices as examples. Chapter 5 argues that literature can address significant problems and enable important realizations in experience, which are unavailable to traditional cognitive methods of reasoning, by virtue of its non-cognitive uses of language and its specific employment of and engagement with the non-cognitive elements of experience. Chapter 6 takes up problems of common sense—the hermeneutical interpretive resources

common to a community or society—which give rise to persistent and sometimes invisible injustice, and argues that, precisely by working with non-cognitive aspects of experience, art can be a highly adept method for rectifying these problems.

As a whole, this work seeks to show that neither science nor knowledge-practices more broadly understood are privileged forms of parsing the reality of nature from the distortion of experience, but are sophisticated instrumental processes undertaken by human beings for the purposes of living and resolving problems encountered in the course of living. This involves viewing cognition as a functional component of human life, and viewing experience and nature as extending significantly beyond cognitive processes and qualities. The first half of this work seeks to demonstrate this from the angle of science, by showing how the knowledge produced by scientific inquiry is closely connected to the greater context of human life, and bears a close functional relationship to lived purposes. In particular, it seeks to overcome narratives that have presented scientific knowledge as absolutely objective by virtue of being pure descriptions of the reality of nature absent the distortions of mind, or being pure methods for obtaining these kinds of descriptions. The picture of scientific knowledge as a description of reality by virtue of its removal of human elements is not consistent with the view defended here of knowledge as an activity undertaken for the successful pursuit of purposes of a human organism living in continuity with its natural environment.

The second half of the work seeks to demonstrate the same point from the angle of art, by showing the significance and extensiveness of non-cognitive processes of living, and simultaneously showing the intrinsic limitations of cognitive states and processes of experience. If knowledge-processes are not privileged forms of parsing the reality of nature from the distortion of experience, but are sophisticated instrumental processes undertaken by human beings for the purposes of living and resolving problems encountered in the course of living, then what other forms of processes lie beyond cognition? And, just like cognitive processes of inquiry, are these processes functionally important for human life? Without wanting to denigrate science or cognition, the last three chapters (apart from the conclusion) explore the

territory of non-cognitive states and processes of experience, to demonstrate their complex existence, their powerful capacities, and their indispensable role in human life. I hope to produce a picture of nature and existence in which a profound and uncompromising humanism is metaphysically justified.

CHAPTER 2

SCIENCE, REALITY, AND APPEARANCE

In 1934, John Dewey wrote, "Such is the newness of scientific statement and its present prestige (due ultimately to its directive efficacy) that scientific statement is often thought to possess more than a signboard function and to disclose or be 'expressive' of the inner nature of things" (1985b, p. 91). Science is not now as 'new' as it was in 1934, but a belief persists in its singular capacity to reveal the real qualities of nature. Science, it is commonly thought, is a practice by which we can move beyond the way things *appear* to us and discover the world for what it *really* is. Consequently, we are witnessing a trend in academic and public discourse of reducing the arts and humanities to the sciences, in an effort to transform the former into legitimate forms of knowledge. The boom in evolutionary, cognitive, and neuro-scientific explanations of aesthetic experience, spiritual practices, social behaviors, and moral actions testifies to the widespread acceptance that scientific transformations or reductions validate the perspectives and practices of their respective arts or humanities (Atran, 2002; Chatterjee, 2013; Dawkins, 1976; Greene, 2003; Greene, 2005; Trivers, 1971; Young, 2012; Zeki, 2008). This validation rests on science's purported capacity to reveal the true nature of phenomena—a capacity the arts and humanities are assumed to lack. "Why are we altruistic?", "Why do we create art?", "What is a spiritual experience?", and even, "Why *should* we be altruistic?", "Why is art *important*?", "What do spiritual experiences *mean*?"—all of these questions seem, for some, not to have satisfactory answers until they can be given a suitable position in scientific accounts of humanity.

As the previous chapter discusses, this expansion of science into the humanities as an arbiter of what constitutes knowledge is called 'scientism.' Though there is no consensus on a precise definition of scientism, there are consistent themes across academic disciplines which combine epistemological and ontological claims. In philosophy, Sorell's definition of scientism (Sorell, 1991, p. 1) includes beliefs that science is "the most valuable" or "the *only* valuable part of human learning" and that "it is always good for subjects that do not belong to science

to be placed on a scientific footing." He traces scientism in analytic philosophy back to the Vienna Circle of the 1920s, and identifies Patricia Churchland's work as paradigmatic of scientism in contemporary analytic philosophy—for example, in her suggestion that cognitive neurobiology provides a "new and encompassing paradigm" in epistemology (Sorell, 1991, p. 3). In sociology, Bannister (1997) traces scientism back to the scholarship of Auguste Comte's early nineteenth-century 'positive science,' and identifies a significant resurgence of the phenomenon in American sociology in the 1920s. He defines scientism as including beliefs that: (1) there can be no knowledge of that which is not externally observable by a third party (thereby excluding aesthetic and moral values, volitional vocabulary, folk-psychology, and other qualities of human experience); (2) social scientists must apply rigorous scientific methods to the study of humanity and society (thereby excluding introspective, imaginative, interpretive, intuitive, and otherwise humanistic methods from the proper study of humanity); and (3) social science must adhere to strict ethical and moral neutrality (thereby excluding ethical, humanistic arguments, interpretations, and goals from sociology). In theology, Stenmark (2001) defines scientism as encompassing four central claims: (1) the only real knowledge is scientific knowledge; (2) the only real *things* are ones science has access to; (3) only science can answer moral questions and will replace traditional ethics; and (4) only science can answer existential questions and will replace traditional religion. Peterson defines scientism similarly as the claim that "science is the only source of real knowledge and, therefore, that what science does not discover does not exist" (2003, p. 751).[1]

Although they differ in their specifics, the various disciplinary discussions on scientism generally share concerns over the authority of science to speak on human affairs. What should be the sciences' role in determining explanations and understandings of human reality, especially aspects typically studied with non-scientific methods and framed in non-

1. Perhaps by an imprecision of vocabulary, Peterson has suggested that phenomena which are not yet discovered by scientific research do not (yet) exist. However, I read him charitably as intending to suggest that scientism involves either the claim that we cannot rationally believe in the existence of what science has not yet discovered, or the claim that what the methods of science cannot in principle discover does not exist.

scientific vocabulary? A meticulously examined "conceptual map" of scientism was recently constructed by Rik Peels in an attempt to unify and order the otherwise disparate literature (2018). In this clarifying paper, two of the most significant forms of scientism identified (aside from those confined to internal academic affairs) unsurprisingly involved epistemological and ontological claims, with the most popular variety of ontological scientism referring to human affairs (ibid., p. 36). As I briefly covered in the last chapter and will explore below using the example of neuroscience, the scientistic belief that the natural sciences have a superior authority to speak on human affairs relies on philosophical foundations (whether implicit or explicitly stated) consisting in an epistemological claim that *the sciences are the only (or superior) way to ascertain knowledge about reality*, and an ontological claim that *what cannot (in principle) be translated to and explained in scientific vocabulary does not exist (or has an inferior ontological status—for example, it is partly illusory or misapprehended).*[2]

This chapter challenges the philosophical foundations of scientism, by identifying a fallacy rooted in a popular empiricist notion of 'experience.' I employ the work of American pragmatist, John Dewey, who exposed the same empiricist fallacy operating in scientistic attitudes of the early twentieth century. Scientism, I argue, will continue to evade counterarguments as long as the empiricist fallacy in its philosophical foundations continues to go unrecognized. But when properly deconstructed, the relentless colonization by scientific methods of the questions and topics of the humanities loses credibility, and conclusions about human affairs reached by humanistic methods and common-sense cultural debates are reaffirmed. I begin by examining instances of the epistemological and ontological claims in the philosophical foundations of scientism in public and academic scientific discourse, using the example of contemporary neuroscience. I then deconstruct these foundations using Dewey's critique of twentieth-century empiricism, specifically of a fallacy that views science as a process of revealing the 'real' qualities of objects in nature. I outline his alternative version of

2. It is important to note that, although scientism shows up in representations of scientific research (an example of which will be shown in this chapter's discussion of neuroscientism), scientism's claims are not themselves empirical *scientific* claims, but abstract philosophical ones.

empiricism in which science is a process of selective emphasis of experienced qualities that are useful in a given context. Under this view, scientific qualities do not come into competition or conflict with humanistic or experiential qualities, obviating the scientistic impulse to reduce away and replace humanistic explanations and understandings of human phenomena.

2.1 Neuro-scientism in Popular Culture

Among the philosophical foundations of scientism are an epistemological and an ontological claim, respectively, as follows: (1) *the sciences are the only (or superior) way to ascertain knowledge about reality*; (2) *what cannot be translated to and explained in scientific vocabulary does not exist (or has an inferior ontological status—for example, it is partly illusory or misapprehended)*. These claims appear in academic discussions on the nature of scientism. But can we see examples in scientific practices and public representations of science?

In high-profile science publications for a non-academic audience, Alex Rosenberg (2011, p. 6) and Steven Pinker (2013) have both proudly adopted the label 'scientism' to describe their own views, which they define respectively as: "the conviction that the methods of science are the only reliable ways to secure knowledge of anything" (corresponding to scientism's epistemological claim); and the position that the world in its entirety is "explicable in scientific terms" (corresponding to its ontological claim). A prevalent manifestation of scientism and its philosophical claims can be found in works exploring the evolutionary roots of morality. Academic and popular science publications claim that human moral convictions are not straightforwardly true and cannot be taken as reliable sources of judgment, because in reality they are by-products of our evolutionary history. According to neuroscientist and experimental psychologist Joshua Greene, "we can understand our inclination towards moral realism not as an insight into the nature of moral truth, but as a by-product of the efficient cognitive processes we use to make moral decisions"—processes that developed under the pressures of human evolutionary history (2003, p. 849). Claims like 'Animal cruelty is wrong' are not in fact "full-blown truths" but are "ultimately in the eye (that is, the mind) of the

beholder." In claiming that our moral beliefs are "illusions" (Rosenberg, 2011) and that the truth can only be found in evolutionary science, these scientists combine and promote both the ontological and epistemological claims of scientism.

The most powerful contemporary example of scientism and its philosophical claims, arguably with the most significant influence on public consciousness, is popular neuroscience. The proliferation of neuroscientific understandings of our lived experience across society is significant enough today to be described as "a shift in human ontology" (Rose, 2007, Chap. 7) that has "reduce[d] to the brain the range of determinants of human existence" (Ortega and Vidal, 2006, p. 7). Since George H. Bush ushered in the 1990s as the 'Decade of the Brain,' the growth and increasing visibility of neuroscience (facilitated by developments in fMRI technology and the brain images it makes possible) have brought a dramatic range of human and social realities under the domain of brain research. This is accompanied by an increasing emphasis on the brain as an explanatory device in scholarly and popular discourse (Choudhury, Nagel, and Slaby, 2009; Farah, 2012; Ortega and Vidal, 2006). "Images of brains, both normal and pathological, abound within magazines, books, newspapers and on television, with iridescent colors used to highlight regions that are 'active' or 'hot' and, it is assumed, thereby linked in some fundamental way to the subject of the commentary" (Pickersgill, 2013, p. 330). The brain has been employed to explain: emotions, such as "kindness, humor, heartlessness, gregariousness, altruism, mother-love and self-awareness" (Carter, 1998, p. 6); aesthetics, whereby the distinctive beauty of artists' paintings is explained by their selective effects on specific neurons in the brain's visual pathways (Zeki, 1999), and John Donne's poems are exciting because they stimulate neurons associated with "reinforced linkages of memory, concepts, and learned formal structures like geometry, algebra, and language" (Byatt, 2006); socio-political events, as when the brain of a German Red Army faction leader, preserved from 1976, was studied in the 1990s, and neuroscientists reported that "[t]he slide into terror can be explained by the brain illness" (Vidal, 2009, p. 18); and religion and spirituality, where "religion is articulated as a product of neurological activities that can

be manipulated in order to produce more healthy religious experiences" (Thornton, 2011, p. 154). Neuroscientists have also presented themselves as adequately positioned to contribute to, and even settle, philosophical debates on topics such as personhood, the self, the soul, autonomy, rights, and human nature (Farah, 2012; Ortega and Vidal, 2006; Vidal, 2009). In this emerging ontology of the human, which has been called "neuro-scientism," consciousness and its complex universes of experience can finally (and, in principle, exclusively) be understood in terms of neural activity and "ever more precise ways of observing the brain activity of conscious individuals" (Tallis, 2008); and neuroscientific physicalism can finally settle philosophical issues in human life by its replacement of "traditional notions of moral responsibility, spirituality, and meaning" (Farah, 2012, p. 588).

A transformation of our understandings of ourselves and human ontology is not in and of itself problematic. Change is not to be resisted for the sake of traditionalism or conservatism. Science can be a powerful tool for enriching our understandings of our world and expanding our realm of possible engagements with it, as the next chapter will discuss in more detail. Finding connections between two areas of human life and reality (be it our moral convictions and our evolutionary history, our tastes in art and our neural networks, or any aspect of humanity as it is lived and the findings of a laboratory study) can be exciting and fruitful. For example, neurological understandings of alcoholism have been experienced as a conceptually liberating and effective means of living with the disease (Vrecko, 2006), and neuroscience has advanced our understanding of age-related neurodegenerative diseases and opened pathways to their pharmacological treatment (Ortega and Vidal, 2006). But in this potentially enriching ontology, we see instead a trend of impoverishment of human reality. When framed with the philosophical foundations of scientism, rather than viewing its results and role as contributing to a rich collection of sense-making in human experience, neuroscience positions its results and discoveries as constituting imperatives for rejecting alternative methods of sense-making. The result is a reduction and impoverishment of human experience where an enrichment could otherwise result.

In neuroscience, the ontological claim of scientism manifests itself as neuro-essentialism, the belief that neuroscience reveals our 'essence' or 'who we really are' (constituting a superior reality to alternative perspectives of experienced phenomena). The epistemological claim manifests itself as neuro-realism, the belief that neuroscience provides the ultimate proof that an experienced phenomenon does or does not correspond to something real, and is thereby the standard to which experienced phenomena must be held (constituting a superior method of gaining knowledge of reality). In a study of neuroscience publications in print media in the U.S. and U.K. from 1994 to 2004, Racine and Aesch found neuro-essentialism to be present in 9% of portrayals of neuroscience innovation, and neuro-realism to be present in 9% of them (Racine and Aesch, 2006, pp. 87–88). In these contexts, rather than simply connecting two domains of life and experience, some neuroscientists and science-writers claim that one domain (that dealing in direct experiential qualities like emotions, moral convictions, aesthetic qualities) finds its true explanation and justification in the other domain (that dealing in scientific qualities). The assumption is that neuroscience discloses the real nature of things and saves us from erroneous perceptions of "our experiences, motives, motivations, and selves" (Tallis, 2008). Neuro-essentialism and neuro-realism depend on a discourse where the various areas of human experiential realities are 'nothing more than' scientific qualities at work. While only a minority of neuroscientists assume that "the essence of humanness is in the brain," the effect on public consciousness has been significant (Ortega and Vidal, 2006, pp. 8–9). The result is a reduction of the complex totality of human experience to a set of scientifically measurable qualities, and a corresponding prioritization of the truths produced and realities defined by scientific studies over the internal discursive logics of other realms of human sense-making. When it comes to reality and knowledge, "[s]cientism rejects dialogue: the sciences provide the answers; the lesser provinces of the intellectual and cultural world should take instruction" (Kitcher, 2012).

Examples abound in popular neuroscience. Francis Crick claimed that neuroscience proves that the soul is reducible to brain physiology, and that "[y]ou, your joys and your

sorrows, your memories and your ambitions, your sense of personal identity and free will, are in fact *no more than* the behavior of a vast assembly of nerve cells and their associated molecules" (Farah, 2012, pp. 586–87, emphasis added). Neuroscientists such as Semir Zeki and Michael Gazzaniga proclaim, respectively, that "all human activity is dictated by the organization and laws of the brain," and that categorically "you are your brain" (Ortega and Vidal, 2006, p. 7). In an interview for a 2007 *Salon* article, Vilayanur Ramachandran, director of University of California, San Diego's Center for Brain and Cognition, claimed, "We used to say, *metaphorically*, that 'I can feel another's pain.' But now we know that my mirror neurons can *literally* feel your pain" (Vidal, 2009, pp. 21, emphasis added). Rita Carter and James Watson have claimed, respectively, that soon neuroscience will know "*all there is to know* about human nature and experience" and "nothing will remain unknown or hidden from the eyes of science" (Carter, 1998, pp. 8, emphasis added; Thornton, 2011, p. 151). Neuroethicist Martha Farah claims that "our minds are, *at root*, physical mechanisms" and that brain processes "are not mere correlates but are the *physical bases* of these central aspects of our human personhood" (Farah, 2012, pp. 586–87, emphasis added). In neuroscientistic publications, artworks which seem to engage us as human beings are "merely sources of stimuli that act on bits of the brain" (Tallis, 2008). The experienced qualities of aesthetics are assumed 'really' to be scientific qualities at work.

From these statements emerges an ontology in which our judgments, intuitions, agreements, and actions (for example, regarding beauty, morality, spirituality, and sociality) found in the plurality of discursive domains of human social or psychological experiences have, till now, been misapprehended at face value and are, in reality, manifestations of imperceptible (at least to most of us) elements of our cognitive and biological makeup. In the words of a self-avowed believer in scientism, "reality is completely different from what most people think" (Rosenberg, 2011, p. ix). The extreme but logical conclusion of neuro-scientism is that neuroscience is able not only to contribute to debates on areas of lived experience such as subjectivity and normativity, but to take control of them and determine their answers.

In the next three sections, I present Dewey's critique of the empiricist fallacy that grounds the epistemological and ontological claims in the scientistic attitude, and I present Dewey's alternative empiricism in which the qualities of human experience dealt with by the sciences are no more real than those excluded (for example, emotional, moral, and aesthetic qualities). From the perspective of his alternative empiricism, science becomes not an investigation into qualities that are more *real*, but a specialized focus on instrumental qualities that are more *useful* in a given context. I then return in my conclusion to a discussion of scientism (and specifically neuroscientism) to clarify the nature of its errors, and reaffirm the independent value of alternative frameworks for understanding and explaining human reality.

2.2 An Empiricist Fallacy

Dewey's diagnosis of scientism is based in his critique of empiricism, which in turn is based in his alternative concept of experience. Himself an empiricist of sorts, Dewey emphasizes the importance of placing experience at the heart of philosophical method. A brief overview of twentieth-century philosophy might have one believe his suggestion was followed: 'Experience' has been a central concept for many predominant traditions. This is most obviously true of the various strands of twentieth-century empiricism that placed experience at the center of theories of knowledge and belief acquisition. Logical empiricists like Otto Neurath (1983; 1987) and Rudolf Carnap (1969), as well as their critics like W. V. O. Quine (1969), to varying degrees of specificity, have been either amenable to, or explicit proponents of, some form of scientism. Dewey sympathized with the logical empiricist project, even contributing to Neurath's *International Encyclopedia of Unified Science* in 1938 (Dewey, 1985c), but a crucial difference in his notion of experience led him to a contrary, anti-scientistic point of view.

As a result of a strong, if not exclusive, emphasis on philosophical theories of scientific method and cognition, the kind of 'experience' which could give rise to an 'empirical' understanding of the world was taken by logical empiricists to be synonymous with 'observation'

or 'sensory stimuli.' Aspects of human experience that do not pertain specifically to sensory perception and reason, such as emotion, imagination, and aesthetic or moral value, were omitted from their philosophical definition of experience. The concept of 'experience' furnishing Dewey's empiricism cannot be likened to these logical empiricist notions of 'stimulus' or 'observation.' Under a Deweyan framework, empiricists who take sensory input, observation, or stimuli to exhaust the aspects of experience relevant to knowledge of nature have made a significant and misleading preliminary assumption. They have begun with "results of a reflection that has already torn in two the subject-matter of experience and the operation and states of experiencing" (Dewey, 1985a, p. 19)—that is, they have already assumed a distinction between two types of quality in our experience as it arrives. The qualities to which we generally attribute the labels 'external reality' or 'objective' are those included within the mainstream empiricist definition of *experience-as-stimulus*, since they are assumed to originate in the *objects of experience* themselves. The qualities in our experience which we tend to ascribe to our own imported perceptual biases are excluded from mainstream empiricist definitions of experience, since they are assumed to originate not from the objects, but from quirks or flaws in the *operation and states of experiencing*—these would correspond to Rosenberg's 'illusions.' In line with the distinction we encountered in the last chapter, they are assumed to be qualities of the *mind*, which are opposed to the qualities of *nature*. Although we experience emotions, aesthetics, moral convictions just as we experience textures, colors, and shapes, in experience-as-stimulus empiricism, the former kinds of qualities (for example, "exciting," "harsh," "magnanimous") are automatically named 'perspectival' or 'subjective' and are unscrupulously determined in advance to be absent from the natural object of experience itself. The object itself is brown, wooden, and two meters long; it is the mind that finds it ugly.

Dewey's expanded notion of experience puts to one side—initially, at least—attributions of 'external reality' versus 'mere perspective' that structure the logical empiricist concept of experience-as-stimulus, and restores experience to a more complex (and yet more basic) pro-

cess containing a plethora of qualities, physical, emotional, and value-appreciative alike. This concept of experience is more ontologically complex, in that it involves not just the qualities associated with the senses and cognition but also emotions, desires, imagination, aesthetics, values, and spirituality. It is, however, more structurally basic, in that experience is an 'inclusive integrity' involving all elements of a person's undergoing and interacting, that does not arrive with built-in ontological divisions between 'reality' and 'perspective'—between *what* is experienced and *how* it is experienced. The division of experience-as-lived into these two parts is, in Dewey's metaphysics, an *a posteriori* operation: the division between reality and perspective does not come ready-made within the experiential process but is *performed*. If we are committed to genuine empiricism, Dewey says, we must accept experience as it comes to us and thereafter scrutinize the divisions we have instituted within it. Experience "recognizes in its primary integrity no division between act and material, subject and object, but contains them both in an unanalyzed totality" (Dewey, 1985a, p. 18).

What is the relationship between this form of holistic experience and nature? The scientific method has historically upheld experience as the only admissible evidence of what exists in nature (Shapin, 1996, pp. 80–89).[3] "If experienced things are valid evidence," Dewey says, then in the absence of a good argument to the contrary, we must accept the ontological reality of the features of experienced things. We cannot presume a straightforward division between elements of our experience that *accurately* reflect the world and those that are additive distortions, superfluities or illusions of the mind. *Prima facie*, all qualities encountered in experience are to be considered equally plausible candidates for constituent qualities of nature. It would be inconsistent, Dewey warns, to take experience as evidence of what exists in nature, and then, at our convenience, narrow our conception of experiential evidence to exclude everything that cannot be exhaustively defined in terms of qualities relevant to our physical senses and logical inferences (that is, qualities attended to by the sciences). As a

3. Experience has typically been opposed to metaphysical speculation or the dogmatic acceptance of authoritative ideas. See, for example, Bacon's *Novum Organum* (1861a), Locke's *Essay Concerning Human Understanding* (1690), Comte's *Course in Positive Philosophy* (1853), and Carnap's *Aufbau* (1969).

result, Dewey externalizes a vaster host of experiential qualities outwards into nature.

> If experience actually presents esthetic and moral traits, then these traits may also be supposed to reach down into nature, and to testify to something that belongs to nature as truly as does the mechanical structure attributed to it in physical science. To rule out that possibility by some general reasoning is to forget that the very meaning and purport of empirical method is that things are to be studied on their own account, so as to find out what is revealed when they are experienced. (1985a, pp. 13–14)

By validating the multifaceted qualities of experience, Dewey imbues the *objects* of experience with this wide range of qualities. Experience does not come with ready-made distinctions between 'real' qualities of the objects of experience, and 'mere appearance.' Experience is evidence of what exists in nature; and, since there is no pre-established break between what is experienced and how it is experienced, all qualities of experience should be predicated of nature. In the same way we would attribute a volume of 25cm^2 to an object on the basis of our 'scientific' experience of measuring it, for the sake of a consistent commitment to empiricism, we must attribute to objects the qualities found in our emotional, moral, and aesthetic experiences of them. If experienced things are valid evidence, then we have valid evidence for the real existence of ugliness or beauty in an object, just as we do for its size and shape. What sorts of predicates might our environment turn out to have under such an empiricism?

> Empirically, things are poignant, tragic, beautiful, humorous, settled, disturbed, comfortable, annoying, barren, harsh, consoling, splendid, fearful; are such immediately and in their own right and behalf... These traits stand in themselves on precisely the same level as colors, sounds, qualities of contact, taste and smell. Any criterion that finds the latter to be ultimate and hard data will, impartially applied, come to the same conclusion about the former. (ibid., p. 82)

Experience and nature are overflowing with qualities far beyond the boundaries of sensory perception and cognitive reasoning. In the absence of a good argument to distinguish the sensory and cognitive from the aesthetic and moral, nature should be considered to possess this affluence of value-laden qualities in its own right. To avoid a sharp separation between the mind and the natural world, Dewey says, we must "acknowledge that all modes of experiencing are ways in which some genuine traits of nature come to manifest realization" (Dewey, 1985a, pp. 30–31). This metaphysics provides a direct challenge to the presumptions of scientism, which would reduce away aesthetic, emotional, and moral qualities. Instead, we take the whole of our experience—which we receive first and foremost in holistic form—as evidence of what the world is really like, and understand any divisions instituted between the qualities of experience as operations performed upon and within this experience.

But, one might argue, we *do* have good reason to draw a distinction between sensory and cognitive qualities, and aesthetic, emotional, and moral ones. One may accept that these latter qualities exist within nature, but nevertheless exist within the chemical structure of our brains rather than in the objects themselves. The beauty of John Donne's poems is a quality of nature—it is *really* the quality of stimulated neurons. Or the emotional qualities of our daily experience may have more to do with what we ate this morning or how much sleep we got last night than they have to do with the stable properties of the objects we encounter. The divide between what is experienced and how it is experienced, between the subject-matter of experience and the states of experiencing, may be appropriate. After all, the division between perspective and reality, subjective and objective, is an intuitive division deeply embedded in our ontologies, which we employ as we navigate our environments. If this division is not a ready-made structure built into human experience that provides a way of distinguishing reality from appearance, then what is it? This is the topic of the next section.

2.3 Selective Emphasis of Cognitive Qualities

Dewey acknowledges the intuitiveness and usefulness of the distinctions drawn within the inclusive integrity of experience—between mind and nature, between *what* is experienced and *how* it is experienced, between objective and subjective qualities. He disagrees, however, with common interpretations of what these distinctions imply about the content they structure.

> The favoring of cognitive objects and their characteristics at the expense of traits that excite desire, command action and produce passion, is a special instance of a principle of selective emphasis... Selective emphasis, with accompanying omission and rejection, is the heart-beat of mental life... [But] the material chosen is selected for a purpose... [W]hat is omitted is merely that which is not relevant to the particular problem and purpose in hand. (Dewey, 1985a, p. 31)

The emphasis on 'cognitive objects' (those that tend to feature in scientific inquiry) over emotional, aesthetic, and moral traits is not an intrinsic structural feature of reality (as assumed in logical empiricist notions of experience-as-stimulus); it is an operation performed on holistic experience *for a practical purpose*. What purpose might we have to separate the qualities within our experience? Dewey claims that to fail to sort "a total unanalyzed world" is to subject oneself to whatever occurs "as if to fate" (ibid., p. 22). The sorting of experienced qualities into groups, such as the physical and the mental, is necessary for the sake of "analysis and control" (ibid., p. 37). Our "primary experience as it comes" is cluttered with an amalgam of properties, some fleeting, some stable, some we have in common with other sentient beings, some peculiar to our own dispositions. We organize these qualities in order to better understand them, manipulate them (if possible), or manoeuvre and plan around them (if not). But these categorizations do not correspond to the 'real' and the 'unreal'; they are sorted by us according to the *uses* we can find with each quality.

In a world "as full of uncertainty and peril as that in which we live," we value qualities that are *certain*; in a tangled and complex environment, we value qualities that are *simple*;

in a variable and ever-changing environment, we value qualities that are *permanent*. Each of these qualities (or meta-qualities) answers "genuine emotional, practical and intellectual requirements." As a result, they exercise a "hypnotic influence" on us, and are responsible for many an "addiction of philosophers" (Dewey, 1985a, p. 32)—think, for example, of the Aristotelian preoccupation with permanence, the Cartesian preoccupation with certainty, or the logical empiricist preoccupation with simplicity. Were we not to draw distinctions between the qualities we find in our tumult of experience, we would have no grounds for determining which qualities to regard as reliable indicators of the qualities of *subsequent* experience, and we would therefore have no grounds for deciding between courses of action. If we consider the qualities we tend to consider objective, and those we take into account in the natural sciences, they are precisely the qualities that are *certain, simple, and permanent across time and contexts*.[4] Unlike moral or aesthetic attitudes, and unlike our emotional states, the material composition of objects tends to remain relatively simple, unchanged, and reliable. These qualities are also less variable across the experience of different human agents—another useful feature of a quality, especially for facilitating cooperative endeavors. Humans differ radically in our aesthetic or moral valuations and emotional reactions, but we at least mostly perceive the same colors and shapes.

It is a natural tendency of human beings (and perhaps of philosophers in particular) "to take that which is of chief value to them at the time as the real. Reality and superior value are equated" (ibid., p. 31). We ordinarily reify the qualities with which we find practical use in the moment as the "exclusive realities" of nature, or "ultimate Being." So when we select qualities in our experience on the basis of a purpose that requires permanence, simplicity, certainty, and perspectival universality, we tend to take these qualities as the exclusively real qualities at that time, forgetting momentarily that they were originally isolated "because of a particular need and in order to effect specifiable consequences" (ibid., p. 33). But distinctions

4. To be more precise, Dewey considers all things in nature to be in a continuous state of growth and change. The qualities we regard as permanent, eternal, or fixed are actually those which change at an imperceptible (or barely perceptible) rate.

between 'reality' and 'appearance' are not built into the structure of experience, nor is this the most fundamental division instituted within it. Experiential qualities are selected and partitioned according to their uses in experiential contexts. In scientific contexts, these meta-qualities are certainty, simplicity, universality, and reliability.[5] In a different context where, say, nuance and flexibility were required—for example, the constructive ambiguity exploited in political debates, psychotherapy, poetry, and sometimes the humanities and interpretive social sciences (Gendlin, 1997; McMahon and Evans, 2018)—the more complex and changing qualities of the world's constituents (for example, aesthetic and emotional qualities) might be equally, if not more, relevant or valuable than those emphasized in a scientific context.[6]

In ordinary experience, the selection and reification of specific qualities "does no particular harm; it is at once compensated for by turning to other things which since they also present value are equally real" (Dewey, 1985a, p. 31). The attribution of 'reality' and 'appearance' to the qualities of our experience is an additional step taken ordinarily in the moment according to the context, then properly abandoned with the shift to a new and different context in which different qualities are pertinent and useful. Problems only arise because "this limiting condition is often wholly ignored. It is not noted and remembered that the favored subject-matter is chosen for a purpose and that what is left out is just as real and important in its own characteristic context" (ibid., p. 31). Dewey criticizes theorists for clinging to the qualities relevant to their own inquiries as *universally* fundamental and *exclusively* real, and dismissing those that are irrelevant as *universally* unreal. *The empiricist fallacy is the leap from 'most useful now' to 'exclusively real always' (or from 'not useful now' to 'merely phenomenal always').* The distinctions we draw within our complex and tangled experience function to provide us with control of that, and subsequent, experience. But they

5. Certainty, simplicity, and permanence are not exclusively scientific meta-qualities. As already intimated, philosophy fixates on these too. Even the visual arts utilize the permanent and certain qualities of the color spectrum to create their effects. Science is simply a hyper-focus on these particular meta-qualities for the sake of maximally precise control of the manifestations of qualities in the environment.

6. For a convincing sociological study of the ways ambiguity contributes to the progress and acquisition of knowledge in a variety of disciplinary settings, see (McMahon and Evans, 2018). For a study of subjective and emotional qualities alongside illustrations of their use in psychotherapy, see (Gendlin, 1997).

do not describe the ultimate reality of things, nor exhaust the truths in which people may be interested. They are practical operations performed in a context for a purpose.

As the next section will show, Dewey's empiricism has significant ramifications for his conceptualizations of science, and provides a direct challenge to scientism. Science is not a steady unveiling of the true nature of things, but is rather a practice of selective emphasis of particular types of properties from within a holistic experience whose constitutive properties all have an equal *prima facie* claim to reality. Within Dewey's brand of empiricism, there is no world 'more real' than the world as we experience it, with its multifarious felt properties. There are simply different properties which we select or suppress according to our needs in a given context. We can stop holding out for a "reality [which] is completely different from what most people think" (Rosenberg, 2011, p. ix).

2.4 Science as Selective Emphasis

For Dewey, science is in the business of discovery. But it's not in the business of discovering the true nature of reality. The purpose of science is "to discover those properties and relations of things in virtue of which they are capable of being used as instrumentalities,... those connections of things with one another that determine outcomes and hence can be used as means" (Dewey, 1985a, p. 6). That is to say, science is a type of selective emphasis. As with all selective emphasis, science is a process of partitioning certain kinds of qualities of experience and nature from others. Specifically, science selects and isolates the qualities of ordinarily experienced things that are *maximally generalizable and reliably connected with other qualities*, and can so be used as means to conjure or avoid qualities in subsequent experience. Dewey frequently uses water as an example.

> In the scientific statement of their chemical substance, even common sensible qualities are ignored. Different formulae enable us to anticipate differences which are not sensibly discernible at the time. To common sense, water is that which is

> potable, which will cleanse, upon which many things will float, etc. Chemically, it is H_20—a description in terms of a set of possible interactions and specified consequences. (Dewey, 1985d, pp. 132–33)

In our everyday experience of water, its qualities are potability, buoyancy, and use as a cleaning agent. In other places, Dewey mentions that one can swim in it, one can drown in it, one can put out fire with it (Dewey, 1985b, p. 151; Dewey, 1985e, p. 245). Water also possesses a host of symbolic, ritual, and aesthetic qualities, depending on cultural and historical context. These everyday qualities are localized to ordinary contexts in which we encounter and use water. The scientific quality of H_2O, however, is abstracted and isolated from the limited qualities of direct experiential enjoyment. The chemical theory of water as H_2O is "a statement of the conditions under which water comes into existence,... a direction for producing pure water and for testing anything that is likely to be taken for water... [and] sets forth [the conditions for the existence of water] in such a way that gives direction concerning generation of water" (Dewey, 1985b, pp. 90–91). H_2O is a maximally generalizable quality of water that opens up new potentialities for its manipulation.

Kitcher makes a consistent point in his critique of twenty-first century scientism. Whether for practical or aesthetic reasons, "either naturally or as a result of the accidents of human history, we focus on certain aspects of the world that intrigue us" (Kitcher, 2001, p. 50). We privilege physical and chemical classifications, since "the features in question turn out to be common constituents of causal processes that generate the fascinating surface properties." These microphysical structures are one type of maximally generalizable quality that reliably generate the immediately enjoyable qualities we desire. Discovering gold's atomic number has given us access to the common causal features that give rise to its interesting and desirable features of shininess, yellowness, and malleability. The chemical quality of H_2O is reliably connected to the presence of the drinkable substance of water, and can facilitate the production and purification of water, as well as a precise manipulation of its distinct manifestation as a gas, liquid, or solid. It has rendered discernible formerly indiscernible

qualities, such as its purity, and provided a safe and reliable method for distinguishing water from other transparent liquids, such as vodka, vinegar, and carbon tetrachloride. It has created new uses for water in chemistry, due to its distinctive properties as a solvent and reactant. Dewey calls this the "vast return wave" of science—a "transformation of the affairs of common-sense concern," which will be explored in more depth in the next chapter. Scientific inquiry's process of selective emphasis enables the discovery and isolation of fixed, instrumental properties, allowing easier and more diverse manipulation of elements of our experience. Science is "the example, *par excellence*, of the liberative effect of abstraction" (Dewey, 1985e, p. 252).

The scientific process of discovery is simultaneously a process of exclusion. We ignore the majority of the qualities of water or gold that are localized to a context, and focus exclusively on those that are "dependable and fruitful signs of other things" and can be harnessed for the manipulation of other qualities that interest us (Dewey, 1985a, p. 106). This, of course, is why science has such *predictive* power. But the "alleged objective similarities carry a tacit relativization to our capacities and our interests" (Kitcher, 2001, p. 51). Whole swaths of qualities of an object are suppressed in scientific inquiry, in favor of a reduced focus on a few. In the understanding of water as H_2O and gold as atomic number 79, we see nothing of our familiar perceptions of water or gold. We are able to manage the water and gold of our everyday experience in a variety of important ways precisely *by* suppressing their amalgam of qualities. "Genuine science is impossible," Dewey says, "as long as the object esteemed for its own intrinsic qualities is taken as the object of knowledge. Its completeness, its immanent meaning, defeats its use as indicating and implying" (Dewey, 1985a, p. 106). Although science expands the boundaries of our experience with new, abstract qualities, it does not thereby replace the appearances of our experience with a revelation of nature's true qualities. As Chapters 4, 5, and 6 will show, various other practices such as art, poetry, and travel also expand experience with new aesthetic, emotional, and conceptual qualities or "horizons of vision" (ibid., p. 274; Dewey, 1985b), but these are not usually attributed science's same

capacity to reveal ultimate reality or the real qualities of nature. (See Dewey, 1985b for a discussion of the ways art expands and manipulates experience.) Dewey's empiricism, with its lack of dichotomy between experience and nature, implies that "the intrinsic nature of events is revealed in experience as the immediately felt quality of things" (Dewey, 1985a, p. 6). Things as they are immediately felt (with their complex qualities), as well as signs of things to come, are for Dewey necessarily included in any 'complete' account of nature and reality.

Science, as a form of selective emphasis, reduces objects "from their status as complete objects [so] as to be treated as signs or indications of other objects" (ibid., p. 106). This process, with its knowledge of qualities in their connection to each other, is vastly powerful insofar as our ability to summon or dismiss qualities of our experience is made more extensive and secure. It is impoverished insofar as these instrumentalities, selected by science for this purpose, leave out enormous aspects of the *complete objects* found within experience. While science highlights—even produces—abstract qualities in experience and nature, what it leaves out is "just as real and important in its own characteristic context" (ibid., p. 31). Scientism's failure to recognize this fact is its central fallacy. Scientism has taken the novel and powerful qualities of science to be *replacements* for those of ordinary experience, correcting the misapprehensions of the mind by revealing the real qualities inhering in nature's objects. We should now adopt a truer empiricism that that respects the reality of nature as manifested in experience, and understands that the instrumental powers of scientific qualities depend precisely on their *incompleteness* as representations of experience and nature.

2.5 The Reality of Experiential Qualities

To conclude, let us return to an anxiety that plagued us at the beginning of this discussion: the eliminative tendencies of neuro-scientism. Neuro-scientism proposes that a better or truer representation of the realities of aesthetic, moral, and otherwise human experience can be found by dealing with the abstract and unfamiliar qualities of neuroscience, and simulta-

neously diminishes the reality and importance of the internal logics and comprehensions of the arts and humanities, and our moral and aesthetic intuitions.

Rosenberg insists that the only sensible method of dealing with depression and the quest for meaning in life is to "[t]ake two of whatever neuropharmacology prescribes," and he mocks people who refuse to take medication from the profit-driven pharmaceutical industry "because, they say, it deprives their inner lives, their thoughts about the human predicament, of seriousness and authenticity" (2011, pp. 282–83). With the empiricist fallacy exposed, we now have a clearer sense of his error. Studies of the neurological qualities of depression and addiction have enabled the development of targeted treatments to alleviate these forms of experiential suffering (Rose, 2007; Vrecko, 2006). Neuropharmacology has identified stable, relatively simple, and generalizable qualities of depression that are reliably connected with other qualities in human experience—specifically, it has identified the hormones and receptors that correlate with specific emotional states. Neuropharmacology has thereby allowed us to manipulate subsequent moods of depressed people, constituting an example of science's impressive efficacy. However, the superior value of these neurological qualities for this specific purpose and context does not justify an ontological claim of their superior reality when compared to the more complex, varied, and shifting emotional qualities manifested in a first-person experience of depression. In the different context of psychodynamic therapy, the emotional qualities of the "inner lives" of patients and their "thoughts about the human predicament" (however inchoate, unique, and fluctuating) are attributed a high degree of ontological reality, and are indispensable for the practical purpose of therapy (Gendlin, 1997).

Rosenberg has taken the selective emphasis of neurological features of the experienced reality of depression—selective emphasis that serves the purpose of providing expanded practical options for those debilitated by insurmountable depression—and he has assumed, based on an empiricist fallacy, that these neurological features are the exclusively real elements of this manifested reality. As a result, he cannot affirm the validity nor the practical impor-

tance of the experiential reality encountered by those in the midst of existential anxiety or world-weary depression. For the majority of us, Aldous Huxley's *Brave New World*—in which human beings deprived of the means to authentically explore their own "designs, goals, ends, and purposes" (Rosenberg, 2011, p. 281) rely on euphoric drugs to smother any negative feelings emerging in their meaningless lives—constitutes a provocative dystopic thought experiment. The novel puts in relief the reality and indispensability of experiential truths that lie beyond the bounds of neurochemical representation and manipulation, and of the logics, concepts, and values internal to them, such as authenticity. But in a claim that, for many, would serve as a *reductio ad absurdum*, Rosenberg admits, "scientism can't take authenticity seriously" (ibid., p. 283)

The discrepancy between scientific concepts and our experienced world is not explained by the notion that reality is "completely different from what most people think" (ibid., p. ix). It is explained by the fact that science selects but a narrow sliver of reality's holistic manifestations. Science's newness and directive efficacy—along with Western thought's inheritance of specific frameworks for understanding mind and nature, as discussed in Chapter 1—have led people to believe that it can "disclose or be 'expressive' of the inner nature of things" (Dewey, 1985b, p. 91), encouraging the scientistic impulse to discredit other ways of understanding and engaging with the world. If science did express the uniquely true nature of things, "it would come into competition with art, and we should have to take sides and decide which of the two promulgates the more genuine revelation" (ibid., p. 91). Are John Donne's poems exciting because they stimulate neurons, or because they "reach deep into our personal depths," they "are in dialogue with the broader culture in which they are produced," and they invite us "to reflect on what is shown, to accept or refuse the symbolic significance, to rejoice in the beauty of the world or deplore its horror" (Tallis, 2008)? Are moral obligations a misleading by-product of evolution that, now discovered, should be discarded and replaced by scientific suggestions for "maturation," or do our moral intuitions, vocabularies, and reasons constitute an independently justified method of judging our own

and others' behavior?

The choice presented—between the revelations of reality found in the aesthetic and moral qualities of experience, and those promulgated by science—is a false one. Neuroscience can reveal things we could not otherwise see, enable actions we could not otherwise take, but there are experiential truths and realities that cannot show up on an fMRI scan. Science is a powerful instrument, but it cannot more adequately reveal the complete nature of the world we live in. It is "as much a part of the real being of atoms that they give rise in time, under increasing complication of relationships, to qualities of blue and sweet, pain and beauty, as that they have at a cross-section of time extension, mass, or weight" (Dewey, 1985a, p. 91). Scientific inquiry intentionally impoverishes its view of reality to highlight and develop a small part. When it selects any given element as a narrower focus, it is not just revealing reality, it is stripping away from it. Often the qualities left out of scientific contexts are precisely the sort dealt with by the arts and humanities. The qualities of science are no more (or less) indicative of reality than the unstable, inchoate, and complex aesthetic, moral, or emotional properties of our lived experience. This fact must be the basis for any sensible discussion concerning the limits of science's role in human life. To deny it is to volunteer away our humanity.

CHAPTER 3

SCIENCE, OBJECTIVITY, AND VALUES

The last two chapters have sought to deconstruct the narratives of scientistic views, in which science is a practice of overcoming the partial perspectives of the mind or states of experience, in order to ascertain the genuine features of nature and its objects. Instead of this narrative, the last chapter presented an understanding of science as a use-oriented practice of selective focus on a narrow subset of the qualities of nature which prove useful in a given context for a given purpose. This theory of science brings the discussion to the topic of values in science, for two reasons. Firstly, according to the pragmatist position defended in this work, science is not the discovery of a more accurate representation of the nature of reality, but rather a use-oriented practice of selective emphasis of qualities which best enable analysis, manipulation, and control of the human environment. This naturally leads to a question as to what value-judgments are involved in pursuing those purposes, and what kinds of manipulations and controls of the environment *ought* to be made possible? Secondly, as the following discussion will show, throughout decades of debate on the role of values in science, positions taken on the value-neutrality of scientific knowledge and methods have often been parasitic on a corresponding position taken on their factual objectivity. Those claiming that science is 'value-free'—that is, free of subjective, personal, ethical, social, or political values in its methods and knowledge—have often appealed to an accompanying picture of science as a unique method for revealing the real qualities of nature, free from the distorting, subjective qualities of the mind or personal perspective. Conversely, the admission of the presence of subjective, personal, ethical, social, or political values in scientific practices has often explicitly or implicitly challenged the factual objectivity of scientific knowledge and methods. What position in this debate is implied by the view of science developed in the previous chapters?

This latter question is particularly important when considering the stakes involved in attributing or denying science its 'value-free' status. As the next section will show, many

of those presenting the value-free theory of science are concerned that acknowledging the role of values in scientific methods and knowledge will compromise the authority of science in the public's eyes, and compromise its role in determining public policy at a time when the employment of science in public policy has never been so urgently needed. On the other hand, those resisting the value-free theory of science argue that the failure to acknowledge the role of values in science has played a role in justifying politically oppressive and dangerous research projects and letting scientific institutions and research projects off the hook for aiding regressive economic and political structures.

This chapter will seek to extend John Dewey's theory of science in such a way as to accommodate competing claims in the debate on values in science. The next section will parse the wider issues and stakes of the debate over values in science, and identify two features that a sensible theory of science must have in order to satisfy the broader stakes of both sides in the debate: first, a theory of science must take scientific research to be intrinsically accountable[1] for the social and political effects of its research; second, a theory of science must take the knowledge produced by well-conducted scientific methods to be authoritative when deciding courses of action and public policy. The following two sections will consider the various ways people have sought to defend or challenge the value-free theory

1. The term 'accountable' is used throughout this chapter to describe science, so some clarification on its meaning and implications is necessary. To be accountable is to be answerable; that is, to take on commitments for delivering (or avoiding) certain results. In this chapter, the results to be avoided are social and political harm. Now, being held accountable is not the same as being held legally liable—advocating for the accountability of science for its social and political effects is not to advocate for anyone's susceptibility to prosecution for failure to follow through on such commitments (except where such practices would be considered in contradiction to more general laws). Arguments for the accountability of science are intended to suggest that it is appropriate for citizens to expect and encourage its society's scientific community to consider, engage, and commit to sets of values (which can be decided and evolved in conversation with broader social or political institutions), and to hold themselves accountable to those values by making institutional structures, incentives, and directives so as to encourage scientific research practices (by individuals and institutions) that are in accordance with the values to which it has committed. The important details of *how* scientific researchers, research projects, and institutions could be made accountable is not covered in this chapter. Suggestions for this have been made by other theorists, most notably Philip Kitcher (2001; 2011), and have included improving communication between scientific and broader social institutions, encouraging and honoring scientists who conduct research according to human needs, and creating a board of citizen representatives to facilitate communication between scientific institutions and the general public. Although I am not able to consider these possibilities in depth, I would support more transparency and democratic decision-making structures for determining the priorities and directions of scientific research.

of science over the course of the last century, including the logical empiricists approach, Thomas Kuhn's challenge, the distinction between epistemic and non-epistemic values, and feminist epistemology. The chapter will then provide an account of John Dewey's theory of the evolution of scientific methods in adaptive interaction with human material, biological, and cultural contexts, and show how the requirements identified for a sensible theory of science and values can be satisfied by this theory.

3.1 Impartiality, Neutrality, and Autonomy: What is at Stake?

Hugh Lacey (1999) has identified three ways in which science may be claimed to be free of personal, social, political, moral, and religious values:

1. Impartiality, or the claim that the internal reasoning of science is free of social values such that scientific theories are accepted or rejected purely on the basis of their relation to available material evidence according to the highest available standards,

2. Neutrality, or the claim that scientific theories as a whole (derived in a manner consistent with impartiality) do not presuppose or imply any particular social or political judgments, or serve any particular social or political purposes,

3. Autonomy, or the claim that science is driven by purely epistemic concerns (in accordance with impartiality and neutrality), detached from society's values in the form of interference from government, political or religious institutions, or the military.

Scholarship on the interaction of science and social values have, at various instances, contradicted claims to each of these forms of value-objectivity as descriptive statements of scientific inquiry. Historical accounts have demonstrated the existence of government and military interference in the conduct of institutional physics, contradicting science's autonomy (Kevles, 1987); psychological research has demonstrated the detrimental political effects of the publication of cognitive differences research, challenging science's neutrality (Steele,

1997; Spencer, Steele, and Quinn, 1999; Dar-Nimrod and Heine, 2006); and feminist epistemology has highlighted the influence of social and political values in the methodological assumptions of sociobiology research programs, challenging science's impartiality (Longino, 1987; Longino, 1990; Rooney, 1992).

Some of these forms of objectivity or value-freedom have also been employed prescriptively, as ideals to which science *should or should not* strive, or be permitted, to conform. In many cases, we see a combination of both descriptive and prescriptive employments, mixing different types of value-freedom. For example, autonomy is claimed to be *prescriptively* appropriate for science, since science is *descriptively* an impartial activity; or it is claimed that science is not *actually* producing neutral knowledge, so scientific research *should not* be autonomous.

Perhaps the most famous debates concerning objectivity and values in science were those occurring in the context of nuclear physics research into the atomic and hydrogen bombs in the 1940s and 1950s. In reaction to the nuclear physics research that had enabled the development of nuclear weaponry, a growing number of concerned citizens and scientists put pressure on scientific institutions to put structures in place to make physics more accountable to broader social values. This included "the formation of societies of scientists dedicated to controlling as far as possible some of the aspects of scientific discoveries" (Bridgman, 1947, p. 148). These societies sought to restrict nuclear physics' autonomy by making it accountable to broader social institutions, attempts which were justified by pointing to the lack of neutrality of the knowledge produced by nuclear physics. These critiques were met with responses that science should not be denied autonomy from the interference of society and its concerned citizens because it is not, essentially, a political enterprise. Such rejections of demands to constrict or forbid elements of scientific research for the social good relied upon a narrative of science's value-freedom in terms of its impartiality of method. Edward Teller, the physicist responsible for the technical design of the hydrogen bomb still used in most of the world's nuclear weapons, employed notions of the neutrality and impartiality of science

to defend its right to autonomy in his message urging atomic physicists to get "back to the laboratories." He argued that "[t]he scientist is not responsible for the laws of nature. It is his job to find out how these laws operate" (Teller, 1950, p. 71). His contemporary, the Nobel Prize winning physicist Percy Bridgman, also defended nuclear science's right to autonomy on the basis of the impartiality of its method, saying that science simply invokes evidence to face "the challenge of an external world not understood" (1947, p. 153). "[S]cientific freedom is essential," he claimed, if the scientist is to "understand nature" (ibid., p. 153). The gist of this argument, forms of which are still made today, is that, *since science is oriented towards extracting objective knowledge about an external nature from the use of an impartial method* it is distinguishable from any representation or utilization of that knowledge in the service of a particular end or ideology, and bears no responsibility for the latter practices.

Many of those defending science's right to autonomy, and its status as neutral and impartial, do not deny the existence of social and political consequences of scientific research programs, nor the undesirable nature of these consequences. They often recognize and dislike "as much as anyone" the role of science in "military hardware, surveillance of dissidents, destructive and environmentally unsound industrial practices, and the manipulation of mass consciousness through the technologies of popular culture" (Gross and Levitt, 1994, p. 2). They typically acknowledge the historical reality of Nazi eugenics, the oppression of women, racial and ethnic minorities, and LGBTQ people, as well as the role science has played in facilitating them (cf. Sokal, 1996; Wilson, 1976; Gross and Levitt, 1994; Wolpert, 1993). What they defend in terms of science's objectivity is the impartiality of 'the scientific method': The scientific method, when properly adhered to, is such that it produces objective truths absent of the value judgments that plague other forms of knowledge and practice. Scientific method, they claim, isolates the phenomena of nature from their social and political settings and impartially derives knowledge of them from the evidence, paying no heed to the personal, practical, political, or social significance of the knowledge or its phenomena. There are no particular values in scientific knowledge, precisely *because* it is impartially derived

from the evidence. Science's indifference to our politics renders it "liable at any moment to produce results that demolish one or another cherished preconception of ideology" (Gross and Levitt, 1994, p. 147). We might not *like* the evidence or knowledge, it may contradict what we *hope* to be true—for example, it may be "unacceptable by feminist lights" (ibid., p. 146)—but the evidence and knowledge are indifferent to and independent of our values, as long as proper "empiricist procedure" is followed (ibid., p. 135).

Accompanying such claims of the impartiality-induced neutrality of science is the claim that any non-neutral social or political consequences of scientific knowledge *must* belong to conditions *outside* the bounds of science. The *external* uses of objective scientific knowledge may be politically and socially value-laden, but the *internal workings* of scientific inquiry are insulated from social and political effects by virtue of a method governed strictly and exclusively according to epistemic standards for obtaining objective knowledge about an external reality. Society and its values are halted at the laboratory door, where objective science, insulated by its value-proof method, takes over. Under this view, 'science per se' can be clearly demarcated from society, and from "the uses to which science is put" (ibid., p. 2). While 'science per se' is responsible for the production of knowledge, "the implementation, the application, of that knowledge is a social and political decision" (Wolpert, 1993, p. 159) and may therefore be considered the proper responsibility of "the political and economic forces controlling our society" (Gross and Levitt, 1994, p. 2). It is on this basis that objects of political concern, like nuclear weaponry and industrial pollution, are clearly demarcated from purely "scientific understanding" (Wolpert, 1993, p. 173).

A sympathetic reader might be tempted to justify the arguments for the autonomy and impartiality of nuclear physics research on the basis of a difference between 'science' and 'technology'—nuclear physicists research nuclei; governments and militaries build and utilize bombs. However, more recent debates on scientific research programs into cognitive differences between genders, sexual orientations, and races slip into similar patterns. In response to political effects of the publication of scientific research on gender- and race-related

cognitive differences in the form of documented harm and risk to women and racial minorities, some scholars of science urge limitations on science's autonomy in the form of restrictions on cognitive differences research (Kourany, 2016; Kitcher, 2001, Chap. 8). Many critics circumvent the issue of scientific method's impartiality by arguing that the right of scientific research programs to strong autonomy should be denied simply on the basis of the evidently non-neutral interactions of scientific knowledge with other aspects of society (Kourany, 2016; Kitcher, 2001; Douglas, 2009; Shrader-Frechette, 1996), but researchers still respond with a case for science's autonomy based on a picture of science as a purely intellectual process that is fundamentally insulated from society and its values. " 'What is problematic about cognitive differences research,' they claim, 'is not the questions asked or even the results sometimes obtained, but the prejudiced—the racist and sexist—context in which the research takes place' " (Kourany, 2016). Psychologists Ceci and Williams defend the right of cognitive differences research to autonomy—"the scientific truth must be pursued" (Ceci and Williams, 2009)—by making a leap from impartiality of method to neutrality of results. They assert that political or social consequences "do not result from allowing scientists to publish their findings" on correlations between race and IQ scores, and that the demonstrated harm to identity groups results rather from the context in which the findings are received (ibid.). Some scientists appear incredulous that knowledge derived using impartial scientific methods could *possibly* give rise to negative political consequences. Sociobiologist E. O. Wilson has claimed that "social progress can only be enhanced, not impeded, by the deeper investigation of the genetic constraints of human nature" (1976, p. 190), and biologist Lewis Wolpert has claimed that the more we pursue objective knowledge through science, "the better the chance we have to make a just society" (1993, p. 164). Physicist Alan Sokal has also claimed that "rational thought and the fearless analysis of objective reality (both natural and social)" will necessarily lead to improvements in society (1996). Moreover, the kind of impartially-derived knowledge of nature and reality that science is believed to provide has been described as "intrinsically good" (Wolpert, 1993, p. 159), "one of the chief

glories of man" (Bridgman, 1947, p. 154), and "desirable human ends in their own right" (1996). The common assumption running through these claims is that the impartiality of method—the derivation of knowledge through the use of logic and high standards of evidence—guarantees either the value-neutrality of scientific knowledge, or the uncontroversial positivity of its consequences, thereby validating its requests for autonomy from socially or politically imposed restrictions.

Unsurprisingly, scholars of science have taken to questioning the impartiality of scientific methods, and whether such methods can guarantee the neutrality of its knowledge. Richard Lewontin has argued that it is "not at all obvious that the methods and problematic of natural science produce an 'objective' picture of the world untainted by ideology and by the social and political predispositions of scientists" (1996, p. 294). Andrew Ross has argued that there is "nothing distinctive to differentiate science from any other social activity," and that the very notion of science's methodological impartiality is a "dogma" which is "used to fend off social criticism and to protect professional contracts with the corporate-military state" (1996, pp. 6, 13). Stephen Gould (1996), Helen Longino (1987; 1990), and Phyllis Rooney (1992) have each challenged the impartiality of research programs in sociobiology and intelligence testing, by demonstrating that the posing of certain questions and the derivation of their conclusions have depended partly on pre-existing social and political values. Some theorists have gone so far as to suggest that impartiality of method (in the sense of freedom from the influence of personal, social, moral, religious, or political values) is impossible to guarantee, and that scientific method should be intentionally altered and adapted to suit our proclaimed political values.[2]

Critiques of science's impartiality of method, while achieving a significant degree of success and acceptance in scholarly circles, have left a great number of scientists and scholars dissatisfied. Although some have argued that the links between scholarly literature and the

2. I discuss these claims in more depth (particularly Longino's work) in the section, 'Feminist Critiques of Science.'

rise of populism are tenuous (Rosenfeld, 2019, Chap. 4, Kitcher, 2011, pp. 15–16), other scholars and public commentators have attributed responsibility for the recent growth of populism to academic fields like social studies of science. They suggest that their challenges to the impartiality of scientific methods have undermined public confidence in science, and in expertise more generally (cf. Rosenfeld, 2019, Chap. 4 n. 6). The importance of public and government confidence in science was recently highlighted in the controversial rejection of the overwhelming scientific evidence for human-induced climate change by the President of the United States. In a tweet in 2012, Donald Trump claimed that, "The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive." In a campaign speech in 2015, he said of global warming, "A lot of it's a hoax. I mean, it's a money-making industry." In 2016, he appointed Myron Ebell—who had accused climate scientists of being a "gang" who had been "manipulating and falsifying the data"—as head of his transition team for the Environmental Protection Agency. Trump questioned the *neutrality* of climate science research by suggesting that specific political and economic interests were served by the acceptance and proliferation of its findings—a claim that is arguably true, since it indicated a need to reduce specific manufacturing processes and American reliance on fossil fuels, all of which disproportionately affect specifically situated citizens and industries. But ultimately, his challenges to the *authority* of climate science relied not just on the political inconvenience of climate science research findings, but fell back on challenges to the *impartiality* of the method of producing scientific results—impartiality that science studies scholars, who occupy very different worlds and usually hold very different politics, have also devoted significant effort to challenging. Regardless of the causal connection between populism and scholarly challenges to scientific impartiality (which are hypothetical at best), this example of scientific evidence being unduly disregarded for the political purposes of justifying the repeal of the Clean Water Rule and the Clean Power Plan, and the withdrawal of the United States from the international Paris Agreement on climate change, illustrates the importance of sustaining a popular narrative of at least some

form and degree of scientific authority based on the reliability and trustworthiness (if not the absolute impartiality) of scientific methods.

From the consistent appeals and challenges to scientific impartiality in debates concerning politically contentious science, it seems that impartiality is a tricky notion to navigate. On the one hand, we do not want to encourage a belief in the impartiality of science as a process completely insulated from wider social concerns, which would justify requests for the autonomy of research programs that cause serious risk or harm to individuals or groups. But while we seek to make science accountable for its social and political consequences, we cannot comfortably deny that scientific research is capable of some form of impartiality that, if manifested, is deserving of our trust and respect when arriving at consensus on received opinion and when deciding on public policy. The suggestion that scientific method can, and even ought, to be doctored to better manifest predetermined social and political values does not seem consistent with the much-needed trust in the impartiality of scientific methods.

This chapter offers an account of scientific methodology which reconciles these two important components required of a sensible narrative of science—an account in which the authority of scientific method bestowed by a qualified sense of *impartiality* is consistent with science's *accountability* to the broader social effects of its research. This account extends from the philosophy of John Dewey, already introduced in previous chapters, in which science is a practice conforming to methods selected and adapted over time for their demonstrable *success* in attaining certain *desirable* and *useful* results concerning manipulative control over qualities in the human environment. As will be shown in the section, 'John Dewey's Solution,' the employment of both a standard of success *and* relativity to ends enables Dewey's theory of science to navigate the issues of impartiality, authority, and accountability in a way that may satisfy the important claims made by different perspectives in the debate.

With regard to scientific impartiality and authority, Dewey's philosophy of science entails that, although scientific method is intrinsically related to human purposes that are material, biological, and cultural (thereby value-inflected), there is nevertheless something uniquely

reliable about the scientific method that gives us a reason, and even a responsibility, to trust and utilize its results. With regard to scientific accountability, Dewey's philosophy of science entails that, although much scientific research operates best with a degree of detachment from *specific* human purposes and values, its use-oriented genesis and proper function make it intrinsically accountable for the social and political consequences of its applications, and responsible for informing its directions with ethical considerations.

Before presenting Dewey's philosophy of scientific method, the next two sections examine the twentieth-century history of philosophical attempts to delineate an impartial, rule-governed scientific method that guarantees objective, value-neutral knowledge. Early proponents of a rule-governed scientific method, such as the logical empiricists, argued for the existence of a procedural methodology that would bring any two rational and competent inquirers to the same theoretical conclusion on the basis of the same evidence, eliminating the possibility of personal, social, or political values interfering in the production of knowledge. I present an overview of a sequence of successful challenges to this position throughout the decades of the mid- to late-twentieth century, and the resulting shape-shifting of theories of science's methodological impartiality that ensued. I also present the simultaneous development and strengthening of an alternative narrative of science in the fields of philosophy of science and social studies of science, which rejected the possibility of pure scientific methodological impartiality, placed value-judgments at the heart of scientific method, and demonstrated scientific method's consequent vulnerability to political bias. The strongest of these challenges has come from feminist epistemology and philosophy of science.

While acknowledging the successful challenges these studies of science have presented to the value-objectivity of science, and the important wedge they have driven into narratives that justify politically damaging scientific and technological research programs, I argue that the positions taken by feminist philosophers of science have failed to acknowledge the important and unique features of scientific methodology which render its results particularly reliable, authoritative, and powerful. I then turn to John Dewey's theory of scientific method

and its applicability to the problem of reconciling science's impartiality and authority with its use-relativity and accountability to social and political values.

3.2 The Recent History of the Value-Free Ideal of Science

Narratives of the objectivity and value-free nature of science have taken different forms at points in history, each serving distinct social functions in a given historical circumstance (Proctor, 1991; Daston and Galison, 1992). I focus in this section on specific debates which emerged in the early- and mid-twentieth century in the context of the establishment of philosophy of science as a subdiscipline of academic philosophy, and have continued into the present day. These debates concern the role of values in scientific *methodology*, and the possibility of deriving neutral facts about nature from given evidence by following an impartial scientific procedure. I begin with the logical empiricist tradition of the 1930s, comprising theorists such as Rudolf Carnap of the Vienna Circle, and Hans Reichenbach of the Berlin Group. Logical empiricists believed there to be "an algorithm or set of algorithms which would permit any impartial observer to judge the degree to which a certain body of data rendered different explanations of those data true or false, probable or improbable" (Laudan, 1984, p. 5). If at any point, scientists held different and conflicting theories, all they would require was to consult the evidence, along with the algorithmic rules of inference from evidence to theory, in order to determine which theory was objectively better supported. In this way, scientific method represented an objective means for arriving at universal agreement on an accurate, factual representation of nature, free from the distortions of personal perspective. The tenability of this version of the value-free thesis depends on "whether the canons of scientific inference dictate assignments of minimum probabilities in such a way as to permit no differences in the assignments made by different investigators to the same set of alternative hypotheses" (Levi, 1960, p. 357). In other words, can two competent scientists rationally disagree on the theory best confirmed by the same evidence? As this section will show, ongoing debates on the topic of values in science can be seen as a

sequence of moves and counter-moves in an attempt to challenge or salvage the notion of a scientific method that could serve as a universal formula for delivering any two competent inquirers to the same scientific theory on the basis of the same evidence.

The logical empiricist notion of science was a rule-governed, mechanical method inevitably bringing any given inquirer to the same theoretical position on the basis of the same evidence. Carnap (1959) attempted to specify a precise methodology for the derivation of scientific theory from evidence by analyzing language and placing restrictions on what counts as a meaningful statement. His theory of science attempted to show that valid scientific knowledge was derived from the rules of logic and mathematics, applied to foundational, value-free statements of evidential observations, or "protocol sentences." "Any statement," Carnap claimed, "... which does not fall within these categories becomes automatically meaningless" (ibid., p. 76). Any statement (or corresponding belief) inflected with value-judgments or other forms of subjectivity was therefore definitionally excluded from the operations of scientific theory construction, guaranteeing a scientific method insulated from the influence of values. Reichenbach undertook a similar project with his "rational reconstruction" of scientific inquiry. He charged epistemology with the task of separating the "context of discovery"—in which were found all the sociological elements of scientific process—from the "context of justification"—in which were found the "justifiable operations" of science "bound to factual knowledge," allowing his philosophy of science to "separate the arbitrary part of the system of knowledge from its substantial content, to distinguish the subjective and the objective part of science" (1938, pp. 6–7, 15). Scientific method, in these logical empiricist characterizations, involved clearly defined rules enabling scientists to agree on the truth, falsity, or likelihood of a given theory based purely on the evidence, without the incursion of individually variable, socially or politically influenced decisions. Logical empiricists accepted that scientists make value judgments in conducting their research, but they rejected the idea that such judgments enter into "the scientific method as such," relegating these judgments instead to the "sociological" elements of science as practiced. The

respectability of the logical empiricist tradition in early- to mid-twentieth century philosophy established a strong basis for claims of the value-neutrality of scientific knowledge, based on its derivation using precise scientific method.

A major challenge to this view arose in the 1950s in the works of C. West Churchman and Richard Rudner, who attempted to show that "scientists as scientists *do* make value judgments"(Rudner, 1953, p. 2; Churchman, 1956). Rudner argued that a constitutive part of the scientific method was the acceptance or rejection of a hypothesis. Since a scientific hypothesis is never completely verified by the evidence, a certain degree of doubt—or possibility of error—inevitably remains. The scientist must, therefore, determine whether the evidence supports the hypothesis to a *sufficiently* high degree of probability to warrant the acceptance of the hypothesis. Rudner claimed that the decision as to how high a degree of confirmation is appropriate or necessary is "a function of the *importance*, in the typically ethical sense, of making a mistake" (1953, p. 2). For example, "if the hypothesis under consideration were to the effect that a toxic ingredient of a drug was not present in lethal quantity, we would require a relatively high degree of confirmation or confidence before accepting the hypothesis—for the consequences of making a mistake here are exceedingly grave by our moral standards" (ibid., p. 2). If, on the other hand, we were testing a hypothesis concerning defective belt buckles, we would require a much lower degree of confirmation. Therefore, Rudner claims, if the scientific method intrinsically involves the acceptance and rejection of hypotheses, then it also intrinsically involves value-judgments of the ethical sort. This aspect of scientific methodology would lead different scientists to different decisions from the same evidence, depending on their ethical leanings, thereby introducing subjective bias and value-judgments into scientific methodology.

While Rudner convincingly argued that accepting a scientific hypothesis for use in a practical objective would require a value-judgment about the importance of the consequences of error, the Churchman-Rudner position did not quite succeed in overturning the value-free ideal of science as posited by the logical empiricists. Responders argued that value-judgments

about the consequences of error actually occur at a point of contact between 'science per se' and the practical applications of science in society, rather than within scientific method itself. They argued that value judgments are made by social agents *before* the scientist begins or *after* the scientist has completed their procedural task of pursuing scientific confirmation. This argument was made in at least two different ways. One response agreed that accepting or rejecting hypotheses involves assessments of risk, but denied that accepting and rejecting hypotheses is intrinsic to scientific method. This involves distinguishing *probabilities* (or degrees of confirmation) from *utilities*, since a hypothesis "will be relevant in a great diversity of choice situations among which the cost of a mistake will vary greatly" (Jeffrey, 1956, p. 242). For example, a polio vaccine may be intended for human children or for pet monkeys, but nothing in the hypothesis, "This vaccine is free from active polio virus," includes information on its intended use. Therefore, the proper task of the scientist *qua* scientist is simply the assignment of probabilities to the hypothesis, while the subsequent decision whether to accept or reject it is left to a social agent, external to the scientific method, who will evaluate whether the degree of certainty reported by the scientist is appropriately high, given the importance of the consequences of error. Another response acknowledged that the scientist *qua* scientist accepts or rejects the hypothesis, but affirmed the possibility of accepting or rejecting a hypothesis in an open-ended situation where "practical objectives are difficult to specify" (Levi, 1960, p. 350). Accepting or rejecting a hypothesis would therefore be separable from the decision to *act* in a given situation on the basis of that hypothesis, removing the necessity of a value-judgment as to the consequences of error. Different scientists *qua* citizens may very well make different decisions evaluating practical risks—decisions inflected by their individual personalities and politics—but they will be forced to agree on the degree of confirmation of a given theory based on scientific method. This leaves the objective scientific method intact, and science appropriately insulated from subjective, social, and political values by the procedural nature of its method.

The Churchman-Rudner argument offered some evidence for a highly limited involvement

of value-judgments in science. Everything in the scientific method remained universal and value-free, except the decision as to the appropriate degree of confirmation or strength of evidence necessary for the acceptance of a theory. However, as we've seen, this aspect of scientific inquiry was easily marginalized and assigned to external agents operating outside scientific method proper. A much more radical challenge to the value-free ideal was offered by Thomas Kuhn in his *Structure of Scientific Revolutions*, where he demonstrated the "insufficiency of methodological directives, by themselves, to dictate a unique substantive conclusion to many sorts of scientific questions" (2012, p. 4). An inquirer who is adequately following scientific methodological directives, Kuhn claimed, may nevertheless "legitimately reach any one of a number of incompatible conclusions" (ibid., p. 4). In this way, Kuhn challenged the procedural nature and universality of scientific method, by suggesting that the development of a theory, as well as its acceptance or rejection, was influenced by elements that were "apparently arbitrary" and, importantly, differed from one inquirer to another according to their "individual makeup" (ibid., p. 4). This arbitrary element of scientific method not only affected individual scientists, but was responsible for the legitimate disagreements between different scientific communities across time. Such variance, then, was intrinsic to the scientific method; it was neither an illegitimate intrusion of subjective, social, or political values, nor localizable to points of contact between a logical, rule-governed method and a value-burdened society.

In later clarifications of his theory, Kuhn identified five criteria operative in scientific method, functioning "not as rules, which determine choice, but as values, which influence it" (1977, p. 331). These criteria included "accuracy, consistency, scope, simplicity, and fruitfulness" (ibid., p. 322). That is, the theory should be in agreement with experiments and observations; it should be consistent with itself and other currently accepted theories; its consequences should extend beyond the observations it was initially designed to explain; it should bring order to phenomena that might otherwise seem disparate and confused; and it should open up paths for further research. Individual scientists may legitimately and ra-

tionally differ as to whether and to what extent these criteria apply to concrete cases: for example, for a scientist choosing between the geocentric or heliocentric theories, simplicity may mean the amount of "computational labor required" to apply the theory to predict the location of the planets—which would favor geocentrism—or it may mean "the amount of mathematical apparatus" needed to explain the planets' qualitative features—which would favor heliocentrism (1977, p. 324). Additionally, two of these criteria may come into conflict, and a scientist would have to decide which criterion to favor in terms of theory choice. Therefore, two scientists "fully committed to the same list of criteria for choice may nevertheless reach different conclusions" (ibid., p. 324). Moreover, different fields and periods of science had legitimately applied these criteria differently and attached different relative weights to them. While the tradition in philosophy of science had previously held that the rules of scientific method were unambiguous and fully determined, such that any differences of choice could be ironed out, Kuhn demonstrated that science was "a decision process which permits rational men to disagree" (ibid., p. 332). Differences of theory choice and the influence of subjective preferences were, for Kuhn, part of the "essential nature of science" (ibid., p. 330). In the absence of a universal, determinate method, science was now an institution that could produce a variety of different theories from the same evidence, introducing subjectivity into scientific knowledge.

Although philosophers of science largely came to accept Kuhn's characterization of a less deterministic scientific method, there has been a great deal of resistance to the description of its indeterminate criteria as 'values,' or to the equivocation of these 'values' with the kinds of social and political values that threaten the impartiality and authority of scientific knowledge. Some have sought to defend the value-free ideal of science by creating a categorical separation between *epistemic values*, which are conducive to the discovery of objective truth, and *non-epistemic values*, which include subjective preferences and biases (Douglas, 2009; McMullin, 1982).[3] Arguments for this distinction state that, although different scientists make

3. This has also been characterized as the distinction between 'cognitive' and 'social' values, or 'consti-

different choices due to differences in their individual training, preferences, character, and background, there is still a clear dividing line between legitimate criteria for theory choice, which will leave intact the impartiality of science, and illegitimate criteria, which would sully the objectivity of science with social and political values. Epistemic values "promote the truth-like character of science"; non-epistemic values are those that promote any other kind of goal, including political, moral, social, and religious goals (McMullin, 1982, p. 18). In these accounts, Kuhn's criteria for scientific method—accuracy, consistency, scope, simplicity, and fruitfulness—are epistemic values oriented towards the ascertainment of truth, and do not challenge the objectivity of science. Non-epistemic values, such as the consistency of a scientific theory with a favored religious ideology, are argued to be clearly distinguishable from non-epistemic values. Therefore, whenever we see non-epistemic values operating in scientific inquiry, we can identify them as straying from proper scientific process, and identify the resulting knowledge as non-objective. Insofar as non-epistemic values operate in scientific inquiry, they are "gradually sifted out" by various processes such as replication of experiments, extension of theories, testing of theoretical moves, which are "designed to limit the effects... of fraud and carelessness, but also of ideology" (ibid., p. 23). If we can distinguish epistemic values from non-epistemic values, and procedurally check and remove the latter's involvement in the production of scientific knowledge, then scientific method is still insulated from arbitrary value-judgments. In that case, even though scientific theories may legitimately differ, the social and political neutrality of scientific knowledge remains intact, and so does its impartiality and authority.

3.3 Feminist Critiques of Science

In the 1980s and 1990s, feminist philosophers of science challenged the distinction between epistemic and non-epistemic values in science. It is not clear, they argued, that any guarantee is possible that non-epistemic values will not enter into scientific methodology. In a

tutive' and 'contextual' values (Machamer and Douglas, 1998; Longino, 1990; Lacey, 1999).

detailed discussion of scientific studies of sex differences, Longino describes multi-faceted ways in which contextual (or non-epistemic) values and constitutive (or epistemic) values are "inextricably linked to each other" (Longino, 1990, p. 134).

In her case studies, Longino argues that descriptions of empirical observations were influenced by sexist assumptions, including: caricatures of lesbian sexuality; assumptions of males' mathematical superiority; and most significantly, the assumption that "there are sex-appropriate and sex-inappropriate behaviors" (ibid., p. 131; Longino, 1987, p. 58). These value-laden descriptions would then serve as evidence in the assessment of theories of the hormonal-biological determination of gender differences. If descriptions of the data serving as evidence contained politically-biased assumptions, then even the 'epistemic' values—for example, in determining the hormonal-biological model as *accurately* accounting for the evidence—carry political bias or non-epistemic values in their application. Additionally, Longino found that areas of research often employ explanatory models which predetermine what sort of phenomena can figure in explanations, as well as the sort of relationships those items can bear to the explicandum. These explanatory models "serve as background assumptions against which data are ordered, in light of which data are given status as evidence for particular hypotheses and as a context within which individual studies gain significance" (Longino, 1990, p. 135). In the neuro-endocrinological studies she considered, a host of normative background assumptions were in place which "mediated the inferences from the alleged data" to the confirmation of the hypothesis that pre-natal and perinatal hormones are significant determinants of behavioral gender differences (Longino, 1987, p. 58). To adopt and extend the explanatory "linear-hormonal model," in which "there is a one-way causal relationship between pre- or post-natal hormone levels and later behavior or cognitive performance" (ibid., p. 58), a variety of assumptions needed to be taken. For example, in order to take the correlation between increased testosterone and increased mounting behavior in mice as confirmation of the hypothesis that athleticism and social dominance in male children is causally determined by their increased exposure to testosterone as infants,

experimenters would need to assume: the general reliability of the inference from hormonal testing on animals to conclusions about human behaviors; the equivocation of animal behaviors such as mounting and lordosis with human child behaviors such as athleticism and social dominance; the negligability of interference of adults or cultural expectations in directing gendered behaviors in children; and the negligability or absence of the human capacities for "self-knowledge, self-reflection, self-determination," along with; the passivity and lack of self-awareness in human gendered behaviors (Longino, 1987, pp. 58–59; Longino, 1990). Any of these assumptions, Longino argued, could, or perhaps would, have been rejected if the scientists were not socially or politically predisposed to accept hormonal explanations of human gender-based behavioral differences as plausible.

The conclusion arising from Longino's extended critique of this research program is that, "[a]bsent any background theory or assumptions, there is not much one could project from this data" (ibid., p. 155); instead, "the confirmation of hypotheses and theories is relative to the assumptions relied upon in asserting the evidential connection" (Longino, 1987, p. 55). At times, "contextual features [or non-epistemic values] have facilitated the use of given data or observations as evidence for some hypothesis" (Longino, 1990, p. 82), making the separation of epistemic and non-epistemic values in the scientific method significantly more problematic than some theorists anticipated. Longino's point is not that research into hormonal determinants of human behavior is bad science. Instead, she claims that this use of contextual values is an ineliminable feature of many paradigmatic instances of scientific inquiry, without which "early modern science would not have gotten off the ground" (Longino, 1987, p. 56). If contextual considerations are ineliminable, as Longino claims, then so are the value-laden considerations that sometimes accompany them, and there is no formal basis on which to insulate scientific method from social values. With even the most conscientious researchers at work, scientific methods remain vulnerable to the intrusion of political ideologies, compromising the impartiality (as formerly understood) of scientific knowledge.

An even stronger critique of the epistemic/non-epistemic divide suggested that the dis-

tinction cannot sensibly be maintained. Extending Longino's critique, Rooney argued that "cultural and social values can in time... become encoded into constitutive features of the rationality and objectivity of particular scientific endeavors, into features that are genuinely epistemically compelling for given scientific communities" (1992, p. 21). In the case of research programs exploring the biological-hormonal determinants of behavioral gender differences, the social and political importance of gender differences meant that, instead of being a proper explicandum, "gender dimorphism became constitutive of the understanding of biological functioning, and thus in effect became constitutive also of the 'constitutive' value of the simplicity or fruitfulness of the linear-hormonal model itself insofar as it was constructed to 'explain' biological determinism" (ibid., p. 18). In other words, gender differences did not operate as a purely epistemic factor in accepting the linear-hormonal model on the basis of the latter theory's simplicity in bringing gendered behavior and biology under the same explanatory umbrella. Rather, gender differences were worked into theories of biological determinism "right from the start" as an issue of social and political interest, and that same social and political importance attributed to gender differences established the linear-hormonal model's ability to 'explain' them as a good epistemic reason for accepting the model. What we take as 'simple' or 'fruitful' in a theory, it seems, is impacted by the culturally-determined value of what features of the world that theory is, respectively, combining or opening up to future research.

If science inherently involves not just epistemic, truth-oriented values, but also non-epistemic, socially-oriented values, with little basis on which to distinguish the two, then it can stake no claim to impartiality or neutrality on the basis of a methodological procedure. The methodological principles of scientific inquiry are instead relative to social and political values, and therefore debatable to a significant extent. Any criterion we utilize to evaluate a scientific hypothesis will involve a combination of truth-oriented and value-oriented criteria. If this is the case, it would be not only legitimate, but positively advisable, to scrutinize and reconsider the standards and procedures along which scientific inquiry is conducted to

make scientific knowledge more conducive to politically desirable ends. This is precisely what Longino proposes in her later work, in which she describes alternative, feminist methodological criteria that we ought to apply in order to improve science by aligning it with progressive politics. She takes Kuhn's epistemic values—empirical adequacy, internal and external consistency, simplicity, breadth of scope, fruitfulness—and suggests that some of them could be substituted with more politically felicitous methodological values. Instead of *consistency* with other presently accepted theories, science could evaluate a hypothesis according to a standard of *novelty*, whereby a hypothesis is desirable for "postulating different entities and processes, adopting different principles of explanation, incorporating alternative metaphors, or... attempting to describe and explain phenomena that have not previously been the subject of scientific investigation" (Longino, 1996, p. 45). Novelty, Longino argues, would be a better methodological value, because "mainstream theoretical frameworks" are not adequate to solve human problems, being riddled with androcentrism, heterosexism, and other politically unacceptable biases. In place of *simplicity* and *breadth of scope*, science could adopt standards of *ontological heterogeneity* and *mutuality of interaction*. Rather than taking an ontological position in which "[d]ifference must be ordered, one type chosen as the standard, and all others seen as failed or incomplete versions" (ibid., p. 47), and treating differences as "eliminable through decomposition of entities into a single basic kind" (ibid., p. 46), a science conducted according to a standard of ontological heterogeneity would favor theories which approach heterogeneity as a resource in the natural world. This would build a natural ontology consistent with egalitarian politics, that "permits equal standing for different types" (ibid., p. 47). Rather than interpreting relationships between entities as unidirectional, a science conducted according to the standard of *mutuality of interaction* would build a natural ontology in which multiple parties to an interaction would be active rather than passive. Since "[a]symmetry of agency in the physiological context is used to naturalize asymmetry in the social," this would prevent justifications of sexism emerging from science (ibid., p. 47).

Longino also suggests pragmatic criteria in the evaluation of scientific hypotheses, including *applicability to current human needs*, which would bring about a scientific practice accountable to its effects on society, minimizing science's politically damaging effects; and *diffusion of power*, which would "give preference to research programs that do not... limit access to utilization and participation" but instead empower individuals to make decisions and locally implement scientific and technological innovations (Longino, 1996, pp. 48–49). Longino is clear that none of these alternative criteria are intended to give license to depart from the criterion of empirical adequacy, which she states should be common to any science.

As uncomfortable as it might sit with those accustomed to thinking that a value-independent method could "adjudicate scientific disputes" and avoid pollution from personal, social, or political values, it is reasonably clear from a century of failed attempts to delineate an insulated, autonomous, value-free scientific method that this hope must be abandoned. Not only has this narrative of value-free scientific methodology been manipulated to excuse highly politicized research programs, as an earlier section outlined, but theorists of science from Rudner to Kuhn to Longino have demonstrated the variety of ways in which this position is factually inaccurate and logically untenable. However, an acceptance of Longino's new scientific methodological values does not come easily to most people. Firstly, it is politically dangerous—as we've seen—to blithely disregard the impartiality or authority of scientific methods. Such approaches, while undoubtedly intended for progressive purposes, can be co-opted by those seeking to ignore or reject scientific evidence and it accompanying policy imperatives for their own personal power and profit. But from a more logical point of view, Longino's suggestions on a new improved scientific method leaves us with a disquieting doubt as to whether a science favoring novelty, ontological heterogeneity, and mutuality of interaction over simplicity and external consistency will be able to perform as well as a science conducted according to presently accepted criteria. It is difficult to accept that there is *nothing* special about the scientific method, or that any other method, chosen for its coherence with a progressive political ideology, will do just as well. We have not yet been

offered an explanation as to the predictive power and technological success of science under the current methodological criteria, or a reason to believe these will not be compromised under a new, feminist science.

The feminist characterization of science has striking similarities with pragmatism, though pragmatist and feminist philosophies of science have not come significantly into conversation. Both traditions argue that the methodology of science is practically oriented, developed for value-inflected purposes, and intrinsically responsible for its political effects on society. Both traditions characterize scientific method less as a guaranteed route to objective truth, and more as an instrument particularly suited to specific human purposes. Different human purposes necessitate different scientific methods for their realization; the purposes we prioritize and methods we employ are inflected with socio-political values. However, while feminist philosophers suggest that the 'epistemic' values of the scientific method are arbitrary on the basis of their inflection with social values, and can be replaced with alternative methodological standards, pragmatists still assert the adequacy of existing scientific methods like simplicity, unification, and breadth of scope for acquiring abstract and widely applicable knowledge about nature. For the pragmatists, the sciences are distinguished from other human practices precisely on the basis of their selective interest in abstract, simple, stable, and universal qualities.

In the next section, I present a theory of science—derived from the work of John Dewey—which helps us to understand how current scientific methods can be considered authoritative on the basis of their broad and generalized success, while scientific research is also accountable for its broader social and political success. I will also demonstrate why, under a proper interpretation, Dewey's theory of science (1) implies that *some* pragmatic alterations of scientific methodological criteria in line with Longino's suggestions are warranted, but (2) resists the conclusion that there is *extreme* flexibility for scientific methodological criteria to adapt to social and political preferences without sacrificing a great deal of science's success and utility.

3.4 John Dewey's Solution

An Unusual Approach to Methodology

In the first section of *Logic: The Theory of Inquiry*—his book on logic, methodology of inquiry, and scientific method (1985d)—John Dewey devoted chapters to biology, culture, and common sense. This was such a far cry from the theories of methodological procedure expected and produced by his logical empiricist contemporaries, that it led Carnap to dismiss Dewey's book as "erroneously categorized" (Carnap, 1962, p. 40, cited in Brown, 2012, p. 265). However, the content and principles of Dewey's theory of scientific method, inquiry, and logic, make the inclusion of mundane practicalities like biology, culture, and common sense in these foundational chapters crucial for an adequate account and understanding. Science, for Dewey, was constitutionally related to these broader aspects of human life.

Echoing his previous work, in *Logic*, Dewey states that inquiry is not a process by which we discover the objective nature of reality by separating its qualities from the distortions of the mind, but is "a special mode of organic behavior" (Dewey, 1985d, p. 39). By this, he means that inquiry is an activity conducted in the course of living, according to the contingencies of the human organism's interactive relationship with its environment, and its specific capacities and needs in relation to that environment. "Upon the biological level," he says, "organisms have to respond to conditions about them in ways that modify those conditions and the relations of organisms to them so as to restore the reciprocal adaptation that is required for the maintenance of life-functions" (ibid., p. 66). Inquiry is one sophisticated form of such response. It is a diagnostic response to an interactive situation between a human and their environment in which the best or most appropriate action or expectation is unclear. "Inquiry is the directed or controlled transformation of an indeterminate situation into a determinately unified one," along with an accompanying decision as to how best to proceed (ibid., p. 121).

Dewey takes us through the example of a fire alarm going off in a building, in which

"there is much that is indeterminate as regards the activities that may produce a favorable issue" (Dewey, 1985d, p. 112)—that is, to get out safely. In the midst of the chaos and uncertainty, however, the situation possesses "some settled traits" that are pertinent to the determination of action (ibid., p. 112). For example, the fire is "located somewhere"; "the aisles and exits are at fixed places" (ibid., p. 112). Other constituents of the situation pertinent to a favorable outcome, though not temporally and spatially fixed, are nevertheless easily ascertainable—for example, "the behavior and movements of other members of the audience" (ibid., p. 113). Together, these factors of the situation "constitute the terms of the problem, because they are conditions that must be reckoned with or taken account of in any relevant solution that is proposed" (ibid., p. 113). If inquiry begins in doubt, it terminates in the institution of conditions which remove the doubt—a state often referred to as 'belief' or 'knowledge,' though Dewey prefers 'warranted conclusion' to remind us of inquiry's inherent connection with actions and behaviors. Inquiry proceeds through processes of analyzing a complex and blended situation into component aspects that are useful and relevant to the desired outcome. At the conclusion of a process of inquiry, a state of warranted assertability is obtained, and a corresponding course of action can be suggested. This may be immediate action—such as following the clearest path out of a burning building—or postponed to subsequent inquiries (see Brown, 2012 for a detailed exposition of Dewey's theory of inquiry). Inquiry is not an isolated process of composing a transcript of the detached and remote qualities of nature through passive observation; it is one functional component in a continuum of human biological, physical, and mental operations, all related and reacting to states of the overall organism and its ongoing situated needs and desires in its environment.

Therefore, while his logical empiricist contemporaries argued that scientific method is the application of *ab extra* logical standards, Dewey argued that scientific method is the present expression of a habit that has grown out of an accumulation of past applications of a procedure and its accompanying successes *in situ*. The logical empiricists sought abstract,

independent principles that could serve as guarantees and justifications for the universality and value-free nature of knowledge derived using scientific method. Dewey turned this justificatory hierarchy on its head. For him, inquiry was a "self-corrective process" (Dewey, 1985d, p. 13) leading, through repetition, to the abstraction and systematization of a set of habitually successful assumptions, which were then applied with increasing consistency and breadth across subsequent practices of inquiry. Rather than current practices of scientific inquiry being successful due to the application of an independent, predetermined method, scientific methodology and its principles were themselves derived and adapted according to the accumulated successes and failures of past applications of them in specific situations involving inquiries. In other words, scientific methods evolved.

"Through examination of the relations which exist between means (methods) employed and conclusions attained as their consequence," Dewey argued, "reasons are discovered why some methods succeed and other methods fail" (ibid., p. 17). Just as a craftsperson learns through the operation of certain procedures that they will achieve certain results, "we discover that if we draw our inferences in a certain way, we shall, other things being equal, get dependable conclusions" (ibid., p. 20). So, while scientific methodological principles "supply a (relative) norm or standard for further undertaking" (ibid., p. 108), they are always up for renegotiation on the basis of their success or failure in ongoing contexts of inquiry. The criterion which determined which practiced methods would carry through to future inquiries was the success or failure to obtain "warranted assertions"—that is, beliefs or statements that proved to be a reliable basis for subsequent actions and inquiries. We take elements of our environment and analyze them by means of inquiry, so as to attain warranted assertions upon which to reliably conduct our activities, conducing to our survival and thriving.

Dewey's surprising beginning to his book on the methodology of inquiry is not a mischaracterization of his topic, but a recognition that inquiry is "a development out of certain aspects of the pattern of life-activities," (ibid., p. 39) thereby necessitating a discussion of humans' biological existence. Presently accepted scientific methods are those "which expe-

rience up to the present time shows to be the best methods available for achieving *certain results*" (Dewey, 1985d, pp. 108, emphasis added). Just as standards found within any human practice, scientific method at any given time is a standard derived from, and relative to, certain desired results. Success and failure relate to broader practices, purposes had, problems encountered, and results desired. And it is in relation to this central role of purposeful behavior in the development of methodologies of inquiry, and problems and solutions encountered in its course, that Dewey grounds and justifies his extensive preliminary discussion of biology, culture, and common sense. The human being who conducts inquiry exists—and has always existed—within a biological and cultural matrix, which structures the actions the human being must take in order to fulfill its needs and pursue its desires. "[T]here is no breach of continuity," he says, "between operations of inquiry and biological operations and physical operations" (ibid., p. 26). As we will see, this has significant ramifications for a discussion of values and objectivity in science.

Common Sense and Science

On the face of it, Dewey's philosophy establishes scientific inquiry as value-laden in at least a minimal sense. A method which has been developed in the context of achieving practical purposes is structured according to value-judgments of the desirability of the purposes for which it was functionally developed. The value-free notion of abstract, objective representation of an independent natural world is not one that can be maintained once we situate activities of inquiry and their methodological principles in the broader life and goals of a human being or community. Inquiry will at least be relative to the purposes of human life, and the success of the method will be relative to human ends. Dewey nevertheless draws a distinction between scientific inquiry and other forms of inquiry, which suggests that scientific methods possess a qualified sense of impartiality.

To appeal to historical successes, failures, and reliable bases for actions as the genesis of the methodological standards of scientific inquiry leads naturally to the questions: What

constitutes success and failure? And for what kinds of actions were our inferences relied upon? In the natural course of living, Dewey says, the adaptation of methods in inquiry is purposeful, "the purpose being limited at first to local situations as they arise" (Dewey, 1985d, p. 26). Given enough time, this process gives rise to methods of inquiry which are "so generalized that inquiry is freed from limitation to special circumstances" (ibid., p. 26). That is, as inquiry has persisted over time, it has developed and honed more broadly-applicable and decreasingly situation- and purpose-specific methods. Abstract forms of scientific methods and "definite technical processes and instrumentalities" become "increasingly remote from the situations of use and enjoyment in which [they] originated," and provide "a background of materials and operations available for the development of what we term science" (ibid., p. 77). In this way, the generalized, abstract forms of scientific methods gradually emerge, and "science takes its departure" from a context of common-sense problems (ibid., p. 76).

This sets up (at least) two distinct forms of inquiry in Dewey's philosophy, distinguished not by their topics, but by their methods and standards. The first type, common sense inquiry, is directly situated in the navigation of human environments and the satisfaction of human needs. The second, scientific inquiry, is slightly (though not entirely) removed from the immediacies of activities and needs. Most inquiry, Dewey claims, has been and continues to be part of our everyday attempts to solve common sense problems. Common sense problems "are those which continuously arise in the conduct of life and the ordering of day-by-day behavior. They are such as constantly arise in the development of the young as they learn to make their way in the physical and social environments in which they live; they occur and recur in the life-activity of every adult, whether farmer, artisan, professional man, law-maker or administrator; citizen of a state, husband, wife, or parent" (ibid., p. 67). Inquiries that relate directly to common sense problems—problems we encounter in our everyday environment—involve our material, biological, and cultural environments as a whole. They involve "[q]uestions of food, shelter, protection, defense,... the use to be made of materials of the environment," but also questions concerning "the attitudes to be taken practically towards

members of the same group and to other groups" (Dewey, 1985d, p. 69). Common sense inquiry "may be reduced to problems of the use and enjoyment of the objects, activities and products, material and ideological, (or 'ideal') of the world in which individuals live" (ibid., p. 68). It is an extension of activities oriented towards the resolution of problems related to human biology and culture. Its methodology develops from a self-correcting process as practices of inquiry continue and successful methods are repeated, through an adjustment of practiced human means to consequences that arise.

Gradually, science emerges from common sense inquiry as a more effective and precise means of establishing desired consequences. Dewey gives the example of astronomy and time-tracking to illustrate this emergence:

> [P]rimitive astronomy and primitive methods of keeping track of time (closely connected with astronomical observations) grew out of the practical necessities of groups with herds in care of animals with respect to mating and reproduction, and of agricultural groups with reference to sowing, tilling and reaping. Observation of the change of position of constellations and stars, of the relation of the length of daylight to the sun's place in relation to the constellations along the line of the equinox provided the required information. Instrumental devices were developed in order that the observations might be made; definite techniques for using the instruments followed. Measurement of angles of inclination and declination was a practical part of meeting a practical need. (ibid., p. 77)

Philip Kitcher gives a more detailed example drawn from Mesopotamia and ancient Egypt, in which he describes the ways in which science—or "public knowledge"—were developed according to the specific needs of the social and material geographic arrangements:

> In Mesopotamia and ancient Egypt, life depended on techniques for the erections and maintenance of large structures and for the irrigation of land... These societies valued investigations that produced methods of tallying, counting and

> measuring, keeping accounts and surveying land, tracking the movements of heavenly bodies and constructing calendars... Their ability to solve quadratic equations... and to recognize particular geometric truths reveals a system of public knowledge emphasizing not only the directly practical but also theoretical techniques for addressing practical issues. (Kitcher, 2011, pp. 91–92)

A similar example is found in the European Scientific Revolution, in which increasingly theoretical techniques in astronomy were developed for the sake of aiding practical purposes of navigation and imperialism. Through an unplanned process, "definite technical processes and instrumentalities are formed and transmitted" (Dewey, 1985d, p. 77). "Information about things, their properties and behaviors, is amassed, independently of any particular immediate application" (ibid., p. 77). Such information and technical processes become "increasingly remote from the situations of use and enjoyment in which [they] originated," and provide "a background of materials and operations available for the development of what we term science" (ibid., p. 77).

So although science has its genesis in purpose-specific features of organic life, and although "there is still no sharp dividing line between common sense and science" (ibid., p. 77), the scientific inquiry that emerges out of common sense—involving technical processes, information, materials, operations—has distinctive procedural characteristics that distinguish it from common sense inquiry. Upon scrutiny, we can see that these distinctive characteristics vaguely correspond to the widely recognized 'epistemic values' first elaborated by Kuhn, and challenged by Longino as requiring replacement.

Since common sense inquiries and problems relate to "the use and enjoyment of the objects, activities and products, material and ideological, (or 'ideal') of the world in which individuals live" (ibid., p. 66), common sense is "profoundly teleological in its controlling ideas and methods" (ibid., p. 83). In contrast, science is characterized by its increasing remoteness and independence from immediate application; it seeks to become "deliberately indifferent to teleology" (ibid., p. 83). Scientific inquiry aims at "attaining confirmed facts,

'laws' and theories" (Dewey, 1985d, p. 67), or "stable beliefs" (ibid., p. 526) across a variety of circumstances, rather than concerning the resolution of specific problems. This methodological standard corresponds largely to Kuhn's epistemic value of *breadth of scope*. For related reasons, while common sense inquiry operates with "the language in common use," adequate for "group activities, group interests, customs and institutions," each term of scientific inquiry is "determined in its relation to other members of the language system" (ibid., pp. 55–56). As a result, while common sense meanings "hang together" rather loosely and may contain inconsistencies, scientific terms display "systematic relations of coherence and consistency with one another" (ibid., p. 71), corresponding to yet another widely accepted epistemic virtue, *consistency*. Unbeholden to the ordinary language of everyday human affairs, science has substituted the richness of qualitative variety, detail, and specificity, with "magnitude and other mathematical relations which are non-qualitative" (ibid., p. 81). This reduces complexity to "measured correspondences of change" (ibid., p. 82), corresponding to one form of the epistemic value of *simplicity*. Finally, rather than orienting itself towards the "settlement of some issue of use and enjoyment" in immediate practical human affairs, which would see the termination of that inquiry, scientific inquiries "have knowledge as their goal" (ibid., pp. 66–67). Scientific inquiry operates in a domain of abstract knowledge relatively detached from everyday affairs, and seeks to accumulate this kind of knowledge irrespective of immediate application. This corresponds to the epistemic virtue of *fruitfulness*, which seeks to continue opening up new areas of scientific inquiry as it is conducted.

By virtue of its role in the functioning of activities and the attainment of practical ends in human life, scientific inquiry is characterized by certain methodological principles which correspond, at least vaguely, to epistemic virtues identified by philosophers of science, such as *scope*, *consistency*, *simplicity*, and *fruitfulness*. Science's methodological principles have been continually adapted and consistently successful means for acquiring knowledge that can be applied in many situations, by many types of people, for many ends. This degree of generality of purpose, breadth of application, and reliability of outcome is certainly enough

to render scientific methods authoritative when deciding on courses of action or public policy. These methods are practical habits carried over and systematized in the course of historical inquiries for their observed success in leading inquirers to "warranted assertions" which can be reliably and broadly used for the regulation and resolution of practical problems in everyday affairs. To deny the authority of scientific knowledge is to reject centuries of accumulated experience in arriving at conclusions that are warranted as the basis of action. However, a theory of science which takes its knowledge to be authoritative, and its methods to be highly reliable and versatile instruments for achieving varied human ends, does not necessarily lead to the conclusion that science's 'internal reasoning' is free of personal, social, or political values, produces an 'objective' picture of the world, or is not submittable to social and political critique. Although scientific inquiry is *less directly* concerned with specific problems than common sense inquiry, it still shares a practical, end-relative subject-matter with common sense, at least in a highly generalized form. "The scientific theory of colors and light is extremely abstract and technical," Dewey states, "But it is *about* the colors and light involved in everyday affairs" (Dewey, 1985d, p. 76), and it is developed for the sake of their control and enrichment. Therefore, the sense in which scientific inquiry and the knowledge it produces can be characterized as impartial is a qualified one: scientific methods are not *ab extra* standards that hold authority all by themselves; they are standards whose authority comes from their having guided us to our desired ends across a variety of contexts and circumstances. Scientific methodology is purpose-generalized, but it is not *completely* purpose-detached. To take it to be so is to fall back into the notion of knowledge, elaborated in Chapter 1, as a process of passive observation and transcription of qualities of a nature which exists apart from the experiencing being, rather than as a component of ongoing processes of living in and by interactions with an environment. The next section will consider what this picture implies for the accountability of scientific practices for their broader social and political effects, and the possibility of adapting these authoritative scientific methods to bring about more favorable (for example, democratic and egalitarian) social or political

outcomes.

Method's Functional and Genetic Relationship to Values

Dewey states that science's relationship to common sense is both "genetic and functional" (Dewey, 1985d, p. 72). One argument can be made from each of these characteristics for the intrinsic accountability of scientific research for its broader social and political effects. Firstly, the human being who conducts inquiry exists—and has always existed—within an existential matrix involving not only biological realities, but social and cultural ones as well. Our interactions with our physical environment, "the problems that arise with reference to it, *and our ways of dealing with these problems*, are profoundly affected by incorporation of the physical environment in the cultural" (ibid., pp. 48, emphasis added). As human beings and societies looked to science for solutions to their problems, as part of the self-correcting nature of inquiry, our selection of methods was almost certainly influenced by our culture, either in ways directly intended or in ways largely overlooked. The needs any method of inquiry has been developed to meet are not only adapted to relatively universal and biological capacities and needs; they have simultaneously developed as a result of the contingencies of human culture, and, in many cases, from a complex combination of the two. This means that the criteria for success and failure, constituting the basis for selection of scientific methods over time, have been consistently influenced by cultural phenomena. The encountered experiences that constituted a 'problem' would have been culturally influenced, as would the result that constituted a 'solution.' Returning to Kitcher's example of Mesopotamia and Egypt,

> [T]he systems we can discern... were profoundly inegalitarian, not only in reducing the size of the "public" that enjoyed the benefits of knowledge, but also in leaving the direction of inquiry to a tiny minority of rulers and administrators. For these systems of public knowledge it would not matter at all that some different mode of organization, some alternative choice of investigations might bring enormous relief to the vast majority of the population. Unless that rival

> approach was conducive to the goals for which the elite decision makers strove, it would be of no interest for them. (Kitcher, 2011, p. 93)

As Kitcher's example suggests, in these early systems of public knowledge, the potential *positive effects* for the masses would not bear on the evaluation of the relative success or failure of any given inquiry; only positive effects for the ends and purposes of the rulers factored in. Additionally, if a method were to have had *negative effects* on the masses that we would consider undesirable by today's standards, inquiries as they were developing in Mesopotamia and Egypt may well have ignored them as a criterion for relative failure. Only a small subset of all the actual positive and negative effects in common sense human environments—those pertaining to the experiences and purposes of the ruling class—would be considered relevant. Similar examples can be hypothesized for the development of modern scientific methods during the Scientific Revolution. The development of astronomy and navigational techniques were pursued and developed for the sake of global exploration to acquire valuable resources that were useful for human welfare, such as new medicines, cloths, and food. But they were also developed in the context of a hierarchical domestic society and global racial imperialism which sought to assert control over resources relative to native populations, and categorized African, Asian, and American human beings as a labor resource. The purposes, problems, solutions, and accompanying evaluations of success or failure of methods, were thereby determined not only according to human biological needs, but by regrettable cultural desires as well. Rooney's example gave us an example of this cultural influence occurring in recent science, when the social and political importance of gender differences contributed to the interpretation of a theory which 'explains' them as a success of considerable significance.

This argument from the *genetic* relationship of science to practical human problems established, for Dewey, the inescapability of social influences in the methodology of scientific inquiry, and the consequent need to consistently take them into account. "Neither inquiry nor the most abstractly formal set of symbols," he says, "can escape from the cultural matrix

in which they live, move and have their being" (Dewey, 1985d, p. 28). In Dewey's account of scientific inquiry, there is good reason to believe that the social and political nature of the cultural matrix in which scientific inquiries take place influences the development and selection of scientific methods. Scientific methods have evolved and continue to evolve from past inquiries on the basis of their success or failure. But the cultural elements of the common sense environment in which these scientific inquiries take place certainly influences which of the multiple and varied effects of a given inquiry are considered relevant to evaluating its success or failure. Methods have and continue to be developed and selected according to criteria of success and failure that are far from socially and politically neutral. While the values of consistency, simplicity, and breadth of scope are genuinely broadly applicable means of predicting and controlling elements of the environment, the high esteem that has been placed on material control, relative to methods which may have brought about broader social benefits, has been, and continues to be, a decision dependent on politically-inflected interpretive tools for what constitutes success.

It is possible that, if scientific methods were operating in different cultural circumstances, we may look at the negative (say, anti-democratic, militaristic, or dehumanizing) social effects of a given method and determine it to be an overwhelming failure. If *consistency* were leading to a reproduction of androcentricity, homophobia, sexism, and racism, or if *simplicity* were contributing to the naturalization of hierarchy, in other cultural circumstances, we might judge these methodological criteria to be failing to produce successful resolutions to encountered problems, either because they cause more social problems than they solve, or because they do not contribute to the higher shared goal of improving life for the majority of people. These judgments would be made with no less legitimacy than one made on the basis of a failure to predict or control a material or biological quality. We may have judged that the criteria needed to be subtly altered so as to mitigate those effects, or necessarily supplemented with other methodological criteria in order to allow their positive consequences to manifest. This judgment would have been made with no less legitimacy than one made on

the basis of a failure to meet a material or biological need, since the adaptation of scientific methods is a process of trial and error according to the results an inquiring community or individual needs or desires.

This is the basis upon which Longino suggested that the methodological criteria of simplicity, scope, and consistency may not be adequate to our political and social priorities, and that societies might be better off replacing these criteria with ontological heterogeneity, novelty, and mutuality of interaction. Dewey's theory of science does provide some support for this analysis. However, the scientific methods we have developed cannot be as easily replaced by alternatives as her recommendations suggest. For example, breadth of scope may have ontological implications in accordance with socio-political values of domination. But breadth of scope also developed because of a widespread need to reliably manipulate, conjure, or avoid qualities relevant to human needs in a variety of environments and across different domains. Focusing on the broadly applicable chemical quality of water (that is, H_2O) does reduce the complexity of the diverse instances of water (lakes, puddles, snow, rain, steam, etc.) to a single causal property, but it thereby facilitates the important capacity of water-identification and water-purification for safe drinking across a variety of contexts. Breadth of scope, therefore, allows effective and reliable intervention and control of material environmental conditions necessary for human life. Any change of the methodological criteria of simplicity, scope, and consistency would likely mean that our methods would not produce theories that are as powerful, broadly applicable, and conducive to large-scale technological interventions. We would need to weigh the importance of this reduction with the other effects of our new methodological standards, including their social and political benefits.

An additional argument for the intrinsic role of values in sciences comes from Dewey's theory of the *functional* relationship of science to practical human problems. As the last section explained, there is "no sharp dividing line between common sense and science" (Dewey, 1985d, p. 77). Science and its methods "grow out of the direct problems and methods of common sense, of practical uses and enjoyments" as an instrumental means to "react into the

latter in a way that enormously refines, expands and liberates the contents and the agencies at the disposal of common sense" (Dewey, 1985d, pp. 71–72). Scientific inquiry, therefore, does not exist by itself and for its own sake; it is "intermediate, not final and complete in itself" (ibid., p. 72). Scientific inquiry is an intermediate step in a process that is developed and adapted for the resolution of experienced problems in "biological operations and physical operations" (ibid., p. 26). "The environment in which human beings live, act and inquire," Dewey tells us, "is not simply physical. It is cultural as well." This means that the problems and purposes humans encounter in that environment—the "[p]roblems which induce inquiry"—are not only material and biological, but cultural and social too. They grow out of the relations of human beings to their material resources and obstacles, but also "out of the relations of fellow beings to one another" (ibid., p. 48). In this sense, problems which induce scientific inquiry are not just purely material problems like 'how to purify water'; they are also social and political problems like 'how to provide densely-populated cities with access to unpolluted clean water.'

Since science is an intermediate functional step in a broader process of resolving problems in human life, there is no *prima facie* reason scientific evaluations of the adequacy of its methods shouldn't consider the whole range of a method's consequences in human life. To return to Longino's example, if the current methodological standards of empirical adequacy, scope, simplicity, consistency, and fruitfulness are producing powerful capacities for material development and prediction, but also contributing to an increase of concentrated control over the development of knowledge in a small number of well-funded laboratories prioritizing the research interests of class and imperialist power, then no justification can be drawn from an isolated context of 'impartial scientific inquiry' for ignoring the broader terminal social and political effects of scientific methods when evaluating whether scientific research and methodological criteria are "succeeding" or "failing." If we determine the control over material qualities of the environment afforded by existing methods to be too valuable to compromise, we might need to add pragmatic methodological criteria, as Longino suggested,

such as diffusion of power, to obtain more consistently positive effects in the broader human environment, and genuinely contribute to the resolution of practical human problems, instead of creating (and ignoring) new ones. Any method whose standards are developed and retained for their broad usefulness in resolving human problems is in principle accountable to the consequences of its use across an equally broad domain.

If a scientific methodology is increasing the possibility of control over physical aspects of the human environment, but has an observed correlative relationship to detrimental social effects, there is no basis from a Deweyan theory of science to ignore the social effects in our evaluation of whether the scientific research and its methodological criteria are "succeeding" or "failing." The scientific method is not a set of abstract principles which *necessarily* leads towards progress—its definition as progressive is borne out in its consequences. These would not simply include its abstract logical or physical-material consequences, but also the social and political effects it has on wider society. These two human existential matrices—biological and social—are equally relevant factors for deciding upon scientific methods for our purposes. So while we might wish to retain some principles of scientific method because of their suitability to our broader physical and biological environments, we have no excuse for disregarding considerations of the suitability of certain forms and subjects of inquiry to specific socio-political functions. We must weigh the relative costs and benefits of a given principle in light of its effects and suitability to both. This is the argument from scientific method's functional relationship with common sense for the need to take social and political factors into account when evaluating the success, desirability, and tenability of research programs.

The increasing abstraction, breadth, and usability of results obtained by scientific method have not constituted the removal of the human being or the removal of social considerations from the scientific process. What they have constituted are more effective or more useful means for achieving a broader variety of material and biological *and* cultural and political purposes across a broader range of contexts. They can be thought of as domain-general

instruments for successfully navigating the difficulties of varied human environments. On this note, Dewey explicitly tells us that the very distinction between "knowledge and practice that are admittedly of social origin and intent" and those with no social bearings is itself a "socio-cultural" distinction, calling the consequent debate attempting to set out principles to demarcate them "ironic" (Dewey, 1985d, p. 79).

Given the functional and genetic relationship science and its methods have with the heavily cultural environment of common sense, it makes little sense to reject the accountability of scientific research for its social or political consequences. Social and political value-judgments, however unconscious, are already present in the determination of criteria for evaluating the success or failure of methodological standards, and political and social effects ought to be evaluated as part of the worth of scientific research because of its proper function in addressing the varied problems of common sense. However, while feminist philosophy of science claims that scientific methods could be extremely different, suggesting a significant lack of impartiality, a pragmatist philosophy of science gives us a means for understanding the important organic conditions existing in human interactions with their environment that necessitate certain methodological standards in science. *Theoretical unification* cannot quite so easily be abandoned in favor of *novelty*, because humans require control of their environment brought about by *breadth of scope*; *simplicity* cannot quite so easily be abandoned in favor of *ontological heterogeneity*, because of the limitations of human retention and understanding. At the same time, pragmatist philosophy imports the political imperatives of feminist philosophy of science by forestalling naïve statements to the effect that scientific methods lead us to socially and politically neutral truths which can then be used to legitimate politically contentious research. Scientific inquiry is a goal-oriented practice for bringing about more favorable conditions in human interactions with their material and cultural environments. Since decisions as to a society's 'more favorable' cultural conditions are well-known to be politically-inflected, the inherent purposefulness of scientific inquiry compels us to reflect on the desired purposes of science, and how significantly the

overall effects of science as currently practiced accord with a society's *purported* values.

3.5 Science as an Accountable and Authoritative Instrument for Navigating Common Sense Environments

Scientific methods are not static. They have evolved, and they can change. Although we evaluate methods as better or more adequate than others, this is "just the same way in which we know that some methods of surgery, farming, road-making, navigating or what-not are better than others" (Dewey, 1985d, p. 108). "It does not follow," Dewey says, "...that the 'better' methods are ideally perfect, or that they are regulative or 'normative' because of conformity to some absolute form" (ibid., p. 108). Methods can, and should, change according to adapting purposes, values, desires, ends, and the shifting degrees of adequacy of former methods to these new criteria of success. As the conditions and specificities of cultures alter and we seek a more democratically structured society, it makes sense to continually re-evaluate the extent to which scientific methods are working to fulfill our ever-changing biological, material *and* socio-political purposes. If a methodological standard is having significantly negative socio-political effects in addition to positive effects of increasing control over the material environment, then the two conflicting effects deserve to be evaluated and weighed according to the priorities of a society, instead of the socio-political effects being excused as beyond the proper scope of scientific considerations.

We can now return to the problem of impartiality and accountability in science with the added clarity of this new perspective. Science is certainly not impartial in the sense proposed by the logical empiricists, and it similarly fails by later standards of impartiality proposed by the separation of epistemic and non-epistemic values. Theorists hoping to fall back on 'the scientific method' as a procedural guarantee of value-neutral truths will be similarly disappointed. Scientific method is developed and honed over the course of inquiries in relation to a certain class of ends and purposes, relative to standards of success and failure

that have been influenced by physical and cultural environments. Science's impartiality cannot therefore be used to defend an indifference towards its social and political effects, since science is, in this view, a reliable and trustworthy set of methodological principles adapted to bringing about certain types of effects in broader human life. Sincere and well-researched demonstrations of lack of neutrality of scientific knowledge can be acknowledged as evidence that science is not currently being put to work in the service of humanity because of the structural and methodological imperatives guiding scientific and technological research. However, we also have some clarity on the high standards and reliability of scientific methods as they exist at a given moment of time. They have evolved specifically according to criteria of success across a broad range of contexts, and so it is no surprise that they have a high degree of interventional and predictive power. For this reason, scientific methods can be acknowledged as an unsurpassed tool for manipulating the human existential matrix, and scientific knowledge can be acknowledged as an authoritative tool in determining public policy. With both science's authority and accountability combined in a theory of science, a conversation can be had about the appropriate priorities, and desired directions of scientific research.[4]

4. See (Kitcher, 2001; Kitcher, 2011) for detailed theoretical arguments and practical proposals for this kind of "well-ordered science."

CHAPTER 4

NON-COGNITIVE QUALITIES OF EXPERIENCE AND NATURE

Chapters 1, 2, and 3 challenged the view that science is a process by which we overcome the distortions of our experiential representations and discover the real qualities of nature. Each chapter presented a different angle of the argument that scientific inquiry is a process by which we select and order the qualities of experience and nature, and selectively emphasize those that are amenable to manipulation and control of our environments for the purposes of sustaining, expanding, and improving the activities of life. "The favoring of cognitive objects and their characteristics at the expense of traits that excite desire, command action and produce passion, is a special instance of a principle of selective emphasis" (Dewey, 1985a, p. 31) on qualities that, due to their stability across time and context, simplicity, and reliable connection with other qualities (causal connectivity), can be utilized when planning our activities as we seek to bring about, avoid, or alter specific aspects of our environment and experience. Scientific inquiry is therefore a highly skilled technology developed in the processes of seeking resolutions to the problems of living, but the qualities it deals with are not more real than those it omits, nor are its methods capable of completeness in characterizing reality.

This form of critique of scientism has two significant consequences. Firstly, as Chapter 1 briefly suggested, the humanities and interpretive social sciences, which deal with qualities of experience distinct to the material, 'external,' or 'observable' qualities of the natural sciences, are legitimate and important forms of knowledge, which can, "like everyday knowing and like science,... [afford] guidance to action and thereby [make] a difference" (Dewey, 1972, p. 42). They can determine connections, consequences, and means of cultivating aspects of experience and nature so as to improve and enrich human life. Questions as to how, for example, to render experience's positive values more stable, by examining the relationships

between immediately felt moral or aesthetic goods and their tendencies towards longevity in terms of future valuation, can be examined and constructively answered (if never fully resolved) through philosophical imagination and reflection (Dewey, 1972, pp. 295–326). This could take the form of a reflective analysis of what makes a celebrated work of art captivating, or an explication and critique of formerly unrealized ethical or moral implications in our taken-for-granted categories.

Additionally, the pragmatist critique of scientism, as intimated in Chapter 1, presents knowing as only one functional aspect or phase of experience undertaken in the course of living. To take experience as primarily a knowledge-affair is therefore to distort our experience as lived. A central motif of pragmatism was (and still is) the complaint of an over-emphasis on cognitive and intellectual aspects of human experience in Western thought (Bernstein, 1966, p. 89). A main reason for the mischaracterization of cognitive processes, qualities, and objects as the exclusively 'real' ones was the assumption that "the paradigm for every experience is thinking or knowing" (ibid., p. 62). Willam James complained of a "vicious abstractionism" in Western thought: a tendency to reify conceptual abstractions derived through processes of cognition as the ultimate reality, and then make them "a means of diminishing the original experience by denying (implicitly or explicitly) all its features save the one specially abstracted to conceive it by" (James, 1975, p. 135). Alfred North Whitehead complained of a similar "fallacy of misplaced concreteness," in which one mistakes abstractions derived for specific purposes and contexts (such as scientific inquiry) for the concrete realities from which they were abstracted (Whitehead, 1948, Chap. 3). As a result of these fallacies, the cognitive qualities of experience that are abstracted and employed during processes of inquiry have been taken to be equivalent to, or fully adequate characterizations of, experience and reality. According to pragmatists, this has led to a neglect or disparagement of non-cognitive objects and qualities of experience and nature—"objects of esteem or aversion, of decision, of use, of suffering, of endeavor and revolt"—towards the conclusion that they are "(more or less badly) known objects" (1972, p. 322). "What appears to be

most real and valuable" for a human life is "condemned to a nether region of the mental, the subjective, and the illusory" (Bernstein, 1966, p. 90).

This denial of the importance of non-cognitive experience, and even of the reality of nature's qualities as manifested in non-cognitive experiences, is a significant corollary of scientistic attitudes and beliefs about science and knowledge. Taking knowledge to be a process of composing a transcript of a human-independent nature, whose true qualities can only be distorted by our experiential subjectivity, prevents scientistic thinkers from understanding knowledge as a component of successful organic living. In the post-evolutionary philosophical framework proposed by pragmatists such as Dewey, inquiry, cognition, and other knowledge- or thought-dominant processes are to be interpreted as functional components of an experiential being's ongoing interactions with their environment. Inquiry does not reveal nature or reality in its true manifestation; it enables a sorting of nature's qualities into connections and consequences so as to make possible a reorganization of nature's qualities in line with the needs of the inquiring being. Inquiry (or cognition) therefore "appears as the dominant trait of a situation when there is something seriously the matter, some trouble, due to active discordance, dissentiency, conflict among the factors of a prior non-intellectual experience" (Dewey, 1972, p. 326). The purpose of inquiry and knowledge in their greater context of human life and experience is "to locate the difficulty and to devise a method for coping with it" (Bernstein, 1966, p. 64). Far from constituting the most significant or only form of human experience, cognitive experiences occupy "an intermediate and reconstructive position" between two non-cognitive states of experiencing—"active and appreciative"—characterized more by enjoyment, suffering, needing, or wanting than by knowing or thinking (Dewey, 1972, p. 331). Though not predominantly cognitive themselves, the experiential states which flank the cognitive experience are "the necessary condition of cognitive operations or inquiry" (Dewey, 1985d, p. 111). Usually, our experiences continually shift in terms of their primary mode. While cognitive factors may dominate one moment, "in later developments this factor may pass into the background or horizon" (Bernstein, 1966, p. 63). To some, the existence

of non-cognitive types of experience and qualities may seem obvious, but "the history of philosophy is strewn with systems that have ignored the obvious" (Bernstein, 1966, p. 61). As we shall see, even twentieth-century philosophers have sometimes been stubborn in their refusal to acknowledge the existence of non-cognitive states of experience.

In fact, as I will argue in this chapter, many (if not most) of our experiences are *not* primarily cognitive.[1] We are "continually involved in doing, enjoying, suffering" (ibid., p. 63), experiencing things "by way of love, desire, hope, fear" (Dewey, 1985f, p. 10). These non-cognitive qualities "belong to nature as truly as... the mechanical structure attributed to it in physical science" (Dewey, 1985a, p. 13), and are "ways in which some genuine traits of nature come to manifest realization" (ibid., p. 31). The distinction between cognitive and non-cognitive aspects of experience is, Dewey claims, "evident to anyone who will take the trouble to recall what he does most of the time when not engaged in meditation or inquiry" (1972, p. 321). It can be understood as "the difference between an experience of quenching thirst where the perception of water is a mere incident, and an experience of water where knowledge of what water is, is the controlling interest; or between the enjoyment of social converse among friends and a study deliberately made of the character of one of the participants; between aesthetic appreciation of a picture and an examination of it by a connoisseur to establish the artist, or by a dealer who has a commercial interest in determining its probable selling value" (ibid., pp. 320–21).

The failure to recognize cognition as one functional component of an active experiential being prevents such scientistic theorists from extending respect and curiosity to other, non-

1. Although he occasionally suggests that there is "nothing intellectual or cognitive" in these pre- and post-inquiry states of experiencing (Dewey, 1985d, p. 111), Dewey does not seem committed to the thesis that human beings are capable of experiential states in which cognition plays absolutely no part. In *Essays in Experimental Logic*, he states that his thesis is not intended to preclude the "highly plausible" hypothesis that *distinctively human* experience—"which contrasts with, say, the 'experience' of an oyster or a growing bean vine"—requires some element of (at least latent) cognition. His consistent point appears to be that the context and nature of experience extends beyond cognition, and there is a significant portion of human experience in which cognition does not predominate, and which is, consequently, not best understood, approached, or characterized using all the assumptions applicable to cognitive processes (Dewey, 1972, pp. 321–22).

cognitive activities which may play distinct roles in human life. We encountered beliefs in Chapter 2, for example, that the aesthetic effects of works of art or poetry were "really" processes of neural networks, and that our aesthetic experiences of them might even be "illusions." Other examples of scientistic writing about aesthetics and art can be found in the work of early twentieth-century logical empiricists, who tended to deny the distinctive nature of aesthetic experience and works of art, reducing them instead to forms of cognitive activity. Richard von Mises, for example, stated that "the 'basic forces' of poetry, such as feeling and inspiration, do not represent something to be contrasted to the intellect and cognitive faculty, but rather have their roots in them" (Von Mises, 1951, p. 295), and that the accomplishment achieved through a painting was "similar to what the physicist does when he says that sounds are air vibrations [in the sense that e]very painting, every artistic creation is a *theory of a specific section of reality*" (ibid., pp. 303–304, emphasis in original). On the other hand, A. J. Ayer, reduced the aesthetic aspects of human experience to the application of particular types of *concepts* which, far from having any autonomy or significance, can be subsumed and explained through a "scientific treatment of aesthetics" appealing to "psychological and sociological generalisations" (Ayer, 1952, pp. 113–14).

This chapter seeks to explain what is entailed if we adopt a concept of experience that is broader than cognitive processes. If experience is not exhaustively captured or constituted by its cognitive processes, qualities, or objects, then what is experience like? How might experience's 'non-cognitive' qualities be characterized? If cognition (inquiry and knowledge) cannot be understood as a process of revealing reality, but only in the context of its function in the broader context of living, then are there other kinds of processes, engaging with non-cognitive qualities, that serve functions in human life? Are these processes importantly and productively different to knowledge-processes? The purpose of the following three chapters will be to address these questions. The rest of this chapter will present Dewey's theory of experiential immediacy and its relationship to art and aesthetic experiences, and will provide a brief account of the unique and powerful capacities art possesses precisely by virtue of its

differences to cognitive processes. The next two chapters will then develop a more detailed understanding of these capacities through examples which explore the indispensable and unique role that artistic processes and aesthetic aspects of experience can play in enriching human life. By constructing this argument over the course of three chapters, I seek to present experience as a broad and rich process of activities and perceptions, of which cognitive processes (including, of course, science) constitute only one functional component.

4.1 Qualitative Immediacy

A major reason why Dewey devoted so much of his work to insisting on the expansion of our concepts of experience and nature beyond the processes and objects of cognition is that, as a result of the overemphasis on cognition, an important element of experience was being ignored: the "immediate, felt dimensions of life itself" (Bernstein, 1966, p. 89). Qualitative immediacy consists of those elements of experience and nature that are immediately present—not objects and qualities of knowledge, but objects and qualities of direct enjoyment, suffering, encountering, or awareness. We may become most aware of these qualities in our experience in the context of "[r]eligious services, strong emotions, our acquaintance with persons" (Gendlin, 1997, p. 70). Although these immediately present qualities are not cognitive, conceptual, or discursive in nature, they are what cognitive processes and objects are *about*; they are "that which is to be known by being inquired into" (Dewey, 1985f, p. 33). So while, for example, "[f]riendship and intimate affection are not the result of information about another person,... knowledge may further their formation" (Dewey, 1985b, p. 339). Immediate qualities are the qualities a thing "must *have* in order to be, and in order to be capable of becoming the subject of relations and a theme of discourse" (Dewey, 1985a, p. 74).

Qualitative immediacy cannot "appear as such" in conceptual analysis and discourse (Dewey, 1985d, p. 74). However, qualitative immediacy is not remote, unreachable, or hidden; it is connected to the objects of knowledge—discursive, cognitive objects—through

its regulative and validating function in inquiry and thought. Without such immediate qualitative existence, "those relations with which science deals, would have no footing in existence and thought would have nothing beyond itself to chew upon or dig into" (Dewey, 1985a, p. 75). Immediately experienced qualities are the natural starting point and end point for inquiry—they provide the indication of a problem in need of resolution, and the sense that such a problem has been adequately understood and resolved. Without them, all intellectual activity and inquiry would be nothing more than shots in the dark, since applicability to them is "the ultimate test of their validity" (Dewey, 1985g, p. 247). Without the "controlling presence" of qualitative immediacy, inquiry, thought, and other cognitive processes have "no way to determine the relevancy, weight or coherence of any designated distinction or relation" they draw. Immediately experienced quality "surrounds and regulates" cognitive processes (Dewey, 1985d, p. 74). A practical example of the function of immediate qualitative experience in regulating the terms of thought can be found in psychotherapy, which involves "a process of inner grappling" with immediacy of experience. In therapy, we become aware of our immediately experienced qualities in moments where our "symbols do *not* adequately symbolize the meaning we experience. In those cases we go on talking around what we mean—we may even wave our hands, point our fingers, tell long stories of events, give examples, invent metaphors, pause to grope for words" as we try to communicate something which, in its complete manifestation, is ineffable (Gendlin, 1997, p. 45).

The descriptions Dewey gives of qualitative experience, beyond cognitive functions and processes, usually are negative (for example, it can't appear as such in discourse) or consist of evocative and imprecise terms ("obdurate, self-sufficient, wholly immediate, neither a relation nor an element in a relational whole, but terminal and exclusive" (Dewey, 1985a, p. 74)). This point was made by Bertrand Russell in his contribution to the first volume of *The Library of Living Philosophers*, devoted to the work of John Dewey, in which he complained that "we are told very little about the nature of things before they are inquired into" (Russell, 1939, p. 139). Dewey replied that to attempt to positively characterize the

nature of things before inquiry conceptualizes them would be "completely contradictory to [his] own position" (Dewey, 1985f, p. 31). This is because "telling is. . . a matter of discourse, and. . . all discourse is derived from and inherently referable to experiences of things in non-discursive experiential having;—so that, for example, although it is possible to tell a man blind from birth about color, we cannot by discourse confer upon him that which is had in the direct experience of color" (ibid., p. 31). Although we can inquire into, conceptualize, and communicate *about* immediate experience, "one person cannot communicate an experience *as immediate* to another person" (ibid., pp. 30, emphasis added). The thing communicated will, by necessity, be an object of discourse—a cognitive object *known* rather than *had*. If one person wants to induce a similar[2] immediate qualitative experience in another person, his only option is to "invite that other person to institute the conditions by which the person himself will have that kind of situation the conditions for which are stated in discourse" (ibid., pp. 30–31).[3]

> Immediacy of existence is ineffable. But there is nothing mystical about such ineffability; it expresses the fact that of direct existence it is futile to say anything to one's self and impossible to say anything to another. Discourse can but intimate connections which if followed out may lead one to *have* an existence. . . Immediate things may be *pointed to* by words, but not described or defined. Description when it occurs is but a part of a circuitous method of pointing or denoting; index to a starting point and road which if taken may lead to a direct and ineffable presence. (Dewey, 1985a, pp. 74–75)

2. It is not possible, in Dewey's philosophy, to replicate qualitative immediacy such that two people can have the same immediate experience, or such that one person can have the same qualitative immediacy at two different times. Qualitative immediacy is a unique feature of every existence in nature (including those that do not involve human experience, or even sentience): Experience "is not therefore twice alike for different persons even today. It changes with the same person at different times" (Dewey, 1985b, p. 334). The repeatable things about experience are the cognitive qualities that are analyzed, isolated, and selected in cognitive processes like inquiry and discourse. For a thorough explanation of qualitative immediacy, see Bernstein, 1966, Chap. 7; Dewey, 1985a, Chap. 3.

3. I will argue in the next two chapters that this kind of invitation (along with the construction of some conditions) is offered by aesthetic works of art, with a number of beneficial consequences.

This limitation of discourse in characterizing or constituting immediate experience is demonstrated by the need for repeatability of experiments in physics (and other sciences). A scientist cannot directly transfer to another the experience by which they verified or falsified a theory. But they can "describe the experimental set-up, the material involved, the apparatus employed, the series of acts performed, the observations which result and state the conclusions reached," after which "it is up to other inquirers to take this report as an invitation to have a certain experienced situation and as a direction as to how to obtain it" (Dewey, 1985f, p. 31).

To claim that there is immediacy of qualitative experience is not to say that there is immediate *knowledge*. The types of things that appear in immediate experience are not objects of knowledge at all: "Things in their immediacy are unknown and unknowable, not because they are remote or behind some impenetrable veil of sensation of ideas, but because knowledge has no concern with them" (Dewey, 1985a, p. 74).[4] Dewey draws a clear distinction between immediately experienced quality, itself non-cognitive, and any discursive statements or conceptual explanations of those experiences.

> When, for example, anger exists, it is the pervading tone, color, and quality of persons, things, and circumstances, or of a situation. When angry we are not aware of anger but of these objects in their immediate and unique qualities. In another situation, anger may appear as a distinct term, and analysis may then call it a feeling or emotion. But we have now shifted the universe of discourse, and... in saying that something was felt not thought of, we are analyzing in a

4. This appears to contradict Dewey's earlier statement, in responding to Russell, that immediate quality can be known by instituting inquiry into it: "Instead, however, of holding that this material is unknowable, my view is that when the situations in which such material exists become problematic, it provides precisely that which is to be known by being inquired into. But apparently Mr. Russell is so wedded to the idea that there is no experienced material outside the field of discourse that any intimation that there is such material relegates it, *ipso facto*, to the status of the 'unknowable"' (Dewey, 1985f, p. 33). I attribute this to an imprecision of terminology, since the gist of Dewey's meaning here did not change over time. The important factors being expressed in both passages are that (1) not all objects and qualities of nature are experienced by way of knowing, because some (in immediacy) are experienced by way of *having*, and (2) immediacy, its objects, and its qualities are nevertheless related and interacting with objects and qualities of knowledge by means of a regulating and mutually-influencing relationship.

> new situation, having its own immediate quality, the subject-matter of a prior situation; we are making anger an object of analytic examination, not being angry. (Dewey, 1985g, p. 248)

Thinking about the experience of anger is not the same as feeling angry. Dewey uses this example to draw attention to the distinction between anger as it is felt and experienced at the moment when it is induced, and anger as a topic of reflection (which typically happens after the experience, but can occur during the moment in an attempt to become self-aware and diffuse the anger). At the same time, Dewey's theories of qualitative immediacy and knowledge retain a connection between the two aspects of experience, since to discuss anger with another person, one must refer to one's own felt experience of anger, the immediate and non-discursive reality to which one's discussion applies. Agreement or disagreement on the qualities and features of anger will depend on the applicability of the discursive descriptors to the experiences of the discussants.

This separation between (a) the immediately experienced reality of human beings, and (b) the knowledge, statements, and explanations of those experiences and nature, prevents Dewey from committing the fallacy of 'given' knowledge (encountered in foundationalist theories of knowledge) or falling into consequent problems concerning the (in)fallibility of such knowledge and experience (Sellars, 1997). The functional interconnection of qualitative immediacy and cognition "allows us to understand how we can build on the validity of experience, as opposed to merely rubber-stamping the knowledge that may come from this experience" (Martin, 2011, p. 182).[5]

5. For an explanation of how John Dewey's theoretical distinction between experiential immediacy and knowledge enables a social scientific analysis of human reality to take into account both first-person characterizations of experienced reality, and individual error concerning the causes and explanations of those experiences, cf. Martin, 2011.

4.2 Aesthetic Experience

Dewey's theory of experience reminds us that experience is not only cognitive, but can be qualified in many different ways. Among these ways are the felt qualities of immediacy which are, in the moment they exist, *had* by the experiential subject, rather than *known*. Experiences "cannot in their immediate existence be reflected upon; they either are or are not; are or are not enjoyed" (Dewey, 1985a, p. 298). To "pass beyond direct occurrence" is to begin a process of reflection which "implies a reflective criterion" and fundamentally alters the nature of the dominant quality by which any object or quality is experienced, from immediacy into cognition (ibid., p. 298). However, it would be a mistake to think that "only qualities coming to us through sense-organs in *isolation* are directly experienced" (Dewey, 1985b, p. 123). Dewey held that "there is no relation so comprehensive that it may not become a matter of immediate experience" (ibid., p. 125). Even though the results of cognitive processes—ideas and meanings—may come to mediate our experiences,[6] "only a twisted and aborted logic can hold that because something is mediated, it cannot, therefore, be immediately experienced. The reverse is the case. We cannot grasp any idea, any organ of mediation, we cannot possess it in its full force, until we have felt and sensed it, as much so as if it were an odor or a color" (ibid., p. 125).

Dewey's work develops two primary modes or qualities, other than cognition, which can dominantly characterize experience: aesthetic quality and religious quality. Religious quality is present in "[a]ny activity pursued in behalf of an ideal end against obstacles and in spite of threats of personal loss because of conviction of its general and enduring value" (Dewey, 1985h, p. 19). Religiosity is characteristic of experiences which involve "allegiance to inclusive ideal ends, which imagination presents to us and to which the human will responds as worthy of controlling our desires and choices" (ibid., p. 23). Religious quality can be present in a wide variety of activities such as "art, science and good citizenship" (ibid., p. 17). It

6. As has been mentioned, Dewey thought it highly plausible that a degree of cognition in *some* form may be present in every human experience.

can be found when performing civic duties, such as voting, campaigning, or protesting; and it can be found in scientific work, such as medical research or teaching the next generation of scientists. For example, "[f]aith in the continued disclosing of truth through directed cooperative human endeavor is... religious in quality" (Dewey, 1985h, p. 18). When these activities are performed for the sake of an ideal or value transcending the individual performing them, especially if personal sacrifice or risk is involved, the experience of performing or undergoing them possesses a religious aspect. The relig*ious* quality of experience is not necessarily associated with the practice of relig*ions*, the latter of which Dewey considers a "particular interpretation" of the significance of religious quality which is "derived from the culture with which a particular person has been imbued" (ibid., p. 10). That is, interpreting religious quality as associated with a religion or theological belief is a cognitive interpretation, and not an inherent aspect of the qualitative immediacy of religious experience.

Another significant quality that can predominate experience is aesthetic quality, with which subsequent chapters will be concerned. Aesthetic quality is present in an experience characterized by its "wholeness, integrity, and unity" (Bernstein, 1966, p. 96). In a dominantly aesthetic experience, "the characteristics in virtue of which the experience is an integrated complete experience on its own account" become dominant (Dewey, 1985b, p. 62). These are experiences in which all elements that usually form a part or aspect are experienced as submerged into a unifying whole. Distinctively aesthetic experiences display a merging into "immediate wholeness" of "elements of our being that are displayed in special emphases and partial realizations in other experiences" (ibid., p. 278). As such, aesthetic quality can be characterized as "pervasive quality that conditions, and is conditioned by, all the constituents of the situation" (Bernstein, 1966, p. 95); and experiences in which aesthetic quality is dominant can be characterized as those in which the pervasive quality—the quality by which the experience is a unifying whole—is dominantly felt. The clearest examples of aesthetic qualities of experience are found, of course, in experiences of artworks: "A painting is said to have quality, or a particular painting to have a Titian or Rembrandt quality. The

word thus used most certainly does not refer to any particular line, color or part of the painting. It is something that affects and modifies all the constituents of the picture and all of their relations" (Dewey, 1985d, p. 75).

The next subsection will explore how artworks come to evoke or express aesthetic quality in experience. However, it is worth noting that aesthetic quality can be felt—even dominantly felt—at points in distinctly non-artistic activities. There may be an experience which "has esthetic character even though it is not, dominantly, an esthetic experience" (Dewey, 1985b, p. 49). Just as cognition is induced in the ongoing and shifting experience that accompanies human activity, aesthetic quality is dominant in another phase of continual experience—"the phase of experience in which union is achieved" (ibid., p. 21). Aesthetic quality is therefore, not peculiar to specific types of activity, but "the clarified and intensified development of traits that belong to every normally complete experience" (ibid., p. 53). The feeling of fulfillment and integration in "attaining the conclusions reached in science," for example, is aesthetic in quality (Dewey, 1985i, p. 98). Philosophical, scientific, industrial, or political activities, can all display aesthetic quality when their "different ingredients constitute an integral experience" marked by an anticipated goal or purpose (Dewey, 1985b, p. 61). In these latter experiences, aesthetic quality will come to predominate in moments of the overarching process when, to speak colloquially, things seem to come together, "[f]or then its varied parts are linked to one another, and do not merely succeed one another. And the parts through their experienced linkage move toward a consummation and close, not merely to cessation in time" (ibid., p. 61). Like cognitive and religious qualities, aesthetic quality may become dominant in experience as the latter shifts through phases, activities, and emphases, or it can exist as a minor strand of experiences that are primarily qualified in a different way. The distinction between cognitive and aesthetic qualities in experience is "one of the place where emphasis falls in the constant rhythm that marks the interaction of the live creature with his surroundings" (ibid., p. 21).

4.3 Art, Immediacy, and Aesthetic Quality

While aesthetic quality can be present—even dominant—in any kind of activity, including intellectual ones, there is an obvious and intuitive connection between aesthetic experience and works of art. Activities of creating, performing, and appreciating poetry, literature, theatre, cinema, painting, sculpture, music, dance, etc., have a widely recognized, intense relationship to aesthetic quality, to the point where our intuitions and even our definitions of the aesthetic are constructed in relation to our intuitions and definitions of the artistic. In virtue of this, what are commonly understood as 'art' or 'works of art' have a special relationship with this non-cognitive, immediately felt quality of lived human experience.

A movement whose members recognized this special relationship between art and the immediacy of aesthetic quality was English Romanticism; and Dewey's central work on art and aesthetics—*Art as Experience*—is littered with affirming and sympathetic references to English Romantic poets such as John Keats, William Wordsworth, and Percy B. Shelley. Dewey and these English Romantics agreed that the empiricism and 'sensationalism' of English philosophers had rendered them "blind to the depth and power of experience" (Bernstein, 1966, p. 91). Like Dewey, the Romantics' philosophical viewpoint, drawn from continental thinkers, held that art (especially poetry) was a powerful medium for handling and conveying the qualitative immediacy of human experience and reality. Keats, specifically, spoke of a "Negative Capability" which makes an artist "capable of being in uncertainties, Mysteries, doubts, without any irritable reaching after fact and reason" (Bate, 1963, p. 249). But rather than this Negative Capability being a counterpoint to cognitive reasoning processes, Keats stated that he has "never yet been able to perceive how any thing can be known for truth by consequitive reasoning" (ibid., p. 238). While Dewey insisted that immediacy "must be taken into account in a comprehensive view of man and the world" (Bernstein, 1966, p. 92), the quintessentially Romantic perspective expressed here by Keats was that the immediacy dealt with in art and poetry constituted a *superior* reality, and art a means of acquiring a superior knowledge of it, than the conceptual knowledge extracted by cognitive

processes. The sense of "a deepened intelligibility" provided by aesthetic experience had, according to Dewey, "induced artists, especially poets, to regard art as a mode of revelation of the inner nature of things that cannot be had in any other way" (Dewey, 1985b, p. 293)—a complaint, as we've seen, he had also made of theories of science.

The Romantic perspective of Keats, which Dewey extended to Wordsworth and Shelley, thereby contained a fallacy repeatedly critiqued by Dewey, in which theories "isolate one strand in the total experience... [and] take it to be the whole" (ibid., p. 295). An accompanying tendency, found in poets and philosophers of art alike, was "to treat art as a mode of knowledge... superior not only to that of ordinary life but to that of science itself" (ibid., p. 293). Shelley said that poetry is "the centre and circumference of all knowledge," while Wordsworth said that "poetry is the breath and finer spirit of all knowledge" (ibid., p. 294). Dewey, by contrast, "held that a prime defect of philosophies of art has been treating subjectmatter as if it were (whether the creators and enjoyers of it were aware of it or not) a kind of knowledge of Reality, presumably of a higher and truer order than anything of which 'science' is capable," and he criticized a range of philosophers including Aristotle, Schopenhauer, Hegel, and Croce for such a view (1985i, pp. 97–98; also see 1985b, pp. 293–95). Just like the scientistic empiricists sought to exclude the subjective immediacy of experience from its characterization of reality, the Romantics were guilty of committing an obverse fallacy, whereby the immediacy diminished in the 'empiricist' view was elevated to the status of a truer reality, and the artistic processes of witnessing and communicating it were regarded as "a mode of revelation of the inner nature of things that cannot be had in any other way" (ibid., p. 293).

Although Dewey rejected the notion that immediacy was a more direct or superior version of reality, and that art was a means of *knowing* reality, he did argue that there were several interrelated features of works of art that were different to cognitive processes like scientific or philosophical inquiry, and endowed art with distinct and unique capacities. Firstly, art works directly in and with the qualities of *immediacy*, while cognition operates at a degree

of abstraction from immediacy. Secondly, works of art draw out the elements of experience to constitute a specifically *aesthetic* experience—that is, an experience characterized by its various parts' unification into a whole. The remainder of this section will explain these two features, after which the next section will present the capacities art has by virtue of these features, including a capacity for evoking, communicating, manipulating, and (re)creating immediately felt quality in experience; a consequent capacity for influencing attitudes and retraining perceptions in immediacy; and a cumulative capacity for influencing social morality and cognitive categories by virtue of immediacy's continual interaction with and regulation of cognitive processes in experience.

Let's first examine art's relationship to immediacy. While the scientist or intellectual thinker "operates with symbols, words and mathematical signs," the artist's subject matter is "more immediately embodied in the object" (Dewey, 1985b, p. 21). This distinguishes artists from "intellectual inquirers [who] deal with these qualities at one remove, through the medium of symbols that stand for qualities but are not significant in their immediate presence" (ibid., p. 80). The artist's meaning is expressed "in the very qualitative media he works in, and the terms lie so close to the object that he is producing that they merge directly into it" (ibid., p. 21). A concept, word, or symbol *stands for* something which can be immediately *felt* or *had* in experience. Art does not employ or work with the symbol which stands for the experiential object; it works directly with the experiential object: "Science states meanings; art expresses them" (ibid., p. 90). Dewey employs the example of a signboard to illustrate the distinction between statement and expression:

> It directs one's course to a place, say a city. It does not in any way supply experience of that city even in a vicarious way. What it does do is to set forth some of the conditions that must be fulfilled in order to procure that experience. What holds in this instance may be generalized. Statement sets forth the conditions under which an experience of an object or situation may be had. (ibid., p. 90)

Dewey is not suggesting that art is the experience of the city itself. The point is that

art seeks not to convey directions *towards* the city such that a person may visit the city themselves, but seeks to express the meaning of the city in immediate experiential terms. Artists "have for their subject-matter the qualities of things of direct experience" (Dewey, 1985b, p. 80). While cognitive objects are the stable, connective categories which enable the conjuring or exorcism of qualities in subsequent experience, "[t]he poetic as distinct from the prosaic, esthetic art as distinct from scientific, expression as distinct from statement, does something different from leading to an experience. It constitutes one" (ibid., p. 91). Therefore, although Wordsworth's poem is not, in and of itself, an experience of Tintern Abbey, it is significantly "different from the account of Tintern Abbey given by an antiquarian," insofar as it "does not operate in the dimension of correct descriptive statement but in that of experience itself" (ibid., p. 91). The experience of Tintern Abbey "as Tintern Abbey expressed itself to Wordsworth" is what the latter sought to imbue in the words of his poem, in contrast to the 'antiquarian' or 'gazetteer' (archaeologist, geographer, or journalist) who seeks to communicate a subset of cognitive qualities in the form of information (ibid., p. 91). "[T]he work of art develops and accentuates what is characteristically valuable in things of everyday enjoyment," and seeks to express the fullness of experience "as dyes come out of coal tar products when they receive special treatment" (ibid., p. 17).

The distinction between statement and expression, or between description and evocation, is the fundamental distinction upon which the unique capacities of art depend, and so Dewey provides a plethora of examples in an attempt to convey it. One example, involving Van Gogh's *Bridge at Trinquetaille*, is particularly lucid. Van Gogh wrote to his brother while he was composing this painting, and told him: "I have a view of the Rhone—the iron bridge at Trinquetaille, in which sky and river are the colour of absinthe, the quays a shade of lilac, the figures leaning on the parapet, blackish, the iron bridge an intense blue, with a note of vivid orange in the background, and a note of intense malachite" (ibid., p. 91). This is a statement (though imaginative and evocative when compared to a scientific statement) "calculated to lead his brother to a like 'view' " (ibid., p. 92). But these words are not the expression of art.

Even his description in the letter's next sentence, in which he explains the pervasive, aesthetic quality under which he seeks to bring together, inter-define, and unify all the elements of his composition—"I am trying to get at something utterly heartbroken and therefore utterly heartbreaking"—is not the expression of art. "The expressiveness, the esthetic meaning, is the picture itself," is the work of art in which his emotion and the scene enter into communion (Dewey, 1985b, p. 92). The difference between statement and expression is not exactly one of language versus visual or other sensual media, since "[t]he logic of poetry is super-propositional even when it uses what are, grammatically speaking, propositions" (ibid., p. 91). The difference concerns the qualities of experience being encoded in the material—whether they are total and immediate so as to convey and constitute an overall experience (expression or evocation), or a selection of abstracted informational qualities stated so as to constitute a form of knowledge (statement or description).

The distinction between statement of knowledge, and expression of immediacy, can be better understood with reference to a related feature of works of art—that of constituting an aesthetic experience, characterized by its unifying completeness and inter-relatedness of its elements under a pervasive quality. A cognitive process gives rise to a conclusion which "has value on its own account,... can be extracted as a formula or as a 'truth,' and can be used in its independent entirety as factor and guide in other inquiries" (ibid., p. 61). However, "in a work of art there is no such single self-sufficient deposit" because the end product or closing part "is significant not by itself but as the integration of the parts" (ibid., p. 61). Cognitive processes like scientific inquiry are instrumental. Having moved through struggle with disorder and lack of comprehension, they produce concluding knowledge or technology that can be applied in subsequent experiences—a "stepping stone" for the solution of further problems. They jettison the thinker's preceding struggle (except for the purpose of validating results in the eyes of others, or of providing educative examples of method), since the latter has no instrumental use, and is irrelevant to the value of the knowledge or technology. An artistic work is not the final product in isolation, nor can it be understood by the conclusion

in the absence of the whole: "A drama or novel is not the final sentence, even if the characters are disposed of as living happily ever after" (Dewey, 1985b, p. 61). In such works, "[t]here must be a story, some whole, an integrated series of episodes. . . [which] do not mean what they would mean if occurring in some different story. They have to be perceived in terms of the story, as its forwardings and fulfillings" (Dewey, 1985a, p. 232). A symphony's significance is not in its closing cadence. Even a painting, which is a static object, must be experienced as a movement towards harmony through "an act of reconstructive doing" in order to be genuinely appreciated (Dewey, 1985b, p. 59).

The way in which works of art achieve this aesthetic quality of a unificatory and unified whole is by bringing various qualities—emotions, senses, values, meanings drawn from past experiences, etc.—into a contrapuntal relationship. Art involves the manipulation and reordering of some material, "with a view to production of something visible, audible, or tangible" (ibid., p. 53). This can involve "molding of clay, chipping of marble, casting of bronze, laying on of pigments, construction of buildings, singing of songs, playing of instruments, enacting roles on the stage, going through rhythmic movements in the dance" (ibid., p. 53). The achievement which bestows aesthetic quality upon a work of is the saturation of such media with meaning and value. Artistic talent in producing aesthetic works of art is not constituted by a person's "inceptive emotion" nor "technical skill in execution," both of which may be possessed by a broad range of people. Artistic talent lies in bringing these together through a "capacity to work a vague idea and emotion over into terms of some definite medium" (ibid., p. 82), or "the ability to fund sensuous qualities with meaning and value" (Bernstein, 1966, p. 156). In this process of 'working over' ideas and emotions, and 'funding' the senses with them, both elements—the materials and the values—are altered to form mutually constituted elements of a new unified object. We generally recognize that, in the process of making art, "[m]arble must be chipped; pigments must be laid on canvas; words must be put together"; but we are perhaps not so intuitively aware that "a similar transformation takes place on the side of 'inner' materials, images, observations, memories

and emotions" (Dewey, 1985b, p. 81). The work of art achieves an aesthetic effect insofar as "the two functions of transformation are effected by a single operation" (ibid., p. 81). The emotion or idea expressed by a work of art is not the originating emotion or idea of the artist; it is an emotion or idea 'objectified' (ibid., p. 84): "As the painter places pigment upon the canvas, or imagines it placed there, his ideas and feeling are also ordered. As the writer composes in his medium of words what he wants to say, his idea takes on for himself perceptible form" (ibid., p. 81). To return to Dewey's Van Gogh example,

> [T]he picture is not 'representative' of just a particular bridge over the Rhone River, nor yet of a broken heart, not even of Van Gogh's own emotion of desolation that happened somehow to be first excited and then absorbed by (and into) the scene. He aimed, through pictorial presentation of material that any one on the spot might 'observe,' that thousands had observed, to present a new object experienced as having its own unique meaning. Emotional turmoil and an external episode fused in an object which was 'expressive' of neither of them separately nor yet of a mechanical junction of the two, but of just the meaning of the 'utterly heart-broken.' He did not pour forth the emotion of desolation; that was impossible. He selected and organized an external subject matter with a view to something quite different—an expression. (ibid., p. 92)

The work of art is a complete, aesthetic unity, because it is not expressive of self or environment, material or value, past or present, "direct sensuous qualities" or symbolically "associated material," but of exactly what has come together in the combination of each (ibid., p. 105). What is expressed involves the objects, materials, and events just as intrinsically as the meanings or values brought to a witnessing of them. This is what makes the medium of each art form significant and distinct, and "especially fitted for one kind of communication... that cannot be uttered as well or as completely in any other tongue" (ibid., p. 111).

4.4 The 'Instrumental' Capacities of Art

Art's tendency to work in the medium of qualitative immediacy, so as to communicate and constitute an experience, endows it with a number of unique and important capacities, achieved by means which are not available to cognitive processes: Art can adeptly communicate, clarify, and intensify immediate experience; it can alter, "educate," or "retrain" elements of immediate experience; it can cumulatively create and constitute a cultural environment; and it can influence cultural ideals, morals, and even cognitive processes. These capacities will be explored concretely in the next two chapters, but they are introduced and explained here in order to provide a reference and guide for those subsequent, more detailed discussions.

Works of art are expressive—they express the qualities of immediate experience through material and sensuous qualities imbued with values, emotions, and meanings. Therefore, works of art, in some sense of the word, *communicate* (Dewey, 1985b, p. 110). This act of communication is not like the communication of information or abstract ideas made possible in cognitive processes. Rather, "[a]rt communicates because it renders available in clear and heightened unities the qualities of experience that are seen with absorption and heard as direct and as delightful" (Edman, 1950, pp. 62–63). Because art works in and with the qualities of immediate experience, art communicates immediacy. It communicates, specifically, an intense and clarified form of immediacy. Art "throws off the covers that hide the expressiveness of experienced things" in their ordinary contexts, and evokes "the delight of experiencing the world about us in its varied qualities and forms" (Dewey, 1985b, p. 110). Through the fullness and intensity of works of art, the values and meanings of everyday objects of ordinary immediate experience are "clarified and concentrated," and art "keeps alive the power to experience the common world in its fullness" (ibid., p. 138).

The immediacy that is communicated in art takes the form of a *new* experience. Art "intercepts every shade of expressiveness found in objects and orders them in a new experience of life," one which presents the objects and qualities of experience in an original way

(Dewey, 1985b, p. 110). The material is assimilated "in a distinctive way to reissue it into the public world in a form that builds a new object" (ibid., p. 112). The quality of immediacy being communicated in the work of art "is *sui generis* because the manner in which general material is rendered transforms it into a substance that is fresh and vital" (ibid., p. 113). This gives art the capacity to remove, transform, or even confound, the conventional associations present in our experience of objects, by presenting familiar objects of experience in transformative ways. These transformative presentations of immediate qualities can re-train or re-educate our "organs of perception," and enable us to experience new versions or iterations of immediacy and its objects. This can liberate us from the prejudiced conception "that objects have fixed and unalterable values" (ibid., p. 101). For example, Dewey argues that the nudes of Renoir "give delight with no pornographic suggestion," transforming, by confounding, the usual erotic felt quality of female nudity:

> The voluptuous qualities of flesh are retained, even accentuated. But conditions of the physical existence of nude bodies have been abstracted from. Through abstraction and by means of the medium of color, ordinary associations with bare bodies are transferred into a new realm, for these associations are practical stimuli which disappear in the work of art. The esthetic expels the physical, and the heightening of qualities common to flesh with flowers ejects the erotic. (ibid., p. 101)

Because art works in the qualities of immediacy, it has the power to manipulate the associations of immediate qualities into novel relations (for example, extricating bare female flesh from eroticism). Through the same practice of working in immediate qualities, art also has the power to capture and reconcile prevalent problems of felt immediacy which have not yet found cognitive apprehension. For example, with the industrialization of Europe in the nineteenth century, lived experiences of space and time were transformed by technologies of time standardization and rapid travel (Schivelbusch, 2014). The Impressionist tradition of painting that emerged in the mid- to late-nineteenth century has been understood as an

artistic response to the experiential phenomenon that was being lost in the process of objectivized standardization—anarchic, subjective, personal, unregulated moments. Through artistic sensitivity, the Impressionists grasped the transformation and tension occurring during this period, and sought to place into new relationships of association—at once contrasting, clarifying, and reconciliatory—the radical and new immediate experience of time. Monet's train station paintings, being an early and concentrated expression of this meaning, "worked to bring human time and natural time into correspondence" (Dombrowski, 2020, p. 117). He did this by drawing into aesthetic union (as only works of art can do) a plethora of qualities: His paintings took place in train stations, "places where temporal exactitude was scrupulously observed" (ibid., p. 94), and where his own activities of painting were regulated by the timetables of arrivals and departures; he depicted trains and the stations' devices of time-standardization, which were significant objects in the transformation of felt time; his brush strokes were 'sketchy' and ephemeral, imbuing a sense of hurriedness and instantaneity; he "staged the difference between hard and soft, sharp metal edges and the vaporosity of steam" (ibid., p. 110), evoking contrasts between strict standards of objectification, and inchoate subjectivity. To the extent that he was successful in his art, Monet gave voice to a felt experience of the period, rendering it intelligible, and presenting it with an answer.

By training, clarifying, or transforming modes of perception, works of art "open new objects to be observed and enjoyed" (Dewey, 1985a, p. 293). They are capable of quickening apprehension, enlarging the horizon of vision, refining discrimination, creating standards of appreciation which are confirmed and deepened by further experiences" (ibid., p. 293). These alterations of felt quality can be understood metaphorically as the kind brought about by the inventions of microscopes and microphones—they enlarge, refine, and transform experienced qualities, not through technological instruments of amplification or enlargement, but "by education of the organs of perception" (ibid., p. 293). These effects do not exist only in the moment of appreciation of a work of art; the "production of new objects and dispositions... are in turn productive of further refinements and replenishments" (ibid., p. 274).

Art is "a process of making the world a different place in which to live," and the effects of this remaking "[do] not terminate with the immediate and particular occasion in which [they are] had" (Dewey, 1985b, pp. 351–52), but are carried through into subsequent experiences (Dewey, 1985a, p. 272).

The effects and capacities of aesthetic works of art presented have so far been relatively personal and limited (insofar as they do not extend to actions and interactions among people). Art has been presented as a means of remaking the immediacy with which we encounter the world of our experience, but no suggestion has been made so far that such work might influence either (1) our social interactions and arrangements or (2) our cognitive processes and judgments. However, by virtue of the capacity already outlined—to communicate through expression—art can be instrumental in creating a collective cultural environment; and by virtue of its capacity to recreate immediacy, combined with immediacy's role in regulating and triggering cognitive processes of inquiry and reflection, art can be (indirectly) instrumental in altering cognitive judgments as well.

Individual experience and collective culture were not separable entities for Dewey. In an introduction to a reissue of *Experience and Nature*, which was drafted but remained unfinished at the time of his death, he wrote, "Were I to write (or rewrite) *Experience and Nature* today I would entitle the book *Culture and Nature*" (ibid., p. 361). While many readers of Dewey had understood experience to be a personal phenomenon occurring on the level of the individual, Dewey held that "individuals are what they are in the content of their experience because of the cultures in which they participate" (Dewey, 1985b, p. 329). The experience—in our typical understanding of the word—of each individual is permeated with the meanings of collective culture; and culture, in turn, "is at the same time psychological and collective" (Dewey, 1985a, p. 364). By the nature of humanity's manifestation in distinct individuals, there are "gulfs and walls that limit community of experience" (Dewey, 1985b, p. 110). But by virtue of art's handling, manipulation, and expression of immediately felt experiential qualities, works of art are capable of more "complete and unhindered communi-

cation between man and man" than cognitive forms of communication (such as statement of knowledge) (Dewey, 1985b, p. 110). Works of art enable us to 'enter sympathetically' into the immediacy of others, and 'reorient' our own experience (ibid., pp. 335–37). The works of art in circulation at a time "become part of the environment, and interaction with this phase of the environment is the axis of continuity in the life of civilization" (ibid., p. 329). "[A] less conscious and more massed constant adjustment of experience" occurs by means of communication of experience between individuals through works of art (ibid., p. 347).

The effect described above is social in nature, but it is still not cognitive. However, by means of this social adjustment of experience through aesthetic communication, moral sensibilities may be altered in such a way as to influence our cognitive assessments. When, in appreciating art, "we install ourselves in modes of apprehending nature that at first are strange to us," we may sometimes find that "[b]arriers are dissolved [and] limiting prejudices melt away" (ibid., p. 337). Art provides the initial "sense of possibilities" that make us "aware of constrictions that hem us in and of burdens that oppress" (ibid., p. 349). This awareness, while not cognitive, leads to cognitive attention. Cognitive processes "formulate the tendencies of these arts and provide them with an intellectual base" (ibid., p. 348). The insights originally offered by artists may then be "converted into a proclamation of facts... and hardened into semi-political institutions" (ibid., p. 350). Dewey even argues that aesthetic art is *more* efficacious as an instrument of moral instruction than reasoning. Art is able to present alternative possibilities by imaginative means, making it "a criticism of life... not directly, but by disclosure, through imaginative vision addressed to imaginative experience (not to set judgment) of possibilities that contrast with actual conditions" (ibid., p. 349). Art can therefore more fluently point towards alternative conditions for the future, and incite the "first stirrings of dissatisfaction" (ibid., p. 348). Compared with this raising of awareness and lighting up of new possibilities, Dewey argues that "things directly taught by word and precept are pale and ineffectual" (ibid., p. 347).

4.5 Aesthetic Qualities and Works of Art as Indispensable Elements of Experience and Change

Scientism is a view which holds that sciences save us from illusions imported by our flawed experiential processes, by discovering and presenting reality in its truer form. The previous chapters have challenged this view by demonstrating that it rests on two main misunderstandings. Firstly, science is not principally oriented towards constructing *representations* of reality, but rather towards developing specific forms of knowledge for *use and application*. Science, with its selective focus, analysis, testing, and abstract reasoning, is an adaptive process of extracting instrumental knowledge for the effective resolution of problems encountered in the lived experience of human individuals and societies, situated in processes of activity. Inquiry and other cognitive processes occupy "an intermediate and reconstructive position" in ongoing experience and activity, and are induced when some elements have become "discordant" (Dewey, 1972, p. 331). Secondly, science does not reveal a *truer* or *more complete* account of reality, but pursues its goals of use and application by *excluding* elements of the world's qualities—those which manifest in more immediate, non-cognitive phases of experience—to focus on a limited, manipulable subset. Science selectively focuses on a subset of qualities of experienced objects—cognitive qualities—that exhibit simplicity, stability, universality, and reliable connections with other qualities (sometimes understood as causal connections). These qualities are selected, not for their more fundamental representation of reality, but for their usefulness in manipulating and controlling elements of our experienced environment, and their consequent usefulness in dealing with the needs and problems of human life and society.

The previous chapters' critique of scientism also established that elements of experience existing outside the subset of qualities constituting the focus of science have an equivalent ontological status to the qualities existing within science's purview. Such qualities as aesthetics, emotions, moral and social qualities, and ethical and spiritual qualities are equally

real aspects and qualities of objects in nature; they are not illusory imports of the mind. These qualities elude scientific investigation and treatment by being too vague, unstable, variable, complex, or contextually contingent. But far from being the misapprehensions of imperfect perceptual capacities which need to be corrected through reduction to scientific correlates, or illusions of experiential idiosyncrasies which need to be eradicated through scientific falsification, these qualities genuinely exist in their own right, both in experience and nature. The critique also indicated that there might be independent non-cognitive logics and technologies for characterizing, understanding, and handling these qualities.

This chapter has added to our cumulative understanding of the errors of scientism, by establishing that works of art of various media can deal with qualities of experience and nature—those of immediacy—which cognitive processes such as scientific inquiry and reasoning cannot. This means that art is capable of forms of communication, clarification, manipulation, and transformation in human experience that cognitive processes are not. So while cognitive processes such as scientific inquiry are crucial in selecting stable, connective qualities of experience for the sake of manipulating our environments and subsequent experiences, they are by no means comprehensive methods for the purposes and needs of human life. Science is not a means of substituting the reality of nature's objects for the subjective illusions of felt qualities: "The history of science in its distinct emergence from religious, ceremonial and poetic arts is the record of a differentiation of arts, not a record of separation from art" (Dewey, 1985a, p. 290). Just as science seeks to identify and manoeuver the unorganized qualities of experience and nature to make them more amenable to positive outcomes, aesthetic works of art express immediately felt qualities of experience so as to provide new modes of perception and engagement. Aesthetic works of art serve an important and irreducible functional complement to science and other cognitive activities. The specific functions of art briefly explored here have included training new modes of perception, communicating across experiential divides, creating cultural environments, presenting new possibilities, providing moral instruction, and influencing subsequent cognitive

judgments. The following two chapters will examine these functions through examples of contexts where the manipulation of aesthetic qualities can prove useful for the resolution of experienced problems, and where the employment of aesthetic works of art can therefore be more effective than cognitive processes.

CHAPTER 5

AESTHETIC TECHNOLOGY I: LITERATURE, IMAGINATION, AND THE EXPANSION OF EXPERIENCE

In Dewey's rich ontology, where both experience and nature possess aesthetic, emotional, ethical, and moral qualities in their own right, we can recognize the fundamental reality of aspects of experience often labelled 'subjective,' and recognize the validity of problems that involve them. Practices based upon cognition (such as the sciences, mathematics, and areas of social inquiry resting on methods borrowed from these disciplines) and practices that deal in immediacy (characteristically works of art of various media) need not be hierarchically ordered, homogenized, or reduced to one form. They are all irreducible techniques for navigating qualitatively distinct strands of experience and nature. This chapter investigates the kinds of problems that can arise in lived experience which may be better approached, progressed, or resolved using non-cognitive methods. It simultaneously explores what features of the non-cognitive aesthetic technologies of works of art make them more suitable than analytic methods for the expression and communication of certain elements of human experience, and for the resolution of problems that relate to these elements. In doing so, it seeks to confirm and strengthen the conclusion of the previous chapter, that art and aesthetics have a unique and indispensable role in negotiating aspects of human life.

The next section, 'Problems for Works of Art,' establishes the kinds of encountered problems whose solutions may be more successfully sought through artistic means than by cognitive methods. These problems are exemplified in Martha Nussbaum's insights into Henry James' *Golden Bowl* and Aeschylus' *Agamemnon*; and in Philip Kitcher's insights into the novels of James Joyce. The following section, 'Non-Cognitive Solutions,' explains the various ways in which art and aesthetic technologies prove highly suitable for the examination of these kinds of problems. Using the example of aesthetic literature, two interrelated capacities of aesthetic technologies will be explored. Firstly, as the last chapter showed, aes-

thetic works deal directly in immediate quality. Literature engages and evokes our emotions, employs narrative and perspective, and possesses great formal flexibility, which enables it to draw out or create a multiplicity of complex qualities of immediacy in the reader's experience. By virtue of these resources, aesthetic technologies like literature can lead people through a more complete experience extending beyond the limited cognitive qualities of analytic inquiry, making them more adequate to the task of communicating immediacy, and able to leave powerful and lasting impressions. The chapter then contains an interlude to address an objection which might arise during the course of these arguments: One may argue that, although these qualities demonstrate art's capacity to have a *great* effect, none of them demonstrate art's capacity to have a *good* effect. In other words, art might be characterized as highly effective manipulation, *mis*guiding us in our navigation of inchoate and immaterial problems. This deep and important problem is dealt with in the section, 'Can We Trust Our Emotions, Aesthetics, and Imagination?' and will be further examined at the end of the next chapter.

The second capacity of aesthetic literature is its ability, on the basis of its dealing directly in immediate experiential qualities of emotions, aesthetics, and imagination, to endow readers with enlarged, refined, or transformed modes of perception—that is, new and unexpected ways of seeing, thinking, or feeling about objects, events, or people, in their own lives or the wider world. This capacity comes from art's flexibility in not being hemmed in by the preestablished conceptual boundaries and characterizations of cognitive processes, and being able to bend and surpass them to formulate perspectives and attitudes that were not foreseeable and could not be ascertained through existing categories. The subsection 'Beyond Conceptual Boundaries' draws on James' theory of the relationship between common-sense categories and the stream of consciousness, and Emerson's concept of the relationship between 'circles' and 'creative impulse,' to explicate the way in which conceptual categories employed in cognitive activities can prevent certain discoveries and forms of expansion in human experience and understanding, and the way in which aesthetics give us the ability to

spill over these potentially constricting categories. In freeing themselves from the constraints of cognitive abstractions (and reductions), aesthetic technologies like literature have the capacity to achieve ends that are unavailable to cognitive practices which take the abstraction of concepts as a first and necessary step.

While the present chapter focuses on the importance of aesthetics for discovering, communicating, and manipulating individual experience, the following chapter will explore similar questions as pertain to shared public expressions of experience, or 'culture.' Previous chapters have shown that scientific inquiry is a process undertaken to resolve problems in everyday lived experience, or what John Dewey called the 'common sense' environment. The next chapter explores the kinds of problems that can arise in the public epistemic resource of common sense which are better resolved using *aesthetic* methods than they are using cognitive ones.

5.1 Problems for Works of Art

Martha Nussbaum's work provides us with lucid examples of human problems, and searchings for their solutions, that relate to emotional and imaginative qualities of our experience, and rely upon non-cognitive techniques like aesthetic works of art for their exploration and solution. One such example she discusses is Henry James' *Golden Bowl*, in which readers are introduced to Maggie Verver, an adult woman who enjoys a relationship of "exclusive intensity" with her widower father, Adam. The two live and travel together, collecting art and acquaintances; their affection for each other is great, and their opinion of each other is high. In spite of her marriage to the Prince, Maggie wishes "to remain, intensely, the same passionate little daughter she had always been," aspiring to lead a morally flawless life in which she is guiltless, "never doing a wrong, never breaking a rule, never hurting" (Nussbaum, 1990, p. 126). As a result, she refuses to break away from her past attachments to her father in order to become "a separate woman in her own right" (ibid., p. 127). She deliberately cuts back on the claims of marriage, simplifying her world and character so as

to retain "an allegedly guiltless consistency and harmony" between her loyalty to her father, and her new commitments and responsibilities to her husband (Nussbaum, 1990, p. 128). In the course of the novel, a tangled web of conflicting loyalties and relational histories develop such that Maggie must—and does—commit an emotional infidelity to her father, in order to fully meet the claims of her marriage.

> The world of *The Golden Bowl* is a fallen world—a world, that is, in which innocence cannot be and is not safely preserved, a world where values and loves are so pervasively in tension one with another that there is no safe human expectation of a perfect fidelity to all throughout a life... [W]e cannot ever count on the fact that our love of a husband will not require the spiritual death of a best friend and mentor, that fidelity to a wife will not require cruelty to a former lover. (ibid., p. 133)

In Nussbaum's interpretation, the world is such that, in choosing even a just course of action, a human agent must sometimes cause harm to another person. The structure of our decisions is imperfect, and remaining faithful to all our commitments is often impossible. Maggie creates a situation in which she does not have to make a choice between loyalties to her husband and to her father, by artificially impoverishing her commitments and by simplifying her view of her own situation in her social world. Maggie Verver is therefore guilty of impoverishing her relationships and her own agency, by not accepting the full scope of her commitments or allowing herself to realize the full potential of her relationships. Her solution is not a solution at all, but a stifling limitation, as James illustrates in his extensive exploration of her actions, relationships, and character.

The problem explored in this novel is one of contradicting values. Maggie values her marriage and she values her relationship with her father. She would be wrong not to. But her circumstances are such that she cannot respect and maintain the integrity of both of these valued relationships in their fullest manifestations. She attempts to do so, fails, and causes harm to herself and others in the process. Although the specific relational intricacies

of James' novels may not be representative of many people's lives, the general meanings of the experiences portrayed will be familiar to many people. When two dearly valued commitments conflict and cannot be reconciled, what should one do? How can the world be such that one *must* betray a friend, relation, value, or commitment? Can one still be an ethical person while committing such a betrayal? The perspective James offers of this conflict, according to Nussbaum, is that, though we necessarily do harm to others, we retain our ethical integrity inasmuch as we remain "finely aware and richly responsible."

> [D]o these cruel things, making the better choice. But never cease, all the while, to be richly conscious of [another's] pain and to bear, in imagination and feeling, the full burden of your guilt as the cause of that pain... Never for a moment close your eyes or dull your feelings. (1990, p. 135)

The conclusion that Nussbaum finds in James' novel is that, although we necessarily harm others as we navigate competing claims, a saving aspect of an ethical life is a keen awareness of the effects of our actions on others, fully utilising our imaginative and emotional capacities. We must step up to the difficult choices presented by our social, moral, and emotional environments, we must not shrink from pursuing our own happiness and potential for fear of the guilt we will accrue. Blinding ourselves to the harm we inflict on others when we make such decisions, or refusing to feel acute guilt at the harm we do them, is the true ethical deficiency.

Nussbaum demonstrates that the same form of ethical conflict can be found in the ancient Greek tragedy, Aeschylus' *Agamemnon*. Agamemnon, king of Mycenae, is leading several Greek armies on an expedition to Troy, by command of Zeus, to avenge Paris' crime against hospitality (stealing Helen while a guest in the house of Meneleus). The goddess Artemis, in anger, has hindered the voyage across the Adriatic by preventing favorable winds, and the armies are stranded on the shores of Greece. A prophet informs Agamemnon that he must sacrifice his daughter, Iphigeneia, if Artemis is to allow the voyage to continue. Here, Agamemnon is faced with a necessary decision between two terrible options, both of which

carry a heavy burden of blame and guilt. If he sacrifices Iphigeneia, he will be guilty of deceiving and betraying his wife, and murdering an innocent woman and his own child. But if he refuses to make the sacrifice, the armies relying on him will starve, he will be a deserter, and he will be violating a command from Zeus. Though it is dreadful, it is clear to the Chorus that the human sacrifice is the better decision (contrary to modern intuitions). The Chorus pities Agamemnon, and does not scorn or judge him.

Agamemnon is initially appalled at his options, and several lines of the play are devoted to his anguish. But once he has made this decision to summon and sacrifice Iphigeneia, his emotions, speech, and behaviour indicate that he has begun to regard the decision with optimism and enthusiasm. He describes his choice as "right and holy" and proceeds with "exceedlingly impassioned passion." Agamemnon "begins to cooperate inwardly with necessity, arranging his feelings to accord with his fortune" (Nussbaum, 2001, p. 35). It is at this point, when Agamemnon blinds himself to the terrible harm of his actions, that we begin to see judgment and scorn from the Chorus.

> The Chorus does not so much blame the fact of the action, for which they feel the gods bear a primary responsibility, though indeed it is a serious crime... What they impute to Agamemnon himself is the change of thought and passion accompanying the killing, for which they clearly hold him responsible. (ibid., p. 36)

Nussbaum argues that the perspective of this tragedy is very similar to that of *The Golden Bowl*: though circumstances may sometimes force us to commit harmful (even terrible) deeds, the deeper moral corruption is to engage with the world with an "artificially impoverished set of concerns" (ibid., p. 42). We have an ethical duty to be vividly aware of the harms we inflict, however necessary they may be.

> Though he must, to some extent, *act* like a person 'who is called by the worst names,' he will show himself to be utterly dissimilar to such a person in 'passion,' in the emotional dispositions that form a part of his character. And after the

> action he will remember, regret, and, where possible, make reparations. His emotions, moreover, will not be simply regret, which could be felt and expressed by an uninvolved spectator and does not imply that he himself has acted badly. It will be an emotion more like remorse, closely bound up with acknowledgement of the wrong that he has as an agent, however reluctantly, done. (Nussbaum, 2001, p. 43)

This example of a problem appears to be strongly connected to aspects of our experiential immediacy—our emotions, the pervasive moral quality of the world, and our sense of a place in it. It is emotionally and ethically confusing to confront the fact that, in order to live our lives well, we must sometimes cause harm to others or commit deeds we feel to be wrong. This realization may bring with it issues concerning our self-identity as agents living a good life, our conception of the world as one in which a good life as formerly conceived is possible, and our sense of how to comfortably situate ourselves in our social environment. These issues may have practical effects, such as limiting or altering our capacity to navigate our social environment or form fulfilling social relationships. The resolution offered in the aesthetic technologies of the novel and drama is to continue living through these necessary conflicts but to remain "finely aware and richly responsible," since the ethical deficiency is an emotional one, not a material one. Encountering such a solution in James' novel or Aeschylus' tragedy could bring a deeper coherence to one's perspective, appreciation, and experience of one's social and moral environments, and an enrichment of one's ability to navigate those environments.

Philip Kitcher, in *Deaths in Venice*, also provides examples of problems arising in experience which are dealt with in aesthetic works of literature. He suggests that three novels of James Joyce—*A Portrait of the Artist as a Young Man*, *Ulysses*, and *Finnegan's Wake*—are examinations of the problem of "how lives can attain any worth or meaning" if they are not marked by outstanding accomplishments (Kitcher, 2013, p. 22). Through the events of the books, the thoughts, feelings, decisions, and judgments of the characters, and their mundane

but meaningful interactions, readers witness the talented and ambitious Stephen Daedalus coming to learn that value is found in everyday pleasures and companionship, and the couple Leopold and Molly Bloom finding value in their marriage in the face of infidelity and the death of a child.

> *A Portrait* considers a life in prospect, when it may appear, especially to a precociously talented young man, that value can only be the result of some exceptional achievement. *Ulysses* replaces that perspective with the view from middle age, when the "straight way" has been lost and the valuable life, grounded in very ordinary successes, joys, and human relationships, needs to be found again. *Finnegans Wake* offers the view from the end, when there is no longer any question of serious change but only a continued examination of what has been, one that recognizes the flaws and the blotches but hopes to find that it has, after all, been worthwhile. (Kitcher, 2013, p. 22)

Many people will have experienced the kinds of anxieties and confusions encountered by the characters in Joyce's work, as well as the shifts in perspectives across distinct life-stages, as instantiated in the development of the characters in Joyce's novels. Young adults, still seeking to establish themselves as individual agents with something of worth to contribute to the world, may be burdened by a sense that their actions and experiences must be outstanding in order to have value. Middle aged people may experience concerns that these early ambitions and aspirations of epic achievements and widespread recognition have not materialized, and wonder how to regard their life in the absence of such achievements. And far be it from me to speculate what an individual looking back on a deep personal history, with its many successes and failures, relationships and compromises, transformations and realizations, may struggle to negotiate in their understanding of their life's worth.

As with James' *Golden Bowl* and Aeschylus' *Agamemnon*, Kitcher suggests that Joyce's works offer not only a recognition of the problems faced in terms of attributions of worth to one's life, but a particular perspective—perhaps even a resolution—of such problems:

> Even though people wander off course, lives that are blotched and sometimes squalid can nevertheless attain genuine worth. We can "see life foully" and still endorse it. After defeat, humiliation, failures of courage and fidelity, there can still be occasions of forgiveness, moments of generosity, and even affirmation. (Kitcher, 2013, p. 23)

Joyce's literary works are a celebration of the ordinary, an affirmation of the everyday, and most importantly, a "repudiation of commitments to elitism and perfectionism" (ibid., p. 22). In Joyce's work, a reader struggling to find a sense of place for their ordinary lives, imperfect marriages, and misguided efforts, might find answers to important philosophical questions concerning their life's value.

These examples of literature and theater, as examined by Nussbaum and Kitcher, have each provided apt characterizations of some complex problem of human experience, as well as expanded resources for understanding those problems, which do not seem to be best understood or approached through the lens of cognition. The next section specifies the aspects of the aesthetic technology of literature that make it capable of understanding, communicating, and potentially resolving such problems.

5.2 Non-Cognitive Solutions

Are there reasons to believe that cognitive methods are not always the most adequate for exploring and dealing with the kinds of problems described in the last section, and are there reasons to believe art and literature may be better tools and technologies for such tasks? On the face of it, we might think that the precise, measured analysis of knowledge-oriented activities would still constitute superior or more appropriate methods for examining these problems and enriching our experience with regard to them. Instead of working directly with the imprecise, complex, and intractable qualities of our experience, we might be better served by investigating and manipulating whatever positivist correlates of them we can find in neu-

roscience, genetics, psychology, or sociology. Might we be better off, as Rosenberg suggested, accepting neuroscientific solutions for humanistic problems, by "taking two of whatever neuropharmacology prescribes" whenever we encounter world-weariness, philosophical curiosity, moral anxiety, or other afflictions of emotion, imagination, and spirit (Rosenberg, 2011, pp. 282–83)? At minimum, if we do need to deal directly in the interpretive geography of ethical or emotional *value*, rather than their neurological or physiological correlates, might we not at least be better served by the abstraction of analytic methods, and the precision and rigor it affords, than by the ambiguous impressions of immediacy expressed in art and literature? Anglophonic philosophy, and other humanities and social sciences, have seen a growing enthusiasm for formal methods over the past century, suggesting that even social, ethical, and humanistic elements of experience can be effectively dealt with using precise, simple—even quantifiable—components, and logical methods not unlike those of the natural sciences (Sorell, 1991; Bannister, 1987; Stenmark, 2001). The ideal of "clarity and rigor" found in philosophy is based on the assumption that any change in belief that might signal the resolution of a philosophical problem (such as the value of ordinary life, or the moral resolution of conflicting loyalties) is "brought about through the presentation of theses and arguments, themselves formulated in more or less clear and precise prose. The more lucid the language and the more explicit and cogent the argument, the easier the apprehension and acceptance of new ideas" (Kitcher, 2013, p. 14). Even if we do not apply 'science' in the general sense, respecting the need for philosophy and the humanities, perhaps we could at least import science's precision, stability, clarity for the consideration and resolution of these qualitatively distinct problems.

Nussbaum critiques philosophy's focus on cognitive qualities and rigorous, analytic methods for the solution of complex experiential problems. "[T]here is a mistake made," she says, "or at least a carelessness, when one takes a method and style that have proven fruitful for the investigation and description of certain truths—say those of natural science—and applies them without further reflection or argument to a very different sphere of human life that

may have a different geography" (1990, pp. 19–20). Human experience involves multiple domains, each with their own landscapes of qualities, and each with their own proper methods of investigation. Scientific-style analysis, with its exclusively cognitive methods, is just one tool among many that have been developed in the search for solutions to experienced problems in human life—our "deepest practical searching" (ibid., p. 24). Cognitive analysis does not *necessarily* take priority over other tools and procedures that directly employ the immediate experiential qualities of emotion, imagination, and aesthetics. Additionally, cognitive methods' adaptation to specific kinds of problems may bias the range and type of solution they can offer. Instead of insisting on the universal preference for a method that successfully negotiates simple, stable, material qualities, "we need to be alert to those aspects of a procedure that might bias it unduly in one direction or another, and to commit ourselves to the serious investigation of alternative positions" (ibid., p. 25).

5.2.1 Resources of Aesthetic Technology

One of the most significantly different aspects of aesthetic literature, when comparing it with analytical texts, is the way in which it evokes and employs emotions. Novels and stories are not meant to be engaged with "objectively or dispassionately, as if by some nonhuman intelligence," but with the full range of capacities, tendencies—even limitations—of experiential immediacy (Mendelson, 2006, p. xii). Analytic activities do not tap into our entire experiential knowledge. They involve "giving up a part of ourselves," since they demand that we distance ourselves from the emotional, imaginative, and aesthetic elements of our experience in order to engage with them (Nussbaum, 1990, p. 34). This is a crucial advantage offered by aesthetic technology over cognitive analysis when seeking the exploration or solution to specific problems which may benefit from attention to our emotions, ethics, or spirituality. We can expect deficiencies in our conclusions if we limit ourselves to the narrow stratum of our experience that consists in the operations of cognition.

Nussbaum argues for a close connection between the form of a text and the content with

which it is dealing (Nussbaum, 1990, p. 23). An author, she claims, who considers emotions to have a fundamental role to play in learning and expressing truths about human life and ethics, but has made the decision to express this claim in writing that appeals exclusively to the reader's intellect, exposes themselves as "oddly inattentive or actually ambivalent" to the claim they are making.[1] In order to resolve emotional disequilibria, why should we not expect to have to employ our emotions? In order to deal with disharmonies or stagnations in our pervasive relationship or perspectives on the world, why should we not have to employ our imagination and aesthetic sensibility? We should expect the complex non-cognitive components of experience to be not merely the *problematic subject matter*, but also to be the *proper vehicles or methods for solution.*

A second feature of aesthetic literature is its use of narrative, and its accompanying ability to portray the unfolding of events through the lived perspective of a character or set of characters. Introspective novels, like those of James, Woolf, and Joyce, have the advantage of communicating a person's (or many people's) consciousness and deliberation through "a pattern of choice and commitment over a relatively long time" (ibid., p. 37). The novel "presupposes no specific demarcation of the terrain of human life" into any of the categories that cognitive analysis typically works in (moral, political, aesthetic, scientific, religious, etc.), thereby bringing together a more complete characterization of human life and its choices as experienced in its qualitative immediacy (including also, at times, the cognitive qualities of analysis and decision-making) (ibid., p. 25). The unfolding of events and choices over time involves the reader in the "relevant activities of searching and feeling" (ibid., pp. 37–47). While "[s]cientists and mathematicians, in the course of their work, need not think about the course of their own lives," identifying with the characters of a novel is "one of the central acts of literary understanding" (Mendelson, 2006, p. xii). If you read a description of the relevant features of a character's situation, you may be able to understand

1. However, Nussbaum charitably admits that, when it comes to emotive writing, many philosophers are simply "not trained to write that way" (1990, pp. 7, 21).

their dilemma. But, without being led through the drama, step by step, you may not so easily *experience* the urgency of their situation. Only one who "installs himself in the midst of the unfolding drama," Dewey tells us, "*has* the experience of consciousness in just this sort of way" (Dewey, 1985a, p. 232). In less introspective novels, as well as in less character-centered literature, the form of the work still provides the reader with the sense of sequential situations unfolding, evoking the uncertainty, complexity, and contingency which constitute the development of a person, a family, or a society over time.[2] Such novels can present us with plausible accounts of intuitive improvisatory responses made to qualitatively complex and contingent circumstances.

These narrative and perspectival features not only activate areas of our immediacy for their own sake, but can provide us with realizations and conclusions which lead to altered cognitive judgments. For example, *The Golden Bowl*'s narrative structure over time means it is capable of making a plausible case for the necessity of conflicts and imperfect decisions in a complex, ongoing human life, while it would be more difficult for an analytical text to provide a plausible argument for such a claim. Additionally, by providing information in limited ways, the reader is forced to experience and thereby confront their own imperfect perspective for forming judgments, a confrontation rarely elicited and a fact rarely acknowledged in reasoned analysis by its very nature. By utilizing the novel's formal resource of selectively focusing on the particularity of individual consciousness, James can hide for most of the novel, and reveal only very late, the ways in which Maggie's demands have inflicted a great deal of suffering on Charlotte. "[O]ur acceptance of the invitation to see as Maggie sees" has created for the duration of the novel's events "a blindness with respect to this part of the moral world" (Nussbaum, 1990, p. 145). By realizing only after so many events have unfolded that this suffering was occurring, the reader becomes aware of their own limitations

2. Emile Zola's literature is a good example of the situational potential of literature. *Les Rougon-Macquart* form a sequence of twenty novels exploring the influence of environment and heredity on the course of human actions and events in a single family over several generations. For his naturalist philosophy of literature, see (Zola, 1923).

of perspective, judgment, and decision in the world James has created. James thereby communicates viscerally, in terms of experiential immediacy, a truth which can subsequently be cognitively extracted as a fact: "the fact that our path is only one path and that we cannot humanly follow all paths through these tangled lives at all time" (Nussbaum, 1990, p. 144).[3]

The formal flexibility of creative writing provides boundless resources for communicating many complexities and ambiguities of immediate experience in ways not available to rigid syllogism or conceptual analysis, and exploring novel perspectives and resolutions of multi-faceted, many-layered, or even contradictory problems. For example, to communicate and explore the individual's relationship with the passage of time, Virginia Woolf can at once portray time "on a local, historical scale that extends across at most a few decades of individual lives" and, concealed in "metaphoric texture and poetic language,...on a vast, epochal scale that spans centuries or millennia and encompasses the rise and fall of civilizations" (Mendelson, 2006, p. 206). Or, in seeking to communicate and explore the qualitative experience of individuality as "a continuous process of arguing against your own beliefs," authors can "repeatedly correct the flaws of one explanation by exploring a different one" (ibid., p. xiv). For example, "[s]ome chapters of *Frankenstein* are narrated by the part of Mary Shelley that believes that people choose their own destinies; other chapters are narrated by the part that believes that people's lives are determined by events outside them" (ibid., p. xiv). The expressive flexibility of creative literature means it can play imaginatively with repetition, circularity, unreliable narration, heteroglossia, evasion, or omission, providing a rich collection of resources for communicating and experimenting with complex experiential realities, and for suggesting and discovering original insights. As the last chapter showed, this communication is "far different than conveying practical information or stating general and abstract ideas"; it is a rendering of "the qualities of experience that are seen with absorp-

3. The capacity for non-cognitive 'realizations' to influence cognitive understanding will be explored more thoroughly in a later section, 'New Horizons of Vision.'

tion and heard as direct and as delightful... through the operation of imagination" (Edman, 1950, pp. 62–63). Unlike cognitive analysis, which seeks to isolate information and establish instrumental connections and resolutions, aesthetic technology, by seeking to combine and intermingle a complex array of direct experiential qualities, can bring about in the people appreciating it a "full and intense experience" (Dewey, 1985b, p. 138) much more closely approximating the experiences they have in their own lives.

These aspects and qualities of human experience can *combine* in a work of literature to produce a particularly powerful medium for the exploration of complex problems: the "recurring questions that seem to resist efforts to find convincing answers" using cognitive methods (Kitcher, 2013, p. 13). Kitcher suggests that novels (and other artistic forms like poetry and music) induce "synthetic complexes" in the individual, which combine (among other things) "memories of our own experiences, images from earlier perceptions or encounters with other works of art, judgments previously endorsed or rejected, emotions now excited by different objects, or even emotions of types we have not previously felt" (ibid., pp. 180–81). The capacity to invite and demand the engagement of a broad range of experiential processes and qualities so as to constitute new experiences in the appreciator gives aesthetic works of art a powerful transformative potential. They can lead us to new states of experience, sometimes constituting resolutions to emotional, philosophical, imaginative, or spiritual issues we have encountered, or enriching our perspectives where they were previously limited. Perhaps a reader, viewer, or listener of a work of art "concludes that some state of affairs is tolerable or to be resisted, or in which she takes a scenario as a serious possibility for herself, a goal to be worthy of pursuit, a course of action she has hitherto viewed as necessary to be trivial and dispensable" (ibid., pp. 180–81). To attain these realizations, we must "become vividly aware of what it would be like" to experience these events, which we do best when we "enter into the substance of a potential life" (ibid., p. 19). As subsequent sections will show, aesthetic technologies are an important part of a process of problem-resolution that can even lead to significant alterations of cognitive judgments.

5.2.2 Can We Trust Our Emotions, Aesthetics, and Imagination?

Literature, and other forms of artistic expression, have a variety of resources for manipulating and enriching elements of immediate experience. We've encountered some reasons to believe that aesthetic technologies are important and useful, perhaps even indispensable, elements of our practical repertoire in negotiating some of the problems of lived human experience. But claims to this effect are not without opposition. It might be admitted that emotions, imagination, and aesthetics are central aspects of our immediate experience, and that literature and other forms of art are superior in evoking and exploring them. But, one might claim, emotions, imagination, aesthetics, and other non-cognitive elements of human experience are *unreliable and misleading methods* for arriving at perspectives and resolutions (Nussbaum, 1990, pp. 40–44; Kitcher, 2013, pp. 181–85). Although literature, theatre, opera, cinema, sculpture, and painting might have a great capacity to *engage and influence us*, this does not mean they are guaranteed, or even likely, to deliver us to *good* judgments or decisions. The objection characterizes emotions, imagination, and aesthetics as potential instruments of manipulation or deception that might lead us astray. We ought not to abandon or alter our existing beliefs and attitudes on the basis of these kinds of experiences, but only on the basis of logical, cognitive analysis.

Working from the premise of the objection—that our cognition *is* reliable—there are a few responses that can be made. Firstly, the objection supposes that emotions are unreliable methods for attaining new perspectives or decisions, because emotions are not closely related or responsive to our reliable and rational cognition. While emotions are "blind surges of affect," cognitive processes like reasoning and analysis are the capacities of human beings which enable them to make decent judgments and decisions. Though "our thoughts are often entangled with our emotions, our hopes, our intentions, and our yearnings" (ibid., p. 15), we need to disentangle our cognition from these latter elements in order for it to function reliably. However, while some emotions—like hunger and thirst—are impervious to changes in belief, for others—such as anger, love, grief, fear, and pity—a modification in

belief will often bring about a corresponding modification in emotion. For example, "anger seems to require and to rest upon a belief that one has been wronged or damaged in some significant way by the person towards whom the anger is directed" (Nussbaum, 1990, p. 41). Love, grief, fear, and pity also "involve the acceptance of certain views of how the world is and what has importance" (ibid., p. 41), and a change in the relevant beliefs will likely change or remove the emotions. In fact, this connection between certain emotions and beliefs is so widely acknowledged as normal that, when some of these emotions (like anxiety and sadness) are not sensibly connected and responsive to beliefs, an emotional *disorder* can be diagnosed. Since emotions exhibit this connection with cognition, Nussbaum argues that we ought to view emotions as intelligent and *reliable* parts of our ethical agency, capacities and resources that are "responsive to the workings of deliberation," and not as unreliable methods or impediments to good judgments and decisions (ibid., p. 41).

As we saw in the last chapter, the cognitive and non-cognitive aspects of our experience do not constitute unrelated activities or processes; they constitute different moments of an ongoing, complex interaction between a human being and its environment, which interact with and respond to each other. For example, "[e]motion is the conscious sign of a break, actual or impending" in experience, and, when discordant, "is the occasion that induces reflection" (Dewey, 1985b, p. 21). The same connection and responsiveness to cognition is true of other non-cognitive areas of experience, like aesthetics and imagination. Intellectual analysis of a work of art can enhance one's aesthetic appreciation of it. After reading a poem, one may analyze "how the choice of words, the meter and rhyme, the movement of the phrases, contribute to the esthetic effect. Not only this, but such an analysis, performed with reference to a more definite apprehension of form, may enrich further direct experience" (ibid., p. 137). Scientists and mathematicians often report aesthetic or emotional experiences in making significant discoveries or progress. "The thinker has his aesthetic moment when his ideas cease to be mere ideas and become the corporate meanings of objects" (ibid., p. 21). In novels that encourage readers to vividly imagine the experiences of a character, the choices

available to them, and the nature of their environment, we can also see that imagination is connected to cognition in a process that involves reflection and discussion. "[T]he arousal of the imagination," Kitcher says, "[is] essential to a process... involving further reflection and discussion with others, that leads to a real advance in ethical judgment" (Kitcher, 2013, p. 17). As two parts of an ongoing process of human experience, aesthetics and cognition can combine to fulfill distinct functions in overcoming complex problems encountered in the course of living.

This does not amount to epistemic or moral foundationalism for emotions, aesthetics, imagination, or any other element of immediacy. They are by no means "self-certifying sources of ethical truth" (Nussbaum, 1990, p. 42). As explained in the last chapter, although immediacy "must be taken into account in a comprehensive view of man and the world" (Bernstein, 1966, p. 92), emotion, imagination, and other forms of immediacy are not forms of *knowledge*. "When, in a subsequent reflective experience, we look back and find these things and qualities... we are only too prone to suppose that they were then what they are now—objects of a cognitive regard, themes of an intellectual gesture" (1972, p. 322). But an emotion, when it is experienced, is not *known*; it is *had* in its immediate manifestation. Being angry is different to "making anger an object of analytic examination" (Dewey, 1985g, p. 248). The latter is knowledge, but it is cognition *of* an emotion, not the emotion itself.

So while emotions can be an intelligent part of one's ethical agency, one still has a responsibility to verify—usually by cognitive means—that the beliefs on which an emotion is based are true, that the intensity of the emotion is justified, and that any behavior undertaken on its basis is proportional. One also has a responsibility to be aware of what aesthetic directions a piece of art is encouraging, and to use cognition to distinguish art and empathy from propaganda and manipulation.[4] Our emotions are often understood, in hindsight, to have been misplaced or over-pronounced, our aesthetic judgments to have overlooked crucial details, but this is not a reason to reject the relevance or use of emotions and aesthetics

4. The problem of propaganda will be discussed in the next chapter.

altogether when navigating the complex human environment. As a comparison, we often adopt beliefs that are understood, in hindsight, to have been false or held with inappropriate conviction, but this fact is rarely used to justify rejecting the use of cognition in decision-making altogether.

Similarly, although we have a responsibility to evaluate our emotions, aesthetics, and imaginations in a given context, their encountered fallibility is not a sufficient reason to jettison all emotions, aesthetics, and imagination from our ethical considerations. While emotions and aesthetics may be fallible components of human experience from the perspective of knowledge, by no means are they superfluous experiential supplements, or mere liabilities which require cognitive policing. As we've seen, cognitive quality "appears as the dominant trait of a situation when there is something seriously the matter, some trouble, due to active discordance, dissentiency, conflict among the factors of a prior non-intellectual experience" (Dewey, 1972, p. 326). Qualitative immediacy "surrounds and regulates" cognitive experiences by providing a way "to determine the relevancy, weight or coherence of any designated distinction or relation" drawn in cognition (Dewey, 1985d, p. 74). In this way, emotions, aesthetics, and imagination overlap and interact with cognition in the experiencing subject, providing crucial triggers and validations of cognitive processes and conclusions.

Examples show that emotional, imaginative, or aesthetic qualities of experience are powerful tools that pick up on some circumstances much more adeptly than the intellect. Social scientific studies in conversation analysis, interactional sociology, and linguistic anthropology, have demonstrated that the macro-social power-structures of social prestige, epistemic authority, and other cultural inequalities are reproduced and enacted by interlocutors in micro-social interactions (Silverstein, 1997; Heritage and Raymond, 2005; Goffman, 1981; Gibson, 2003; Fricker, 2007; Medina, 2013). The micro-linguistic methods with which interlocutors make bids for a mutual situational acceptance of a relative status positions in conversations are so complex that technical specializations within sociology and anthropology are dedicated to their investigation. A single five-minute conversation between strangers

can be the subject of a fifty-page scholarly analysis (or several) (Silverstein, 1997). Subtle conversational markings such as 'oh'-prefaces can, for example, be used to indicate and establish "whose view is the more significant or more authoritative" (Heritage and Raymond, 2005, p. 15). In a conversation or interaction in which one individual is harmed (insulted, humiliated, etc.) by another, the harmed individual, if they are not trained in micro-interactive sociology, may find it difficult—perhaps impossible—to identify the harm by cognitively deconstructing and analyzing the conversation. However, in the same interaction, the harmed individual's emotional discomfort or intuitions could be fluently and immediately triggered, creating a general *sense* (while not itself constituting knowledge) that they have been insulted or humiliated. These cognitively difficult-to-detect micro-interactions are "causally effective in the universe of identities as a basis for relationships and further social action" (Silverstein, 1997, pp. 266, 268, 299). However, the "effectiveness of the interactional work is seen only at the abstract level" (ibid., pp. 266, 268, 299). Socially interacting individuals are somehow highly adept in enacting and interpreting the significance of processes which they are nonetheless unable to cognitively analyze and articulate *in situ*. We may *feel* insulted or disrespected without being able to abstract and analyze the precise *reasons* for feeling insulted. We may *feel* a sense of prejudicial mistreatment, though we often cannot point to precise evidence for attributing them this prejudice. It is around these kinds of subtle, difficult-to-detect, wrongdoings that modern conversations on socio-political justice have invented and adopted the term and concept of 'microaggressions'—minor forms of daily harm that minorities suffer unbeknownst to their relatively privileged counterparts (Sue, 2010). The knowledge we might abstract in these cases does not appear to originate in our cognition. It appears to arise somewhere within our emotions, aesthetics, or intuitions, requiring, nonetheless, the operations of cognition to formulate it in such a way as to constitute knowledge. Such cases provide clear examples of situations in which emotions, aesthetics, intuition, and other imprecise non-cognitive elements of our experience constitute a necessary resource for processes of understanding our environments and experiences. Cognitive processes aid

immensely in understanding, communicating, and correcting these phenomena, but many of them would go unnoticed if they were not highlighted by emotional and aesthetic triggers.

Not only can emotions, aesthetics, and imagination be reliable and powerful methods of understanding; they are often necessary for a complete *appreciation* of the circumstances. Even if we sometimes suspect the appropriateness of our emotions, to reject them altogether is to reject the possibility of a complete participation in many situations in our lives. Dante's *intelligenza d'amore*, Nussbaum says, "is not an intellectual grasp of emotion; it is an understanding that is not available to the non-lover, and the loving itself is part of it" (Nussbaum, 1990, p. 41). We can describe and theorize about the cognitive qualities of our experiences and environments, but we cannot fully *understand* them unless we feel. The refusal to engage emotions, aesthetics, and imagination, can bring with it an incapacity to reach an adequate rational judgment. For example, one's experienced grief and love are "necessary for the full understanding of what has taken place when a loved one dies" (ibid., p. 41). Without access to these experiential qualities, we will not be able to assess the event that has taken place, and what it means. To have a fully-informed belief regarding certain circumstances, the accompanying emotion is necessary, because it is a part of the reality itself. To enrich and resolve problems in complex areas of experience, in which we must not only *describe, reason, or cognize* qualities but *experience* them too, the tools of art and aesthetics explored in the last section are an important technology.

Finally, the objection to the use of emotions, imagination, and aesthetics in leading us to reconsider our cognitive status quo—our *existing* beliefs and attitudes—seems to presuppose "that we achieved our [existing] concepts and categories through some insight into their special worthiness" (Kitcher, 2013, p. 16). This Cartesian ideal is far from reality, since many of our common sense beliefs have been acquired "piece by piece, from the culture(s) in which we were initially socialized" (ibid., p. 16). If this is the case, and many of our standing beliefs have not in fact been rigorously assessed, then there is an important ethical role for "criticizing the concepts and idioms we have inherited" and "generating a new perspective

on what has hitherto been taken for granted" (Kitcher, 2013, p. 16).[5] Novels and other forms of art, with their powerful resources for stimulating emotions, imagination, and aesthetics, might be crucial and particularly well-adapted for this role. The next section explores the power of aesthetics to provide "new horizons of vision"—a particular kind of enrichment beyond the scope of cognition, which involves re-evaluating existing concepts and reframing questions. As we will see, it is on the basis of aesthetic technology's already-discussed capacity to lead individuals through complex holistic experiences by employing multiple synchronic qualities of immediacy that it possesses the additional capacity to provide new horizons of vision.

5.2.3 New Horizons of Vision

In the first few pages of *Deaths in Venice*, Kitcher quotes an influential Austrian modernist, Hermann Broch:

> [L]iterature must concern itself with those human problems, which, on the one hand, are banished from the sciences because they are completely intractable. . . and, on the other hand, with those problems that the sciences, in their slow and exact progress, are not yet ready to grasp. (ibid., p. 13)

According to this taxonomy, there are two general categories of human problems which literature can effectively explore and potentially resolve. The first category involves questions which have been, or could be, formulated by the sciences, philosophical texts, and other works that utilize traditional cognitive methods. But, because these methods have proven incapable of dealing with them effectively, they have been set aside by those who "pride themselves on their scientific rigor" and are therefore unwilling to explore alternative methods (ibid., p. 13). This is the category of problems we have seen investigated by Philip Kitcher and

5. The ethical and political significance of works of art in evaluating and altering existing shared concepts is the subject of the next chapter.

Martha Nussbaum in their works on the substantial enrichments to human life offered by literature.

There is, however, Broch's second category, which is acknowledged but not taken up by Kitcher: the "new issues as yet unformulated" which the sciences, *by virtue of their cognitive methods*, are not yet capable of grasping. Cora Diamond criticizes Nussbaum's philosophy of literature on the basis of its failure to take this second category into account. Nussbaum's work provides clear examples of literature's guidance in pre-specified issues of moral deliberation and choice, particularly in coming to terms with the limitations of moral principles and the inevitably imperfect moral choices we face. But Diamond argues that Nussbaum has committed the error of allowing cognitively pre-formulated ethical quandaries to determine the lessons she finds in literature, thereby missing many of the less easily specifiable lessons that literature can provide.

Allowing pre-existing conceptual frameworks to delineate the set of ethical considerations we take into our engagements with literary works, Diamond says, makes us likely to come up with a "narrow or partial" selection of ethical phenomena to consider. This narrow selection, in turn, can reinforce the existing conceptions that gave rise to it, and limit the solutions or perspectives offered by the literary work in question: "A circle is formed out of which it may be hard to break" (1983, p. 161). Instead of turning to literature to resolve *pre-existing* ethical debates, she argues that we should let literature itself tell us what ethical terrain to consider, taking advantage of its unique capacity to explore the unformulated territory that analytic methods cannot. Iris Murdoch made a similar argument in her own work on the philosophical importance of literature. In situations that are "obstinately unclear," she says, "what is needed is not a renewed attempt to specify the facts, but a fresh vision which may be derived from a 'story' or from some sustaining concept." This 'fresh vision' represents a "'mode of understanding' of an alternative type" (Murdoch and Hepburn, 1956, p. 51). Only in "being able to 'deepen' or 'reorganise' the concept or change it for another one" can we attain genuine "moral freedom" (ibid., p. 55). But why are analytic methods unfit for this

task? What is it that prevents them from grasping these issues, reorganizing or switching the relevant concepts, or providing new modes of understanding and fresh visions? Why can literature succeed where analysis fails?

Drawing on William James, literary critic Richard Poirier argues that the 'common-sense categories' we employ in our language and reasoning can block the "stream of experience." The reason for this is that 'common-sense categories' are not native elements of our experiential flow (what Dewey calls 'immediacy'); they are additions to an undifferentiated stream of experience that is stubbornly resistant to categorization. Much like Kitcher's ordinary, widely-held concepts and categories, which we acquired "piece by piece, from the culture(s) in which we were initially socialized, modifying and refining them along the way so that they formed a more or less coherent whole" (Kitcher, 2013, p. 16), James' common-sense categories presently structure our experience because they were acquired at some point in the past, and have now become so habitual and widely accepted that they are taken for granted as intrinsic and immutable elements of our experience (Poirier, 1992, pp. 43–4). These common-sense categories "cease to represent anything in the way of *being*; they are but sublime tricks of human thought, our ways of escaping bewilderment in the midst of sensation's irremediable flow" (James, 1979). That is, though these categories are indispensable for our life activities, as they save us from constant bewilderment, they do not comprehensively represent our experience; and, if too conservatively employed, they can come to over-determine and constrain our experience. Just as Dewey acknowledged the need to retain and employ useful cognitive distinctions between subject–object and mind–nature in our everyday affairs, James does not call for us to reject common-sense categories outright. We must only be careful to not "too tightly control the flow of experience," to "remain open and flexible," and to remember that these structures are not universal and permanent, but negotiable and temporary, so we are prepared "to recognize the truth when it does appear" (Poirier, 1992, p. 42).

Emerson, too, discusses "momentarily enabling" and "potentially disabling structures" of

concepts and categories, which he called "circles" (Poirier, 1992, p. 22; see Emerson, 1899). A circle is akin to a Foucauldian 'discursive formation'—it both "actively creates truths and knowledge" and "subtly enforces their distribution" (Poirier, 1992, p. 22). And just like James' common-sense categories, circles do not adequately represent the flow of experience; they are structures built by, for, and in the cognitive phases of experience as we seek to understand, navigate, and alter our environments. While experience's "creative impulse" continuously wants "to reach out beyond any legible form,... to seek the margins, to move beyond limits or fate" (ibid., pp. 24–5), circles are the necessary conceptual structures and systems of knowledge by which we understand and articulate ourselves and our environments in cognitive form. But any circle is imperfect and limited, and must therefore be transitory. If left to calcify, its momentary capacity to *enable* articulation, progress, and freedom in human attitudes and beliefs is overtaken by its potential to *disable* the discoveries of alternative horizons lying beyond its boundaries in the qualitative immediacy of experience. For human experience, which Emerson views as inherently expansive and relentlessly centrifugal, progress is forever threatened by contraction. The Emersonian "creative impulse" breaks out of each circle it creates in order to build a new one, knowing with each iteration that "it is creating only a new orbit or limit as it surges past and sweeps up the boundaries of an old one" (ibid., p. 24).

The pragmatist "liberating and creative suspicion as to the dependability of words and syntax, especially as it relates to... the drift of one's own feelings and impressions" (ibid., p. 5) adds depth to Diamond's claim that existing conceptions can form a "circle... out of which it may be hard to break" (1983, p. 161), and to Murdoch's claim that "moral freedom" consists in "being able to 'deepen' or 'reorganise' the concept or change it for another" (1956, p. 55). Current common sense categories, or the boundaries of our present circle, can be limited in such a way that "the moral agent, as well as the artist, may find himself unable to describe something which in some sense he apprehends" (ibid., p. 49). The language, concepts, and frameworks offered by existing analyses can strike a reader

or writer as inadequate to express and communicate this something-which-in-some-sense-we-apprehend, amidst this drift of feelings and impressions that constitutes our ongoing experience. Gendlin points to the inadequacy of existing concepts when he describes the "process of inner grappling" that occurs in psychotherapy. In moments during therapy when a patient seeks to express their felt sense to their therapist, they can become acutely aware that "symbols do *not* adequately symbolize the meaning we experience" (Gendlin, 1997, p. 45). This inadequacy of discursive categories may be one reason many artists turn to music, visual art, dance, or other non-linguistic media for their creative expression—to escape the boundaries placed by 'circles' and their concepts, categories, and words.

However, Murdoch, Diamond, Poirier, James, and Emerson appear to agree that, for those who continue to rely on language to represent and explore the immediacy of our experience—novelists, poets, and other creative writers—language can still serve us if we use it creatively. Dewey describes "a gulf between the prosaic and poetic" uses of language (Dewey, 1985b, pp. 245–46). This does not correspond to the difference between prose and poetry in terms of the structure of a work, but to distinct functions of language. While the prosaic "is an affair of description and narration, of details accumulated and relations elaborated," the poetic "condenses and abbreviates, thus giving words an energy of expansion that is almost explosive" (ibid., p. 246). Embedded in Dewey's opposition between the prosaic and the poetic is the broader pragmatist recognition, common to Dewey, James, Emerson, and Poirier, "that language, if it is to represent the flow of individual experience, ceases to be an instrument of clarification or of clarity and, instead, becomes the instrument of a saving uncertainty and vagueness" (Poirier, 1992, pp. 3–4).

Linguists, linguistic anthropologists, and, to a lesser degree, philosophers of language, generally recognize (at least) three distinct communicative functions of human language: referential, conative, and expressive (Levinson, 2005; Jakobson, 1960; Buhler, 1990; Lyons, 1977).[6] It is in aesthetic literature's free and flexible use of the latter two functions that it

6. These functions of language have been theorized under multiple names. The referential function has

surpasses the limits of analytic methods, and demonstrates its unique ability to navigate, discover, and manipulate inchoate qualities of experience and nature. The referential function of language is the intentional transmission of factual or propositional information. Scientific methods and other forms of analysis usually strive towards exclusive use of this function, with its precision, clarity, and stability across utterances. The referential function's descriptive meaning "can be explicitly asserted or denied and, in the most favorable instances at least, it can be objectively verified" (Lyons, 1977, pp. 50–1). An example of the almost exclusive use of the referential function of language is, *"It is raining here in Chicago at the moment."* The referential function is the most extensively studied and familiar function of language, and has been erroneously presumed by many philosophers to be its primary or exclusive function—much in the way that cognition and knowing have been assumed to be the primary or exclusive forms of experience. Most linguists now emphasize the ubiquity and prominence of at least two other functions: the conative and the expressive.[7]

The conative function of language is best characterized as language which seeks to create effects in the addressee or the audience of an interaction. It "finds its purest grammatical expression in the vocative and imperative" (Jakobson, 1960, p. 355), but can also be present in the context of political propaganda, where the creator of the communicative product specifically attempts to *influence* the allegiance or actions of the receiver; or even in the context of a cross-examination on the witness-stand, where a prosecutor does not simply attempt to extract 'the facts of the matter' from a witness, but attempts to produce verbal-interactional situations in which the witness implicates themselves as unreliable or untrustworthy, thereby

been referred to as 'propositional,' 'denotational,' 'representational,' 'descriptive,' 'cognitive,' 'ideational,' and 'designative'; the expressive as 'emotive' and 'affective'; the conative as 'social'; and the latter two collectively as 'interpersonal' and 'attitudinal.'

7. The distinctions between the different recognized functions of language as characterized, though prevalent and widely employed in the literature, may not be as clear-cut as this suggests. Lyons (1977) writes, "If we define expressive meaning (in a narrower sense than it often bears) to be that aspect of meaning which 'covaries with characteristics of the speaker' (Brown, 1958, p. 307) and social meaning to be that aspect which serves to establish and maintain social relations, it is clear that the two are interconnected. For it is only by virtue of our membership of social groups that we are able to interact with others and, in doing so, to establish our individual identity and personality (cf. Argyle, 1969)." (Lyons, 1977, p. 51).

altering the beliefs and subsequent judgments and actions of the judge or jury (cf. Matoesian, 2005).

The expressive function of language "aims at direct expression of the speaker's attitude toward what he is speaking about... to produce an impression of a certain emotion, whether true or feigned" (Jakobson, 1960, p. 354). This function may be best understood with the example of exclamations, communicating surprise, dismay, anger, pleasure, or a host of other emotions and attitudes. But we can see this expressive function at work in more subtle ways.

> All writers on semantics emphasize the fact that many words are not purely descriptive. They may have expressive... connotations over and above their descriptive meaning. The speaker's choice of one word rather than another is often indicative of his attitude towards what he is describing and may have the effect, whether intended or not, of pleasing or antagonizing the listener. (Lyons, 1977, p. 63)

While the non-referential functions of language are intentionally excluded or minimized in scientific, rational, or academic writing, through thorough processes of definition, standardization, and discrimination (cf. Bowker and Star, 1999), creative literature unyokes language from its referential function to use it in its full richness. Since progress and discovery in the mercurial flow of experience rely on an expansion beyond the pre-established categories and conceptual boundaries we find in language, the slippery movements enabled by the use of conative and expressive language functions enable literature to communicate, explore, and manipulate aspects of the lived experience of the human being that are (usually intentionally) excluded and rendered inaccessible in analytic forms of writing.

Poirier takes Emerson's writing to exemplify this intentional exploitation of the expressive potentialities of language to break out of the borders artificially constraining our experience, to communicate, evoke, and transform the immediate felt sense of selfhood. He quotes, as an example, the following passage in Emerson's essay, "Self-Reliance":

> . . . the soul *becomes*. . . Why, then, do we prate of self-reliance? Inasmuch as the soul is present, there will be power not confident but agent. To talk of reliance is a poor external way of speaking. Speak rather of that which relies, because it works and is.

Of this passage, Poirier says,

> With its agitated substitutions of words having to do with vocal expression—"prate," "talk," "speak"—this passage, like many others in his essays, reveals a frustration with the fact that apparently any use of language may disfigure the self in the very process of expressing it. Obviously to be avoided are "external ways of speaking," speaking in obedience to easily apprehended formulae. And avoid them he does, by the calculated opacity of that final sentence. . . Like the sentence in which "the soul *becomes*," this sentence is to be experienced as it is written, and not in any clarifying translation into some other syntax. The experience is of a blur in which each of the substantives momentarily stands in place of the others. . . Emerson's syntax approximates that only momentary achievement of a simultaneous fusion among agent, action, and words which for him *is* the self just before its transfiguring move into another transition. (1992, p. 29)

Rather than prosaically describing the information he wants to convey, in his writing, Emerson "enacts the struggles" and "dramatizes the agitations" he encounters when confronted with the inherent limitations on the possibility of faithfully expressing his experiential reality in a text. Immediacy, as we've explored, is ineffable; it cannot in its immediate existence be communicated in discourse. By shifting between various synonyms, by using typically transitive verbs intransitively, and a host of other creative devices, Emerson succeeds in evoking the ineffable reality of his stream of experience that eludes prosaic description, a reality that involves continuous transition and regeneration. With its "agitated substitutions"

of a handful of synonyms, Emerson uses the expressive function of language to communicate frustration with the inherent inadequacy of words to convey experience, and uses its conative function to evoke the same confused frustration in the reader. The intransitive instances of the typically transitive verbs—'becomes,' 'relies,' and 'is'—and the appearances of usual nouns as adjectives—'agent'—also utilize the expressive and conative functions of language by denying an anticipated noun which would provide a natural resting place for the reader's eye or mind, in order to communicate, evoke, explore, and even transform, the inherently processual and shifting nature of the self in its experiential immediacy.

We can see how poetic language can bring us into an engagement with our whole imaginative experience—that elusive, inclusive integrity—disrupting that which we took for granted, moving beyond stagnant concepts, and providing opportunities for renewed vision. The power of 'enacting' and 'dramatizing' (as a substitute for describing) in Emerson's work can be generalized across creative literature (though not always finding such superior manifestations), and involves a move away from language's representational function, towards a fundamentally expressive mode of language use. In this way, literature can slip past existing conceptual structures of understanding to give us a renewed sense of what it is we are looking at and looking for, a perspective that breaks out of the circle of propositional questions we have established. These innovative perspectives—the kinds available through the less precise and more inchoate concepts and methods at work in literature—can generate sentiments, approaches, and visions in the reader which *replace* their stagnant, failing concepts, and enrich their engagement with their environment in their ongoing experience and ever-shifting life. Analytic methods intentionally minimize these non-referential functions of language, seeking to convey conceptual information as clearly, logically, and unemotionally as possible. They thereby disable a crucial tool in exploring the "new, barely apprehended possibility" lying in the open spaces beyond the built analytic structures they employ (Poirier, 1992, p. 30).

*

On the basis of John Dewey's rich concept of human experience, in which non-cognitive qualities typically dismissed by scientistic worldviews are attributed equivalent ontological reality, this chapter has argued for the inadequacy of perspectives and methods focused solely on cognitive argumentation and reason for dealing with fundamental obstacles in a human life as it navigates a rich and complex qualitative environment. With its emotions, imagination, and aesthetics, the richness of experienced qualities of nature requires attentiveness to and engagement with multiple, profound, overlapping facets. Using literature as its prime example, the chapter has shown the various lessons for human life offered by aesthetic technologies, on the basis of the latter's unique and powerful resources and capacities. With a richness of formal resources that allow aesthetic technologies to extend far beyond cognitive forms, a mercurial quickness in evading potentially constricting barriers built by the mind or language, and a power to evoke proxy experiences swollen with emotion and human narrative, aesthetic technologies have powerful and important lessons for the human being in its attempts to successfully negotiate the geography of experience and nature: lessons about our ordinary life's value (Kitcher, 2013), our ethical integrity in the face of inflicted harm (Nussbaum, 1990), our unpinnable and ever-expanding consciousness (Poirier, 1992), our ability to be seen and loved "in the privacy of [our] soul, by another soul in its own privacy" (Mendelson, 2006, p. 193). Artistic technologies, unlike cognitive ones, can break through the categorical boundaries with which we have hemmed ourselves in, provoke us "to escape, as from a prison" (Poirier, 1992, p. 23), and give incomparable insights and new horizons of vision.

CHAPTER 6

AESTHETIC TECHNOLOGY II: ART, COMMON SENSE, AND THE COMMUNICATION OF EXPERIENCE

The last chapter sought to correct the scientistic neglect of non-cognitive states of experience, by showing that alternative modalities to cognitive analysis, specifically artistic and aesthetic expression and appreciation, can have significant and unique advantages when it comes to navigating the complex human environment and its experienced problems. This chapter seeks to further this conclusion by presenting other capacities and functions of aesthetic experience for enriching human life. While the last chapter explored art's role in expanding and transforming individual experience through illuminating new horizons of vision, this chapter explores art's role in structuring and transforming an element of the collective human environment Dewey and other pragmatists refer to as 'common sense.'

Common sense, as we've seen, appears in Dewey's theories of science and art. In Chapter 3, the common sense environment was invoked as the everyday world inhabited and navigated by a community of people, whose problems scientific inquiry was undertaken to resolve. In Chapter 5, common sense appeared as the concepts built to structure and direct our everyday thoughts and assumptions, which can be challenged, reoriented, and manipulated using aesthetic media. In his later work, Dewey claimed a close connection between "experience" and "culture," stating that "[c]ulture is *at the same time* psychological and collective" (Dewey, 1985a, p. 364). As an interpretive framework, common sense covers both experience and culture. Its attitudes and concepts are not just those that determine our personal psychological processes, but those that determine our communicative interactions with each other in our shared social world. As a set of largely unquestioned shared beliefs, it saturates the world of human interaction and expectation, creating possibilities for cumulative understandings and collaborative projects, and instituting structured barriers directing individual behaviors and social institutions. Like the conceptual frameworks dealt with in the last chapter, collective

common sense concepts are both enabling and disabling. They can facilitate communication and co-operation between diversely situated agents, but they can also cease to be adequate for their purposes and, if calcified, can present structural barriers to adopting more adequate frameworks. This chapter explores common sense (or culturally-imbued experience) and the important and unique functions that the non-cognitive experiences of aesthetics, and the artistic technologies that work with them, can serve in adapting and transforming common sense.

6.1 The Pragmatists on Common Sense

Common sense, as we've seen, is employed by John Dewey in his philosophy of science and his philosophy of art. He applies the label to a set of commonly held concepts, expectations, and attitudes which structure human thought, and to a host of behaviors and activities that constitute the everyday existential matrix of a human being. Common sense, then, is both understanding and behavior, belief and activity. It is at once, "a body of settled truths" and "readiness in dealing with the ordinary affairs of life" (Dewey, 1985d, pp. 67–68). In covering both belief and action, common sense is a concept which recognizes and emphasized the interdependence of the two. Common sense is central in "judging the significance of things and events *with reference to what should be done*" and in establishing "the ideas that are *used to direct and justify activities*" (ibid., pp. 68, emphasis added). The meanings and ideas that structure our thoughts and expectations also direct our activities and behaviors.

This combined definition indicates the far-reaching influence of common sense. The qualities of a substance or object are "enmeshed in uses and enjoyments" (Dewey, 1985e, p. 245). Examples of common sense correspondingly range from concrete objects of utility, such as "food, shelter, protection, defense" (Dewey, 1985d, p. 69), to abstract understandings and expectations about substances and qualities. Water, for example, is understood by reference to what it is, as well as what can and should be done with it. The "water of direct and familiar acquaintance" is "that which quenches thirst, cleanses the body and soiled

articles, in which one swims, which may drown us, which supports boats, which as rain furthers growth of crops, which in contemporary community life runs machinery" (Dewey, 1985e, p. 245). The same goes for abstract concepts and beliefs. We assume that objects persist when we aren't perceiving them; that there are 'kinds' of things; and that an object and kind's 'qualities' are "what they act by, and are what we act on" (James, 1979, p. 69). For example, lamps shed their "quality of light" on objects in a room. In ways that are clear and concrete, as well as ways that are more subtle and abstract, common sense notions influence the way we habitually act and interact in the world.

Though philosophies and other academic pursuits are devoted to questioning common sense notions and behaviors, "we fly back to them" when operating uncritically in our ordinary environments (ibid., p. 69). Common sense beliefs and expectation are "widely, if not universally, accepted," usually "without question," whether this be "by a given group or by mankind in general" (Dewey, 1985d, p. 68). To question them is to display eccentricity. We rely on common sense. Without it, we could not function. We use our common sense categories, truths, and connections to "make our plans and plot together, and connect all the remoter parts of our experience with what lies before our eyes" (James, 1979, p. 69). The long- and short-term proceedings of human life in their familiar forms are radically dependent on such a body of shared and settled assumptions. What would our lives look like if we had to re-establish that water was potable every time we felt an urge to drink it, or if there were not a common understanding that the best way to put out fire is to drench it? Common sense truths are an essential tool in navigating our 'common sense world,' consisting of the basic activities of a human life from day to day, and the concerns and problems that must be dealt with from one basic activity to the next.

To a great extent, then, common sense is adaptive. This is certainly how William James perceived it. He hypothesized that common sense consisted of "discoveries of exceedingly remote ancestors, which have been able to preserve themselves throughout the experience of all subsequent time" (ibid., p. 65). For James, common sense can be thought of as an

evolutionary adaptation that enables us to perform a wider array of tasks with confidence, ease, and accuracy. These beliefs and behaviors are the results of previous activities and discoveries, which have been retained through cultural transmission. Dewey notion of common sense was also adaptive, its content and methods altering in response to "[e]very invention of a new tool and utensil, every improvement in technique" (Dewey, 1985d, p. 70). Echoing his theory of the evolution of scientific methods, Dewey claims that common sense has also developed and adapted as a result of certain assumptions and practices failing, and others succeeding, to bring about desired results. The 'successful' assumptions and practices have been retained and inherited across generations of a community. The successes and failures of different assumptions and practices will not be the same across all contexts, and so we find significant differences between, for example, "the contents and methods of common sense in modes of life that are respectively dominantly nomadic, agricultural and industrial" (ibid., p. 70). As an adaptive process, common sense is bound to change not just across contexts, but also throughout time. Elements of common sense "once taken without question" are now "forgotten or actively condemned"; practices and behaviors formerly integrated into every aspect of life "are later relegated to a separate domain, religious or esthetic" (ibid., p. 70).

However, Dewey recognizes two facts about common sense that can combine to produce problematic manifestations: Firstly, common sense assumptions and practices do not develop in purely 'adaptive' directions. Outdated or maladaptive elements of common sense formerly held with conviction "continue to receive theoretical assent and strong emotional attachment because of their prestige" (ibid., p. 70). And secondly, common sense involves beliefs and behaviors concerning not only "the use to be made of materials of the environment" but also "of the attitudes to be taken practically towards members of the same group and to other groups" (ibid., p. 69). Common sense thereby influences and expresses social realities as well as physical and biological ones. Dewey describes taboos found in contemporary ethnographic studies as an example of the combination of these two facts: as elements of common sense, they "control the relations of males and females and persons of various kinship degrees," and

yet, to us, "they are mistaken rather than sagacious ways of acting" (Dewey, 1985d, p. 68).

A quick glance over twentieth-century 'taboos' in American society would return a collection of attitudes towards inter-racial marriage, homosexuality, and other social and political topics; attitudes which deserve to be described less as 'mistaken' or 'impractical' than as unethical or oppressive. Dewey acknowledged the power of common sense beliefs to produce negative social and political realities. Because we have "little or next to no controlled art" for redirecting common sense (Dewey, 1985a, p. 239), societies can develop "rigidly stereotyped beliefs not submitted to objective tests," "habits of learned ignorance," "organized fanaticisms," "dogmatic traditions which socially are harshly intolerant," and "institutionalized paranoic systems" (ibid., p. 229). However, because of his characteristic ethnographic focus on *inter*-societal differences in common sense, Dewey overlooked the significance of *intra*-societal power dynamics, leading him to brush over, if not entirely overlook, the significant relationships between a society's common sense beliefs, behaviors, and institutions, and its class- and identity-based politics. Such relationships must be understood before any adequate theory of positive instruction in common sense can be constructed, so as to overcome the problems Dewey identified.

The next section turns to theories which explicitly recognize that the common sense of a community—with regard to what is taken as appropriate social-institutional behavior, and what is taken as self-evidently true concerning people and processes—can and often does differ between members, by virtue of their being differently situated in that society. In various ways that will be examined, such theories also recognize that such differences arise due to the fact that the widely accepted beliefs, attitudes, expectations, and behaviors of common sense are disproportionately determined by a society's more powerful or authoritative members, and can thereby reflect, manifest, and reproduce political inequalities. The understanding of common sense constructed through an examination of these more comprehensive and politically-informed theories, will be incorporated into subsequent sections' development of Dewey's suggestions on how best to influence common sense in positive directions.

6.2 Theories of Common Sense: Hegemony, Hermeneutical Injustice, and White Ignorance

The similarities between Gramsci's and Dewey's theories of common sense and social change are striking (perhaps stemming from their common Hegelian roots). Just like the pragmatist's "widely accepted" knowledge and behaviors, Gramsci defined "senso comune" as "a relatively rigid phase of popular knowledge at a given time and place" (Gramsci, 1972, p. 326). Gramsci's common sense shares the qualities, found in the pragmatist notion of common sense, of being "taken-for-granted" and "assumed," consisting in basic knowledge of "what we take to be no more than simple reality," and activity and behavior which "structure the basic landscapes within which individuals are socialized and chart their individual life courses" (Crehan, 2016, pp. 43, 44). But Gramsci, well aware of the pragmatist tradition in philosophy, criticizes the latter for what he perceives as their political neutrality, accusing them of contributing to "the justification of conservative and reactionary movements" (Gramsci, 1972, p. 373). We can see a contrast along these lines—of the pragmatist political neutrality and Gramsci's conscious politicization—in the point at which their respective notions of common sense diverge.

Dewey and James generally refer to common sense as a useful body of truths acquired from their utility in previous inquiry, helping to structure present and future activity. Common sense categories are "ways of escaping bewilderment in the midst of sensation's irremediable flow," which have proved "serviceable for handling our experiences" (James, 1979, pp. 65, 71). Common sense which does not fit this adaptive characterization—such as the interactional common sense relations between males and females, or between (as Dewey puts it) "inferiors, superiors, and equals" (Dewey, 1985d, p. 70)—is characterized, at worst, as "highly impractical" (ibid., p. 68). Gramsci's discussions of common sense, in contrast, "lack these strong positive connotations" (Crehan, 2016, p. 44). He considers common sense a morally and politically ambiguous phenomenon.

One principal reason behind this difference of attitude towards common sense was Gramsci's emphasis of its intra-societal heterogeneity. While Dewey recognized that common sense might sometimes be limited to a given culture or society, creating, for example, "differences in the contents and methods of common sense in modes of life that are respectively dominantly nomadic, agricultural and industrial" (Dewey, 1985d, p. 70), he makes no mention of the differences of common sense that can be found *within* a society. Gramsci, contrastingly, argued that "[e]very social class has its own 'common sense" ' (Gramsci, 1985, p. 420). Himself having moved between the poor working class and the bourgeois intelligentsia of Italian society, Gramsci's notebooks reflected his awareness of the "disparate truisms" of common sense resulting from "heterogeneous life worlds occupying quite different social and economic locations" (Crehan, 2016, p. 51). Gramsci's notion of common sense was morally and politically ambiguous because common sense, as a set of basic notions by which we explain and engage with the world around us, can quite naturally become a site of power. These pluralities of common sense within a society exist alongside (or, as we shall see, beneath) a broader and more dominant narrative that constitutes the common sense of wider society. In a society where inequality is a constant feature, some beliefs, narratives, and their accompanying structural arrangements become dominant and widespread, while others struggle to gain traction. It was in relation to this plurality of common sense truths and attitudes that Gramsci situated his concepts of hegemony and subalternity.

Hegemony—a concept originating in Marxist theory and extensively elaborated by Gramsci—is both the dominant and widespread worldview of a society, along with access to the resources necessary to proliferate and reproduce such worldviews. A hegemony is "the ensemble of opinions that have become collective and a powerful factor in society" (Gramsci, 1975, p. 347). Because human beings do not have equal means for disseminating the narratives of their own lived experience, broader common sense can become skewed in favor of particular perspectives. Hegemonic narratives tend to be "those that reflect the world as seen from the vantage point of the rulers rather than the ruled," and the ability to impose common

sense truths on wider society is "a crucial dimension of any power regime" (Crehan, 2016, p. 51). Hegemony is, therefore, a socio-political phenomenon that prevents the more specific common sense, drawn from the experiences of non-dominant groups, from being recognized within, or adequately and proportionately absorbed into, wider common sense narratives.

The condition of subalternity, in contrast, is that of belonging to a group whose perspectives are "forced to exist within the interstices of the dominant explanations" (ibid., p. 51). In order to be hegemonic, the ideas, practices, and values do not need to be accepted as justified by subalterns. It is only necessary that they "find it hard to imagine" alternatives, and see the hegemonic common sense ideas "as a fixed and unchangeable reality it would be futile to oppose" (ibid., p. 52). Subalterns, therefore, sometimes possess alternative common sense concepts that more adequately capture their own perspectives and experiences—which must exist outside the set of collective concepts defining and structuring broader collective common sense of a heterogeneous society—while at other times, they "have neither the words nor the concepts to articulate their condition" (ibid., p. 13).

Since Gramsci's writing was situated firmly in the Marxist tradition, common sense and subalternity were linked with Marx's theories of class domination and the ideological justification of material structural arrangements.[1] He defined hegemonic common sense as "the entire complex of practical and theoretical activities with which the ruling class not only justifies and maintains its dominance, but manages to win over the active consent of those over whom it rules" (Gramsci, 1972, p. 244). The contents and activities of common sense he considered in his analyses were therefore limited to justifications of structural arrangements of class oppression, like "[d]isparities of wealth and power" (Crehan, 2016, p. 55).

Although the ideological justification of wealth and power disparities remains a significant element of theorizing on the injustices and power-inflections of common sense, philosophers have recently developed more nuanced theories of ethical and political aspects of shared

1. Gramsci presented major challenges to traditional Marxism, including a break away from a strictly materialist interpretation of society. Nevertheless, his contributions represented a form of Neo-Marxism and not a break away from Marxism.

meanings and beliefs, extending to more subtle forms of ethical failure. This work takes place under the label of 'epistemic injustice' (Fricker, 2007; Medina, 2013), and identifies a form of epistemic injustice—hermeneutical injustice—which is "caused by structural prejudice in the economy of collective hermeneutical resources" (Fricker, 2007).

In spite of different vocabulary and literary communities, theories of hermeneutical injustice and theories of subalternity and hegemony are confronting overlapping sociological issues. The concepts of hermeneutical resources and hermeneutical injustice resemble respectively the notions of common sense and subalternity in a number of ways. Firstly, hermeneutical injustice represents "a gap... in our shared tools of social interpretation" (ibid., p. 6). Secondly, hermeneutical injustice arises as a result of hermeneutical marginalization, that is, unequal participation in "the practices through which social meanings are generated" (ibid., p. 6)—for example, the professions of journalism, politics, academia, and law. Hermeneutical marginalization may arise, therefore, as a result of material disadvantages and prejudicial stereotypes that prevent members of a given social identity group from entering the kinds of professions that permit a high degree of hermeneutical production and participation. Thirdly, and consequently, hermeneutical injustice "impinges unequally on different social groups" (ibid., p. 6), forming a "structural identity prejudice in the collective hermeneutical resource" (ibid., p. 155). Finally, it leaves social experiences of hermeneutically marginalized groups "inadequately conceptualized and [...] ill-understood" (ibid., p. 6), and "obscured from collective understanding" (ibid., p. 155).

Fricker gives two principal case studies to demonstrate the political and ethical nature and consequences of distortions in common sense: (1) the social experiences of queer people amidst the collective common sense surrounding homosexual desire in the 1950s, and (2) women's experiences of sexual harassment prior to the development of the concept of sexual harassment during the feminist second wave. The first example is taken from Edmund White's autobiographical novel, *A Boy's Own Story*. White, a gay man, describes his experience of adolescence in which he had to contend with various powerful bogeymen con-

structions of "The Homosexual" and of homosexuality as a sickness, as a transient period in the sexual development of adolescent boys, and as a sin, that pervaded his social circles and inflected his social interactions (Fricker, 2007, p. 164). These common sense interpretations were "so powerful," and the prospect of an alternative personal interpretation was "so lonely and inarticulate," that White spent his adolescence implicitly accepting the negative characterizations of his desire for men, and grappling with feelings of shame, self-loathing, denial, and humiliation across a variety of painful social situations and exchanges. In response to these authoritative interpretations of homosexual desire, White "disguised [him]self as a child or a man or whatever was necessary" in order to be accepted into society (ibid., p. 165).

Fricker splits the harm resulting from hermeneutical injustice into a primary harm and a set of secondary harms. The primary harm is a subject's inability "to make communicatively intelligible something which it is particularly in his or her interest to be able to render intelligible" (ibid., p. 162). In the instance of White's experiences, the primary harm results in the secondary harm of thwarting of the development of the author's self-identity. In White's own words,

> [M]y disguise [was] so perfect I never stopped to question my identity. Nor did I want to study the face beneath my mask, lest it turn out to have the pursed lips, dead pallor and shaped eyebrows by which one can always recognize the Homosexual. What I required was a sleight of hand, an alibi or a convincing act of bad faith to persuade myself I was not that vampire. (ibid., p. 165)

The absence of adequate, widespread, alternative resources for understanding his experience of homosexual desire meant that the negative common sense meanings of homosexuality that socially enveloped White were authoritative enough, not only to "haunt him" emotionally, but "to constitute his social being" (ibid., p. 166). Due to the terrible connotations of homosexuality, White was so terrified of the possibility of confronting his experiences of desire and discovering his own identity that he avoided introspection and adopted a psycho-

social 'disguise.' In doing so, he mutilated his sense of self, and was prevented, in a significant sense, from becoming who he is.

The second example Fricker uses to present the concept of hermeneutical injustice comes from the memoir of Susan Brownmiller, a participant in the speak-outs in which the concept of sexual harassment was formed. Lin Farley and a collection of women students, staff, and administrators she organized "realized that to a person, every one of [them]—the women on staff, Carmita, the students—had had an experience like this at some point" (Fricker, 2007, p. 150). However, at the time, the concept (and term), 'sexual harassment,' was not part of the hermeneutical repertoire in American society, and so "[t]he 'this' they were going to break the silence about had no name" (ibid., p. 150). The initial step taken in these speak-outs, steps which would later lead to national recognition and legal protection, was to provide a name to unify and concretize this "range of subtle and unsubtle persistent behaviors" (ibid., p. 150).

In this example, the primary harm of hermeneutical injustice—an inability "to make communicatively intelligible something which it is particularly in his or her interest to be able to render intelligible"—is instantiated by women's inability to effectively communicate their experiences of sexual harassment. Fricker's example of Carmita Wood, an administrative assistant to a Cornell professor who sexually harassed her, draws out multiple kinds of secondary harm arising from hermeneutical injustice. The first kind is akin to the mutilations of the self experienced by Edmund White. Carmita Wood left her job as a result of the persistent hostility in her work environment, but she found no interpretive resources with which to explain her reasons for leaving. Carmita's felt "dissonance between received understanding and [her] own intimated sense [of her experience]" resulted in confusion and isolation, and caused her to lose faith in her own epistemic and interpretive capacities, and her confidence in the authority of her own experience. The women in the speak-outs, too, admitted, "none of us had ever told anyone before" (ibid., p. 150), suggesting the hindrance of social connection and expression of one's experience that can arise from hermeneutical

injustice, in addition to the thwarting of self-development.

An additional secondary harm arises from hermeneutical injustice in the form of the material disadvantages resulting from the way in which institutional structures are influenced by common sense. Carmita Wood, having been forced to leave her job due to sexual harassment, was refused unemployment benefits by Cornell University, because she found no way to describe her reasons for leaving her job except 'personal reasons.' In the absence of a shared common sense concept to describe and communicate her experience, no institutional protections or arrangements could accommodate it, leaving Carmita Wood and women who shared her situation vulnerable to financial and material losses without recompense. Carmita Wood also described physical ailments she had developed as a result of the stress of continued harassment, necessitating medical care and preventing her from seeking alternative employment.

From Fricker's analysis, we can see that common sense (or "shared interpretive resources") can have a variety of effects on a person's experience, on the level of the self, social relations, and institutional or material arrangements, including a variety of types of harm in the case of distortions or misrepresentations in common sense. The primary harm of having hermeneutical resources inadequate to render aspects of one's lived experience intelligible to oneself and to others can lead to secondary harms that are self-referential, social, and institutional. They include:

1. The internalization of scripts that silence or devalue elements of one's lived experience; for example, internalized misogyny, classism, homophobia, and white supremacy;

2. The inability to communicate and share one's experience with members of society, and the loss of confidence in one's ability to participate meaningfully in the construction and interpretation of socially-shared interpretations of the world one inhabits.

3. Law- and policy-based discrimination or other institutional failures to account or provide for the needs and experiences of certain situated groups; for example, the failure

to cover unemployment benefit for an individual who has left their job due to sexual harassment.

Another important body of literature in philosophy which deals with common sense is critical race theory. Although largely confined to common sense distortions relating to racial politics, its characterizations of the issue of collective interpretive resources has significant overlap with the literature on common sense and hermeneutical injustice. Charles W. Mills writes of a specific form of ignorance, named "white ignorance," which he defines as a "group-based cognitive handicap" (Mills, 2017, p. 51). Like 'hermeneutical injustice' and 'hegemony,' the phenomenon of white ignorance is the result of collective "conceptual apparatus. . . [being] negatively shaped and inflected in various ways by the biases of the ruling group(s)" in a society "structured by relations of domination and subordination" (ibid., p. 60). However, critical race theory provides distinct perspectives on common sense that expand on theories of hegemony, and correct some limitations of theories of hermeneutical injustice.

Firstly, Fricker's examples all involve hermeneutically disadvantaged groups "having some social experiences through a glass darkly" (Fricker, 2007, p. 148), with the imagery of "darkness" and "gloom" appearing repeatedly. However, as Gramsci had already recognized, there are *pluralities* of common sense, differing between social groups (Gramsci, 1985, p. 420). Disadvantaged groups can, and often do, possess and circulate their own common sense through "hidden scripts" (Scott, 1990) which occupy the 'interstices' of dominant narratives. There are instances in which adequate interpretive resources for the kinds of lived experience of a specific social identity exist, and are available within the relevant community. The hermeneutical injustice in these cases consists not in the *absence* of interpretive resources adequate to the expression of that group's lived experience, but in those interpretations' inability to gain traction in wider societal narratives. Fricker seems to overlook the variety of circumstances and degrees of self-awareness the hermeneutically marginalized can occupy.

Critical race theory, in contrast, recognizes the jarring discord between the realities of distinct racial communities existing in the same broader society. This discrepancy in common

sense knowledge has "been a theme of many of the classic fictional and non-fictional works of the African American experience, and also that of other people of color" (Mills, 2017, p. 53). As early as 1903, W. E. B. Du Bois (2007, p. 8) referred to the "second sight" of Black people in the United States, which involved learning to see "through identifying white blindness and avoiding the pitfalls of putting on these spectacles for one's own vision" (Mills, 2017, p. 55). As well as simply being denied access to channels of communication to wider society so as to imbue broader collective hermeneutical resources with their own perspectives and experiences, there are reasons why minority groups may *choose* to remain secluded, including self-protection from violence and ridicule. For example, "in James Baldwin's brutally candid assessment: 'I have spent most of my life, after all, watching white people and outwitting them, so that I might survive' " (ibid., p. 53). In these instances, it is not the *disadvantaged* group, but the *advantaged* group, who is "having some social experiences through a glass darkly," due to unequal influences over the collective interpretive resources they have been exposed to.

This does not only apply on an inter-personal level. Class, gender, race, and other power relations "determine what is remembered (or forgotten), by whom, and for what end... with conflicting judgments about what is important in the past and what is unimportant, what happened and does matter, what happened and does not matter, and what did not happen at all" (ibid., pp. 64–65). The plurality of common sense therefore applies to a collective memory "inscribed in textbooks, generated and regenerated in ceremonies and official holidays, concretized in statues, parks, monuments" (ibid., p. 64).

Hermeneutical injustice in the context of a *plurality* of common sense communities still gives rise to the kinds of harm we encountered above. A community that is hermeneutically marginalized in spite of sustaining their own interpretations of their experiences will inevitably encounter material disadvantages by the absence of their perspectives informing the social-institutional arrangements of law, healthcare, education, and other areas of public policy. For example, the opinions of members of academic institutions on the importance or

acceptability of including diversity statements in job application procedures tends to correlate with social groupings, with white people, men, and tenured professors tending towards less tolerance or enthusiasm for diversification procedures (Topaz et al., 2020). If this group were to be hermeneutically advantaged, then their common sense values and opinions (for example, "Diversity considerations in hiring processes diminish academic achievement") would likely reduce the prevalence of diversity initiatives in academic hiring, in opposition to the material interests of women and minority applicants.

Fricker also appears to elide two forms of hermeneutical injustice which critical race theory distinguishes. She uniformly describes hermeneutical injustice as consisting in "a lacuna" or "gap" in the collective hermeneutical resource (Fricker, 2007, pp. 150, 151), but this description is not apt for all the examples she uses, let alone all instances of injustice in common sense. Carmita Wood and her social-conceptual environment did lack a concept that was necessary for her to express, protest, and gain recompense for her experience of sexual harassment; a lack that could justifiably be described as a "lacuna," but Edmund White and his social peers did not *lack* a concept or understanding of homosexuality. What White was grappling with was not an absence of understanding of the existence or experience of homosexuality; it was a *distortion* or *misinterpretation* of the experience. Although Fricker recognizes that White was dealing with "powerful bogeymen constructions of The Homosexual," she does not explicitly acknowledge the qualitative difference between his situation and women who had experienced sexual harassment, nor does she elaborate on the significance of this difference. A simple gap would be comparatively easy to fill. People would approach this phenomenon, new and strange to them, with relative neutrality. In contrast, this actively negative interpretation needed to be *confronted, deconstructed, and then replaced* with a reasonable and adequate representation of homosexual desire, making attempts at rectification much more arduous and less likely to succeed.

From the perspective of critical race theory, it is arguable whether there exists any hermeneutical "injustice" in the form of a pure "gap" as opposed to some *mis*representation.

Fricker distinguishes hermeneutical *injustice* from pure hermeneutical bad luck or other forms of hermeneutical disadvantage, on the basis of the former's connection to *structural identity prejudice* in collective common sense. A person suffering from a "medical condition affecting [. . .] social behavior at a historical moment at which that condition is still misunderstood and largely undiagnosed" would not be a victim of hermeneutical injustice, according to Fricker, regardless of the harm that resulted, because unequal relations of power and participation in hermeneutical construction are not the root cause of the absence of adequate comprehension. Instead, Fricker describes this as "a poignant case of circumstantial epistemic bad luck" (Fricker, 2007, p. 152).[2] But then, if hermeneutical injustice always involves power-relations that cause the distortion of common sense, in what sense can this absence of resources be called a simple 'gap'? When interpretive resources are inadequate to describe the experiences of marginalized people, it is often by design (whether on a conscious individual level, or as a result of broader historical mechanisms). Instead of viewing hermeneutical distortions as oversights or "a minor 'deviation' from the norm" of adequate understanding, critical race theory holds that "vested white group interest in the racial status quo. . . needs to be recognized as a major factor in encouraging white cognitive distortions of various kinds" (Mills, 2017, p. 70). This accords with the standard cognitive psychological distinction between "hot" and "cold" forms of hermeneutical distortions—that is, between "those attributable to intrinsic processing difficulties and those involving motivational factors" (ibid., p. 69).

Another way to understand this last oversight of Fricker's is as one of overlooking the distinction between *ignorance* in common sense narratives, and the *active construction* of memory, amnesia, and skewed common sense. The social memory determining the presently shared hermeneutical resources at our disposal is "inscribed in textbooks, generated and regenerated in ceremonies and official holidays, concretized in statues, parks, monuments" (ibid., p. 64). But the patterns of remembering and forgetting, and determining what is

2. Even the example Fricker uses to draw this distinction is suspect, since access to economic and hermeneutical power is significantly reduced for socially atypical, disabled, and chronically ill persons because of widely recognized and studied ableism in common sense (see Linton, 1998).

significant and insignificant, are not selected at random. For example, a long history exists of covering up details, ignoring events, and inventing false narratives, in order to maintain a comfortable common sense about race relations in the United States—one which diminishes the severity of racial violence against Black people. One poignant example of active common sense construction is the "magnolia myth" which presented slavery as a relatively pleasant relationship between plantation owners and the enslaved—a myth that "dominated American textbooks as late as the 1950s" (Mills, 2017, p. 68). And the reality of processes of covering up, silencing, and exclusion, is exemplified by the experience of historian Ed Wheeler who, seeking information in the 1970s on the racially-motivated attacks in Tulsa in 1921, discovered that the official records had "mysteriously vanished," and subsequently struggled to extract information on the event from Black witnesses and survivors: "Though fifty years had passed, they still feared retribution if they spoke out" (ibid., p. 68). By no means are all distortions of common sense—even politically pertinent ones—the products of processes of active covering. But failures to at least preserve, in common sense narratives, the knowledge of, for example, "the Indian-white wars that dominated our history from 1622 to 1815 and were of considerable importance until 1890" are certainly related to a lack of desire to confront realities that are uncomfortable (ibid., p. 65).

All this points to a process of hegemonic common sense construction that makes hermeneutical injustice anything but a "gap" or instance of straight-forward "ignorance." Gramsci's analysis is structured explicitly around the understanding that hegemonic common sense is the means by which "the ruling class not only justifies and maintains its dominance, but manages to win over the active consent of those over whom it rules" (Gramsci, 1972, p. 244; Crehan, 2016, p. 16). But while Fricker occasionally mentions that it is "no accident" that the gaps in hermeneutical resources have appeared in their actual locations, and that relatively hermeneutically privileged people have "an interest" in maintaining these gaps (Fricker, 2007, p. 152), she does not appear to recognize, let alone confront, how much active construction and erasure lies beneath the landscape of common sense and hermeneutical

injustice, all but invalidating the labels of 'gap' or 'ignorance' she applies. As we will discuss in depth below, hermeneutical injustice is often "an ignorance that is active, dynamic, that refuses to go quietly" (Mills, 2017, p. 49).

A comparison and synthesis of the theories of John Dewey, Antonio Gramsci, Miranda Fricker, and Charles W. Mills on common sense and its distortions provide us with a sense of the complexity of the phenomenon. While hegemonic narratives are typically shared by a wide portion of society, a plurality of sometimes contradictory common sense narratives exist across distinct social communities. Dominant common sense narratives may sometimes display gaps as a result of the marginalization of some social groups from collective common sense-making, but much of the time, in place of gaps, common sense contains distortions and harmful constructions that make life difficult for certain groups. Similarly, although such distortions may be experienced as mere ignorance or oversight on the part of individuals adopting common sense narratives, these distortions are not usually the simplistic result of ignorance or oversight from the perspective of history. Their existence has rather relied on a variety of official and unofficial pressures influencing the distribution and control of different pieces of knowledge. This in turn relates to the fact that hermeneutical injustice in collective common sense does not simply prevent people from being able to render their experience collectively intelligible, but exercises a powerful influence on institutional arrangements and the material structure of society.

6.3 Democratizing Common Sense

Theorists on hermeneutical injustice differ in their characterizations of the locus and culpability for the injustice. While Fricker argues that "hermeneutical injustice is not inflicted by any agent," but is rather "a feature of the collective hermeneutical resource" (Fricker, 2007, p. 168), José Medina claims that "[h]ermeneutical gaps are performatively invoked and recirculated—reenacted, we could say—in the speech acts of daily life," emphasizing the distributed responsibility of individual agents through their aggregate interactional effects

(Medina, 2013, p. 110). Nonetheless, they agree on the appropriate method for a solution.

Both Fricker and Medina argue in favor of individuals to "collectively assume and share responsibility" for improving hermeneutical resources (ibid., p. 114), through the cultivation of an *individual interactional virtue* to counteract or mitigate the effects of oppressive or inadequate common-sense notions. This virtue, cultivated by and in the hearer, would consist in "a capacity for indefinitely context-sensitive judgment" as to the reliability and intelligibility of a hermeneutically disadvantaged speaker (Fricker, 2007, p. 171). The method of cultivating this hermeneutical virtue would be through the hearer bringing to the conversation "a *background social 'theory'* that is informed by the possibility of hermeneutical injustice" (ibid., p. 172, emphasis added). Effectively, individuals would have to be taught (perhaps through classes in philosophy, though no concrete suggestions are made) about the existence and mechanisms of hermeneutical injustice, and would have to adapt their behavior and judgments in light of this knowledge. Much of the cultivation and practice of hermeneutical virtue are not therefore "the sort of thing that could possibly be done without reflection" (ibid., p. 173).

As a result of the practice of this virtue, individuals would "receive the word of others in a manner that counteracts the prejudicial impact that their hermeneutical marginalization has already had upon the hermeneutical tools at their disposal" (ibid., pp. 168–69). For example, instead of a man rejecting a woman's claims as "less than rational" because of her "intuitive style of expression," he would demonstrate awareness of the possibility that "the interpretation the speaker is struggling to articulate would make good sense if the attempt to articulate it were being made in a more inclusive hermeneutical climate"—that is, one in which women's experiences and styles of expression had equal status and influence in the construction of common sense (ibid., pp. 169–70). As a result of the practice of this virtue, the hearer may be able to "generate a more inclusive hermeneutical microclimate" allowing the hermeneutically disadvantaged person to be understood and believed (or at least making such a result more likely).

The primary goal of cultivating this individual virtue is to mitigate the impact of hermeneutical injustice on the disadvantaged speaker. But both Fricker and Medina believe that, through the cultivation of this individual virtue and its practical implementation in individual interactions, people can cumulatively "alleviate the hermeneutical gaps and silences that our cultures have created over time" (Medina, 2013, p. 110). Medina argues that the "sheer accumulation" of virtuous attempts to communicate can lead to a "melioration" in hermeneutical resources (ibid., p. 111); and Fricker goes so far as to argue that "the collective exercise of the virtue could ultimately lead to the eradication of hermeneutical injustice" (Fricker, 2007, p. 174). The way this would ultimately be achieved is by the resistance, in these interpretatively generous conversations, to "excusionary and hegemonic" interpretations (Medina, 2013, p. 114), and "the generation of new meanings to fill in the offending hermeneutical gaps" (Fricker, 2007, p. 174).

The problems with this approach to hermeneutical melioration mirror the problems of Fricker's original characterization of this form of injustice discussed in the last section. Although the cultivation of individual virtue should not be discouraged, there are foreseeable problems with adopting it as a primary method of overcoming hermeneutical injustice, and reasons to doubt the plausibility of significantly influencing the hermeneutical climate in a society, let alone eliminating hermeneutical injustice altogether. These problems with the virtue-instructive approach can be broken into two categories, one relating to practical considerations of scale and agency, and another relating to a much deeper flaw that has been the consistent theme of previous chapters: that of over-emphasizing cognitive, knowledge-based approaches and methods for understanding and improving human environments.

After briefly covering my concerns related to the practicality of implementing the instruction and cultivation of the virtue, I will argue that theorists of hermeneutical injustice have overlooked a highly effective and well-suited method of transforming the common sense of society into a more just and representative one because of assumptions that the solution to this human problem must lie in intellect, reason, knowledge-acquisition, and other cognitive

processes. I will simultaneously present reasons for believing that the manipulation of non-cognitive qualities of experience and nature—including emotions and imagination—would be more effective in cultivating an improved hermeneutical environment, and that (drawing on arguments of the previous two chapters) aesthetic media are particularly well-suited to this task.

Practical Obstacles

To begin with the practical problems of the virtue-instructive approach, the cultivation of hermeneutical virtue is expected to be enacted on an individual scale and an interaction-by-interaction basis. Medina claims that we do not need "hermeneutical heroes" to bring about the desired change in society, but that we can rely on the "sheer accumulation of partially failed and partially successful communicative attempts on the part of wholly ordinary speakers who have received the attention of ordinary but hermeneutically sensitive hearers" (Medina, 2013, p. 111). The question arises as to how we might expect to educate a large enough portion of a society's population about the need to practice hermeneutical generosity so as to be effective on a scale significant enought for those experiencing regular hermeneutical injustice in their daily interactions to see improvement. The cultivation of the virtue also requires that the hearer "brings to the discursive exchange... a background social 'theory' that is informed by the possibility of hermeneutical injustice" (Fricker, 2007, p. 172). Assuming that hermeneutical injustice is the kind of phenomena that most individuals in a society would find relatively easy to understand (which is by no means obvious), how a person seeking the melioration of hermeneutical injustice would go about providing access to education in social-epistemic justice, and providing incentives for undertaking such an education, is neither easily imaginable nor elaborated in Fricker's or Medina's accounts.

Digging deeper into the issue of incentives, an important and overlooked feature of Fricker's suggestion to cultivate hermeneutical virtue, as Medina points out, is that "the subjects who become most epistemically harmed and hermeneutically disadvantaged in their

ability to make sense of their social experiences of racialization were in fact those who benefit the most from the hermeneutical obstacles, those who perceive the non-epistemic benefits that these obstacles helped to produce or maintain" (Medina, 2013, p. 104). That is, in many cases of hermeneutical injustice, the so-called "gaps" of knowledge (which we previously determined to often be actively constructed, negative interpretations) are structured and located in such a way as to benefit hermeneutically hegemonic groups. The hermeneutical disadvantage that requires a corrective virtue—that is, being unable to adequately and fairly understand the realities of those occupying marginalized standpoints—is typically experienced more often and more acutely by those occupying relatively privileged positions, who experience a material or structural benefit as a result. For example, although much of this benefit is unwitting and inadvertent, on a societal level, white people benefit from racist forms of hermeneutical distortion in terms of police enforcement, and jury verdicts and sentencing; and men benefit from sexist forms of hermeneutical distortion, in terms of judgments of their relative intelligence and suitability for leadership positions. As a result, although many members of privileged groups do not actively desire to retain the forms of injustice that benefit them, neither are they usually motivated to personally invest in their eradication (at least not to the extent of seeking out philosophical education in how to be more hermeneutically virtuous interlocutors) (Mills, 2017; Mills, 1997; Sullivan, 2006). There is, therefore, a dubious impracticality in leaving the bulk of the corrective hermeneutical work to those individuals who have least awareness of the existence of the problem, and least material interest in rectifying it—an impracticality that is only accentuated by the suggestion of leaving such work to be activated on an individual basis, as opposed to emphasizing the role of culture-wide 'hermeneutical heroes.'

Although a virtue-instructive strategy should not be discouraged, the social prevalence, cognitive depth, and historical resilience of hermeneutical injustice suggests that cultivating individual virtues alone would be a slow and uphill battle. The extent of individual correction that would be needed in order for it to have a significant effect in contexts where it

matters is large enough that it would require bolstering from a different strategy.[3] Although the practicalities of scale and agency will not be the focus of my discussion, it is worth keeping in mind, as I discuss the suitability of art and aesthetic media for the purposes of transforming unjust hermeneutical resources, that diverse forms of art have a significant capacity to attract, reach, and interest broad swathes of any given society.

Over-Emphasis on Cognitive Methods

My main critique of the virtue-instructive approach of remedying distortions in common sense, which will be the focus of the remainder of this chapter, is its exclusive focus—in both Fricker's and Medina's characterizations—on the employment of cognitive methods. Fricker and Medina do not consider the inherent limitations of cognitive methods like philosophical instruction or explanation, and simultaneously overlook the specific suitability of art and aesthetics for communicating experience and negotiating shared meanings.

Fricker characterizes hermeneutical virtue as an "intellectual virtue" which requires instruction in "a background 'social theory' that is informed by the possibility of hermeneutical injustice" (Fricker, 2007, pp. 172–73). One major obstacle of changing people's perspectives and interpretations of the world is a tendency towards critical engagement and defensiveness, especially in situations where they are being morally or intellectually instructed. Critical race and gender theory have covered this phenomena under the title of 'fragility'—a reaction experienced by members of hermeneutically marginalized groups when they try to talk to (let alone educate) privileged people about their privilege. Fricker's characterization of hermeneutical injustice as a "gap" disguises the behaviorally active nature of hermeneutical distortions. Though not always performed with conscious motives, those unable to un-

3. An important additional way of reducing hermeneutic injustice is to increase access of hermeneutically marginalized people to jobs and social roles that allow for greater hermeneutical participation—that is, participation in the formation and proliferation of interpretations and meanings. For example, greater representation of women, people of color, and queer identities in academia, journalism, politics, and law, may help to create more democratic and socially representative hermeneutic resources. This is not an approach I can give due consideration in this discussion.

derstand the experiences of marginalized groups often actively perpetrate these "gaps" (or constructed distortions) by reacting defensively to corrections and alternative suggestions.

As pragmatists John Dewey and Richard Rorty have argued, art has an immense power to overcome these barriers, fix distortions in common sense, and render shared meanings fairer and more compassionate. This is for a number of reasons, which I consider in turn in the following section. I cover them briefly here to aid the reader in following the ensuing argument. Firstly, unlike the practice of the intellect, aesthetic media do not *argue* their points. They do not attribute praise or blame, or pass judgment (at least explicitly) on individuals. Instead, the capacity of art to side-step this critical defensive reaction of the intellect and enter directly into attitude gives it a significant advantage in communicating and disseminating important meanings and interpretations that differ across diversely situated experiential individuals.

Secondly, a related characteristic of aesthetic media is its dealing in the qualities of experience, and its capacity to communicate experiential realities between diversely situated subjects. Fricker specifically characterizes the problem of hermeneutical injustice as one of a failure to understand the situated experiences of different classes of people, and critical race theorists characterized white ignorance as the failure to understand moral, political, and social realities that structure the lived experience of people of color. In the interest of improving hermeneutical resources, philosophers of hermeneutical injustice and critical race theorists ought to be looking for a highly effective means of communicating experiential realities between identity groups. However, Fricker and Medina both restrict their suggestions to the attempt, in conversation, to discursively understand the utterances of the disadvantaged interlocutor in a generous way—as Fricker characterizes it, not "the sort of thing that could possibly be done without reflection" (Fricker, 2007, p. 173)—and Mills seeks "epistemic criteria" for minimizing white ignorance. What each overlooks is the overwhelming efficacy of art and aesthetic qualities to express and communicate experiential realities. In a context where the problem is defined as a failure to understand *the experience* of a differently

situated individual, we would benefit from the employment of a method which is powerful and adept in evoking and communicating lived experience—qualities, as argued in the last chapter, strongly possessed by aesthetic media such as art. As a result of its avoidance of argument, and its communication of immediacy of experience, art has an immense capacity for democratization of shared meanings, and moral instruction.

Lastly, critical race and gender theory have emphasized the difficulty of a subject simply 'seeing' or 'hearing' what is before them when their perceptions have been informed by pre-existing, hermeneutically distorted concepts. In such situations, no matter how "generously" a discursive interlocutor listens, there will be inherent difficulties in understanding experiences of others which do not make interpretive sense in their existing conceptual frameworks. This is especially true when the new hermeneutical interpretations contradict or are incompatible with pre-existing ones. While Fricker has characterized hermeneutical injustice as consisting in "gaps," we have seen that many instances of hermeneutical injustice consist rather in disadvantageous constructions. A gap might be easy to fill, since it would perform a positive function of filling in a blank area for a hermeneutically blank listener. But a construction that occupies a place in the conceptual framework of a listener is not so easily banished and replaced. Any attempts at communication are likely to be understood through the pre-existing interpretative concepts, making the communication of a new conceptual framework an uphill battle. This is the kind of barrier art and aesthetic media can circumvent (as we saw in the last chapter) by virtue of its non-employment (or at most indirect employment) of conceptual structures. Art evokes felt meanings and presents them in the form of new associations, rather than dealing in discursive concepts, and so it has the capacity to communicate and present unusual and novel ways of interpreting and understanding situations. As a result of art's capacity to work in immediacy, it is capable, in Dewey's words, of 'bringing to consciousness' the latent meanings that structure our common sense, and reworking them in the context of an aesthetic experience.

6.4 Art as Hermeneutical Transformation

Unlike later theorists of hermeneutical injustice, Gramsci and Dewey both proposed that art and aesthetic media are crucial components of any successful attempt to transform common sense along ethical lines—a striking similarity. However, like their theories of common sense, Gramsci's and Dewey's theories on the role of art and aesthetics in hermeneutical and moral transformation differ in fundamental ways.

Central to Gramsci's political philosophy was a belief in "the necessity for new popular beliefs, that is to say a new common sense and with it a new culture and a new philosophy which will be rooted in the popular consciousness" (Gramsci, 1972, p. 424). This was to be achieved using art, but it was not a task for artists. Popular culture was to "provide important clues to the world in which subalterns live" (Crehan, 2016, p. 71), but it would be the intellectual's role to examine aesthetic media produced by subaltern classes in order to understand the world view they hold, and then construct from this material more legible, logically consistent narratives upon which to construct a social movement. The worldview held and expressed in fragmentary and unrefined form by subaltern aesthetic works would require reformulation and reorganization through a process of cognition undertaken by an intellectual, in order to render it in an form. Once a cognitive analysis of the art has rendered the views contained therein intelligible and coherent, the intellectual leader of social transformation would utilize them to construct a counter-cultural hermeneutic that could gain traction and challenge the hegemonic narrative.

Gramsci's position therefore displays one of the same flaws as that of theorists of hermeneutical injustice, insofar as a certain subclass of those most advantaged by the hermeneutical distortions are tasked with correcting the socio-ethical injustice from which they inadvertently benefit (assuming that intellectuals are not an overlapping class with subalterns). The critique usually made of Gramsci's characterization of hermeneutical change is that it disparages the the political, intellectual, and artistic capabilities and the political agency of members of subaltern classes. The structuring assumption appears to be that subalterns

are incapable of doing the intellectual work necessary to coherently characterize their own experience and perspectives, and initiate social change.

However, a more relevant problem for our discussion is that Gramsci clings to the position that hermeneutical transformations (changes in common sense beliefs and associated behaviors) necessarily take place through the *cognitive processes* of intellect and reason, with art (or popular culture) serving only as the raw material for the intellectual to analyze. Gramsci's insistence that hermeneutical transformations require the intervention of intellectuals demonstrates that he overlooks—much like the hermeneutical injustice theorists seeking to educate people in 'a background social theory'—the potentialities of art and non-cognitive methods to serve as powerful instruments of hermeneutic change and social progress.

In contrast, John Dewey takes art itself to be a direct instrument of hermeneutical transformation. Art, by virtue of its cultivation and evokation of qualities of experience instead of argumentation and classification, is a method—not only more effective, but also necessary—for the "remaking of impulsion and thought" (Dewey, 1985b, p. 352). He presents art as an "incomparable organ of instruction" in social, political, and moral values, but in a way "remote from that usually associated with the idea of education" (ibid., p. 349). We will now examine how Dewey's theory of art and aesthetics might provide suggestions as to the uses of art in correcting unethical distortions of common sense.

Praise and Blame

A major problem encountered when attempting to educate or instruct people on political issues is motivated ignorance. As critical race theoretic characterizations of hermeneutical injustice have shown, distortions of common sense are not accidental gaps in collective interpretive resources. They constitute a distinct type of ignorance, the results of behavioral reproduction and sometimes even of intentionally pursued historical distortions, organized around vested interests in maintaining particular dominant forms of common sense, or what Gramsci would call a 'hegemony.' As such, this form of ignorance operates differently to

regular 'gaps' in knowledge, and responds differently to attempts to correct it. Cognitive psychologists and behavioural economists, as well as philosophers, have recognized the existence of a distinct form of ignorance which is actively upheld (often unconsciously) in cases where the information presented may be uncomfortable, or if it is in the interest of the individual to remain ignorant (Williams, 2020; Woomer, 2019). Mills characterizes the kind of common sense distortions related to political realities like race and gender as less "the passive obverse to knowledge" and more "an ignorance that resists,... that is active, dynamic, that refuses to go quietly" (Mills, 2017, p. 49).

A related phenomenon, which also applies to instructive attempts to alleviate hermeneutical injustice, is defensiveness when confronted with suggestions of one's own role in the production of a negative outcome, and one's accompanying requirement to improve or change. This is reflected in the experience of diversity trainers, who describe widespread "knee-jerk defensiveness," "emotions such as anger, fear, and guilt and behaviors such as argumentation, silence, and withdrawal" (DiAngelo, 2020, p. 2). This tendency to various defense mechanisms has been called "fragility" (specifically "white fragility" when discussed in the context of race theory), and has been identified as one of the means by which challenges and corrections to collective common sense are repelled. Moral, political, and social theory is "saturated with conceptions that stem from praise and blame" and divides humankind (at least implicitly) "into sheep and goats, the vicious and virtuous, the law-abiding and criminal, the good and bad" (Dewey, 1985b, p. 351). As theories on white ignorance and fragility demonstrate, this is more acutely felt when the instructed individuals are implicated as participants in the wrong on which they are being educated. Virtue instructive approaches to alleviating hermeneutical injustice using cognitive methods are therefore likely to prove challenging, since they involve educating people in a social theory that includes a recognition of their own hermeneutical privilege, their own role in reproducing hermeneutical barriers, and their personal responsibility in creating more tolerant hermeneutical environments. The combination of (a) motivated ignorance, and (b) a relatively widespread tendency towards

defensive reactions to criticism or suggestions of one's own advantage, reveals the instruction of hermeneutical virtue through social theory to be a challenging project.

If we look beyond the boundaries of cognitive methods for alleviating the complex issue of hermeneutical injustice, we may find that art and aesthetics prove particularly suited to the task. One reason, related to the issue of motivated ignorance is that, as previous chapters have discussed, art and aesthetic experiences are not forms of knowledge; they are presentations and communications of experience. While philosophy utilizes "theory, simplicity, structure, abstraction, and essence" (Rorty, 1991, p. 73), works of art avoid the "general terms or general principles" characteristic of theory (ibid., p. 78). They are not presented or carried out by way of argument: "Fiction that argues is typically dead" (Kitcher, 2013, p. 12), and the same is likely true of theater, drama, and poetry that argue. Another reason, related to defensiveness, is that works of art are characterized by an "indifference to praise and blame because of [their] preoccupation with imaginative experience" (Dewey, 1985b, p. 351). Works of art do not take the form of (explicit) demands or suggestions for correction, and so they may not so easily encounter the defensive reactions discussed above.

It was this sort of contrast between the characteristics of aesthetic and cognitive modes of presentation and engagement that led Richard Rorty to characterize the novel as "the characteristic genre of democracy" (Rorty, 1991, p. 68). Writing or reading a novel is a matter of "tolerance and curiosity, rather than truth-seeking" (ibid., p. 75). Novels do not presuppose one true description of the world or events, but operate with an assumption of "diversity of viewpoints, a plurality of descriptions of the same events" (ibid., p. 74). Unlike cognitive education, writing or reading a novel is "not a matter of replacing. . . Error with Truth," but a recognition of "everyone's right to be understood" (ibid., pp. 78–79). Novels take the form of the presentation of perspective, not ethical or factual instruction, and so the obstacles to overcoming motivated ignorance are not so obviously present. The same benefit applies to the issue of defensiveness encountered in cases of moral-political instruction and suggestions for an individual to take responsibility for harmful behavior and recognize the

need for change. By substituting a novel for a treatise, "characters *take the place* of moral principles and of lists of virtues and vices" (Rorty, 1991, p. 78). So while readers of a novel are not expected to be transformed by having their behaviors and beliefs scrutinized and corrected, profound moral scrutiny can take place, "not directly, but by disclosure" (Dewey, 1985b, p. 349) of the behaviors, practices, institutions, or beliefs that are at fault. For example,

> In *Oliver Twist*, *Hard Times*, *Bleak House*, *Little Dorrit*, Dickens attacked English institutions with a ferocity that has never since been approached. Yet he managed to do it without making himself hated, and, more than this, the very people he attacked have swallowed him so completely that he has become a national institution himself. (George Orwell, quoted in Rorty, 1991, p. 79)

Dickens did not instruct or critique through theory and categorization, but focused in his novels on detail, narrative, and experiential perspective. He did not attack abstractions like 'the aristocracy' or 'economic inequality,' but rather "concrete cases of particular people ignoring the suffering of other particular people" (ibid., p. 78). He did not directly suggest that anyone required transformation or reform, but requested that they "notice and understand the people they passed on the street" (ibid., p. 78). Dickens was so effective in making a profound and complete criticism of economic and social institutions in England because he focused on the communication and presentation of the lived experience of the working poor. He did not criticize anyone or any group directly, and he did not make any specific suggestions for social transformations. He simply adopted "the voice of one who happened to notice something to which the rest of us could be counted upon to react with similar indignation as soon as we notice it" (ibid., p. 79). As a result of his unargumentative, untheoretical, praise- and blame-indifferent approach, he was able to present his ferocious criticism of the English political, economic, and class systems without triggering a defensive reaction in response to a perceived attack, even making the experience of undergoing instruction and

critique actively enjoyable and sought-after.[4]

Hermeneutical Injustice, Art, and Communication of Experience

Rorty follows Dewey in suggesting that the absence of cognitive instruction and indifference to praise and blame are the features which largely constitute "the heart of the moral potency of art" (Dewey, 1985b, p. 351). But while Rorty speaks specifically (and, if I read him correctly, exclusively) of the novel as the artistic instrument of democratic instruction, Dewey extends this moral capacity to all aesthetic media. This difference between their positions on various aesthetic media relates to a deeper difference between their views on the functions of art. Rorty argued that the novel was powerful because it avoided the presentation of truth and error and did not pass moral judgments or demand transformation, favoring plurality of perspective and asking only that people try to notice and understand each other. But Dewey believed that all aesthetic art was powerful not only because of what it *avoided*, but because of what it specifically and adeptly *communicated*. As we will see, these communicative capacities are relevant to the problem of distortions or limitations in the collective interpretive resources of common sense.

Fricker describes hermeneutical injustice as consisting in "having some significant area of one's social experience obscured from collective understanding" (Fricker, 2007, p. 155), and Mills describes white ignorance as a failure to understand or view correctly the various aspects of personal, social, and political reality that influence the lived experience of people of color (Mills, 2017, Chap. 4). It is precisely the ability to communicate experiential reality between diversely situated groups that would help rectify these forms of injustice. For Dewey, "works of art are the only media of complete and unhindered communication between

4. Modern examples of socially critical art, undertaken in different media, are: Ken Loach's 2016 film, *I, Daniel Blake*, which criticizes the economic and social structure of British society by presenting the experience of a man who is recovering from a heart attack and cannot work, navigating an obstructive and labyrinthine welfare system of the British Conservative Party; and Jordan Peele's 2017 film, *Get Out*, which criticizes the subtly racist behavior of white American liberals, by presenting the uncomfortable experiences of a Black man visiting his white girlfriend's family for the weekend. Both films won multiple awards and international recognition, and were celebrated across various classes of the societies they sought to criticize.

man and man that can occur in a world full of gulfs and walls that limit community of experience" (Dewey, 1985b, p. 110). The way art achieves this radical form of communication is, as previous chapters have discussed, not by presenting cognitive qualities and pieces of knowledge, but expressing the qualities of experiential immediacy. Through cognitive instruction and presentation, "intellectual inquirers deal with [experiential] qualities at one remove through the medium of symbols that stand for qualities"; artists, on the other hand, "have for their subject-matter the qualities of things of direct experience" (ibid., p. 80). Art does not present abstractions, information, or ideas, but "renders available in clear and heightened unities the qualities of experience" (Edman, 1950, p. 63). For this reason, Dewey takes art to be the greatest means "for entering sympathetically into the deepest elements in the experience" of other people (Dewey, 1985b, p. 335). Through works of art, "we install ourselves in modes of apprehending nature[5] that at first are strange to us... and, by bringing it to pass, our own experience is re-oriented" (ibid., p. 337). This capacity is particularly valuable in circumstances where a failure to understand the experience of another person is causing harm.

To forefront art as a major means of hermeneutical transformation would not only reap the benefits of the direct communication of experience that occurs in aesthetic experiences; it would have important consequences on the extent of democratic control people have over the resources for hermeneutical transformation. A major practical criticism stated of Fricker and Medina in previous sections was that they place the responsibility for hermeneutical correction on those who benefit most from the hermeneutical 'gaps' or distortions, failing to take into account the prevalence and power of motivated ignorance. In the case of aesthetic communication of experience, this problem is not so significant. The subject of the experience is more equipped to communicate that experience than the person with the hermeneuti-

5. Dewey does not mean 'nature' as opposed to 'culture' or 'experience' here, but rather to refer to something like 'the world.' A few lines prior, he states that "human relations, institutions, and traditions are as much a part of the nature in which and by which we live as is the physical world. Nature in this meaning is not 'outside.' It is in us and we are in and of it. But there are multitudes of ways of participating in it" (Dewey, 1985b, p. 336).

cal gap or distortion. By making aesthetic communication of experience a primary means of hermeneutical transformation, we simultaneously give those most invested in correcting hermeneutical distortion more agency in overcoming their marginalization. Although artistic talent is required in order to powerfully imbue objects of experience with meaning and value in order to communicate experiential attitudes through aesthetic means, such talent is likely to be somewhat evenly distributed across diverse groups. So to bring about more democratic hermeneutical apparatus in society, it would be best to forefront art as one of the channels through which marginalized experiential realities can be given a platform to resound among a wider population.

The effects of works of art in drawing us into a sympathetic understanding of diversely situated people are by no means fleeting—they extend beyond the moment of experiencing the work of art itself. Works of art have an "enduring effect upon those who perceive and enjoy [them, which] will be an expansion of their sympathies, imagination, and sense" (Dewey, 1985b, pp. 336–37). They "effect a broadening and deepening of our own experience, rendering it less local and provincial as far as we grasp, by their means, the attitudes basic in other forms of experience" (ibid., p. 335). As a result, "[b]arriers are dissolved, limiting prejudices melt away," and we arrive at a more adequate and humane understanding of how the world is experienced by different sorts of people (ibid., p. 337). The secondary effects of such a broadening of understanding through direct communication of experience might be expected to mirror Rorty's perceived consequences of the novel; that is, "an increasing ability to be comfortable with a variety of different sorts of people" (1991, p. 81) and an interest in "what we can do so as to get along with each other, how we can arrange things so as to be comfortable with one another, how institutions can be changed so that everyone's right to be understood has a better chance of being gratified" (ibid., p. 78). The reworking of common sense understandings by works of art "is far more efficacious than the change effected by reasoning, because it enters directly into attitude," not only more effectively communicating experiential quality, but also bypassing the problems of motivated ignorance

and fragility experienced when undertaking more traditional cognitive modes of moral or political instruction (Dewey, 1985b, p. 337). Rorty claims that "[t]he generosity of Dickens's, Stowe's, and King's anger comes out in their assumption that people merely need to turn their eyes toward the people who are getting hurt, notice the details of the pain being suffered, rather than needing to have their entire cognitive apparatus restructured" (1991, p. 80). To this, Dewey might respond that, unbeknownst to them, people *are* having their cognitive apparatus restructured when reading novels and engaging with other forms of art, just not through cognitive methods of instruction.

Conscious Reworking of Immediacy

Fricker and Medina suggest that individuals should attempt to exercise interpretive generosity when conversing with members of hermeneutically marginalized groups, so as to render more likely their ability to understand the meanings being communicated. Fricker even suggests that the exercise of such generosity would be "obviously conducive to the generation of new meanings to fill in the offending hermeneutical gaps" (Fricker, 2007, p. 174). This approach radically underestimates the influence of pre-existing meanings to structure our perceptual awareness, and the difficulty involved in stepping outside our existing interpretive frameworks to see, hear, and interpret things in new ways. This oversight relates to Fricker's mischaracterization, already discussed, of hermeneutical justice as consisting in 'gaps' rather than 'distortions.' A gap in an area of knowledge might be relatively easy to overcome with the practice of interpretive generosity, since it implies an empty space in the listener's resources to be filled simply by listening to an explanation of what interpretation or understanding ought to occupy that space. But distortions of common sense which present the world and its objects in skewed and disadvantageous ways are more complicated—they require that the listener and the speaker grapple not only with an explanation of the *new* meaning they wish to communicate, but also with the *old* meaning which they must, in the process, *transform*.

In presenting hermeneutical generosity as a relatively simple case of veridical explanation, Fricker assumes a philosophical framework in which cognition (processes relating to analysis and knowledge) is the primary (if not the only) mode of experiencing and encountering the world, its people, and its objects, and in which the seeking and acquisition of truthful representation is a relatively straightforward, default activity of human beings. However, a variety of activities, perceptions, and interactions occur with an "irrelevance to both truth and error; they exist for the most part in another dimension, whose nature may be suggested by reference to imagination, fancy, reverie, affection, love and hate, desire, happiness and misery" (Dewey, 1985a, p. 325). For many of our activities, people are not particularly concerned about the veridicality of our interpretive frameworks, and are not aware of the influence the latter can have on our perceptions. Our habitual interpretive resources become "spontaneous, natural, 'instinctive'; they form the platform of development and apprehension of further meanings, affecting every subsequent phase of personal and social life" (ibid., p. 229). Distortions in hermeneutical resources can be stubborn and difficult to exorcise. Psychological research has confirmed that "rather than continually challenging conceptual adequacy by the test of disconfirming empirical data, we tend to do the opposite—to interpret the data through the grid of the concepts in such a way that seemingly disconfirming, or at least problematic, perceptions are filtered out or marginalized" (Mills, 2017, p. 61). Rather than coming naturally to most people, "the attainment of truth is the outcome of the development of complex and elaborate methods of searching," which becomes even more difficult with interpretive distortions acting as pre-existing obstacles in the pursuit of understanding. The kind of individualistic, interaction-based, interpretive reorientation Fricker and Medina recommend as a remedy for hermeneutical injustice "in many respects go[es] against the human grain" (Dewey, 1985a, pp. 234–35).

Critical race theorists have, on the other hand, recognized the psychological barriers to correcting common sense distortions, providing many examples of historical cases in which distorted interpretive resources have been incredibly resilient to reorientation or transforma-

tion (Mills, 2017, p. 60). For example, "[i]n the classic period of European expansionism, it... becomes possible to speak with no sense of absurdity of 'empty' lands that are actually teeming with millions of people, of 'discovering' countries whose inhabitants already exist, because the nonwhite Other is so located in the guiding conceptual array that different rules apply" (ibid., p. 63). Hermeneutical generosity when interpreting the perspectives of diversely situated people is complicated by the fact that interpretive frameworks largely determine our perceptions and "it is a rare individual who can resist this inherited orientation" (ibid., p. 63). A modern example of the resilience of interpretive distortions is the acquittal of the four Los Angeles Police Department officers tried for beating Rodney King in 1992. Although the graphic violence was caught on camera and shown in full to the jury, the common sense interpretive framework surrounding Black men enabled the defense to present "a brutal savage beating of a man lying helpless on the ground" as instead "a 'dangerous PCP-crazed giant' who was... in control of the situation" (Goodwin, 1994, p. 606). The Rodney King trial clearly demonstrates that "the ability to see a meaningful event is not a transparent, psychological process but instead a socially situated activity accomplished through the deployment of a range of historically constituted discursive practices" (ibid., p. 606).

Mere interactive interpretive generosity may fail to meet its goals of alleviating hermeneutical injustice by not taking into account the degree of influence pre-existing meanings have on our ongoing perceptions. In order to democratize and improve common sense resources, it may not be enough to ask individuals to listen generously in individual interactive contexts, even were we to assume that instructive education on the social theory behind hermeneutical injustice would not trigger defensive reactions. We require a method which does not just expect people to "fill in hermeneutical gaps" themselves, but actively confronts the meanings people take into these contexts, and transforms them.

While most of our experiences are ones in which interpretive resources operate latently and unconsciously, there is a phase of experience in which our meanings are "undergoing

re-direction, transitive transformation" (Dewey, 1985a, p. 233). This is what Dewey calls 'consciousness' (ibid., chap. 8). This occurs when familiar objects, events, and people appear "in an unexpected, novel, situation, where the familiar presents itself in a new light and is therefore not wholly familiar" (ibid., p. 235). When familiar interpretive apparatus and behaviors, of which we usually have little awareness, "operate in a situation to which they are not accustomed, in an unusual situation, a new adjustment is required" (ibid., p. 235). In such experiences, we feel a "dissolving and reforming [of] meaning" (ibid., p. 235).

Given an understanding of hermeneutical amelioration as requiring a transformation of pre-existing meanings, rather than filling interpretive gaps, art and aesthetic experiences present themselves as well-suited methods. As previously elaborated, art draws out the meanings and values that are latent in the objects of immediate experience and can transform those meanings and values by presenting them in a new way. Artistic talent lies in the "capacity to work a vague idea and emotion over into terms of some definite medium" (Dewey, 1985b, p. 82). In every work of art, the medium must be altered—"[m]arble must be chipped; pigments must be laid on canvas; words must be put together." But "a similar transformation takes place on the side of 'inner' materials, images, observations, memories and emotions" (ibid., p. 81). The work of art, insofar as it is aesthetic, brings these two forms of transformation together into a single experience, "effected by a single operation" (ibid., p. 81). Art "throws off the covers that hide the expressiveness of experienced things" (ibid., p. 110). The meanings and values that operate without our awareness are brought into peculiar focus during aesthetic experiences, "as dyes come out of coal tar products when they receive special treatment" (ibid., p. 17). "[T]he work of art develops and accentuates what is characteristically valuable in things" (where 'valuable' signifies 'value-laden,' not 'having positive value') (ibid., p. 17), "bringing to living consciousness" the meanings and values that lie latent in our ordinary perceptions (ibid., p. 21). Art and aesthetic experience, as "the revelation of meaning in the old effected by its presentation through the new," can rework and reorient the latent meanings that routinely structure people's perceptions by

drawing out pre-existing meanings and presenting them in a new way.

An example explored in Chapter 4 is that of Renoir's nudes. Interpretations of these paintings have changed over the decades, but for Dewey, Renoir's aesthetic depictions of female nudity transformed the ordinary associations with bare bodies from the erotic into the "qualities common to flesh with flowers" (Dewey, 1985b, p. 101). However, much more directly political examples exist. Jordan Peele's recent film, *Get Out*, challenges some widespread interpretive apparatus many white Americans may not recognize they possess. By presenting Chris, a Black man, as the victim of ruthless white killers in the suburbs of New York, viewers undergo a reversal of common cultural interpretive concepts (among whites) that have consistently presented Black men as a potentially threatening presence in white neighborhoods. Instead, viewer's emotions of fear and outrage are directed towards the white family on behalf of Chris. In the concentrated climax of the film, we see Chris choking his girlfriend, Rose, in an act of self-defense. This image—a Black man choking a white woman—is a powerful one that echoes the common interpretive trope of the violent Black killer who poses a threat to white women, and yet it is presented to the viewer in an undeniably novel way—as a Black man engaged in self-defense against a manipulative white serial killer. The image makes us viscerally aware of our old associations through the presentation of this familiar image. In the same instant, which comes after an hour of following Chris through his ordeal at the hands of his deceitful girlfriend and her family, the film presents an unambiguous challenge to the image's usual valence, and offers a new interpretation of the image in which old associations are transformed. In a scene of relentless artistic critique, at the very moment when the viewer is undergoing perceptive re-education by way of this aesthetic presentation, a police car arrives at the scene. While Chris backs away from Rose with his hands in the air, Rose reaches out to the police car and calls for help. In this moment, the viewer sees not only a Black male victim and a white female perpetrator, but they witness with absolute clarity the impossibility of a third person—the officer having just arrived at the scene—coming to a veridical perspective of the situation,

precisely because of the shared interpretive resources at his disposal, of which the viewer has just been disabused. Viewers become aware, in a sense, of 'how it looks' and, in doing so, they realize something about their own and their society's interpretive resources.

This aesthetic expression of old meanings by way of the new "does not terminate with the immediate and particular occasion in which it is had" (Dewey, 1985a, p. 352). The new meanings that have been expressed and experienced open up new perceptions, discriminations, and "standards of appreciation which are confirmed and deepened by further experiences" (ibid., p. 274). What has been experienced and understood through a work of art provides a new way of encountering formerly familiar objects and events which persists in ongoing activities and perceptions. For such a person, the work of art, through perceptual re-education, has made the world "a different place in which to live" (ibid., p. 272).

Where intellectual instruction and encouragements of interpretive generosity assume that hermeneutical failures are more an issue of gaps that need to be filled with the missing knowledge, art and aesthetic experiences can confront pre-existing distortions in common sense by *transforming* the old interpretive apparatus by way of presentation in a new manner. Attempts to fill hermeneutical gaps may encounter problems of overcoming resilient and unconscious interpretive structures, but the aesthetic presentation of old and familiar objects in a new and unfamiliar form can be powerful, political, and transformative. It can bring to conscious awareness the meanings that structure our perceptions, thoughts, and behaviors, by drawing them out in concentrated form. While clarifying and bringing to conscious awareness the resilient assumptions which structure our interpretations of events and others' accounts ,"of which we have least awareness" (ibid., p. 253), art can simultaneously challenge and transform them in the context of an aesthetic expression.

6.5 Can We Trust Art to Rework Shared Meanings?

The advantages of artistic approaches to reorienting and reworking the notions of common sense have been largely characterized, in this chapter and the last, as the circumvention of

cognitive reasoning. Psychological and philosophical studies have suggested that knowledge which may prove uncomfortable is avoided rather than actively sought, instruction in social and political theory triggers defensive responses, and contradicting evidence is made to fit pre-existing interpretive frameworks. All these facts indicate significant limitation in the efficacy of cognitive methods to overcome problems requiring a reorientation of widely held interpretive apparatus. However, the aesthetic methods whose employment has been suggested instead may have drawbacks of their own, which may prove significant enough to outweigh their advantages.

One such drawback is the absence of considerations of *justification*. The invitation in aesthetic experiences to entertain new perspectives, structured by new interpretive frameworks, is "far more efficacious than the change effected by reasoning, because it enters directly into attitude" (Dewey, 1985b, p. 337). The very efficacy of the experiences evoked and created in art is in the absence of a phase dominated by cognition, during which the individual is invited or required to evaluate the extent to which they accept the presentation of the world, its values, and its meanings as reasonable or justified. The values and meanings expressed in artworks can be entertained without the filter of cognitive evaluation. The evaluation might occur subsequently, but it is not embedded in the aesthetic experience itself. The same aesthetic effects of overcoming people's avoidance of uncomfortable information, defensive reactions to moral and political instruction, and inability to see the world outside of their pre-existing interpretive frameworks, which act as benefits in the context of educating people in democratic, inclusive hermeneutical perspectives, can be the very effects that make people vulnerable to manipulation. The efficacy gained by aesthetic experiences in facilitating hermeneutical inclusion might not necessarily overcome the risk of exposing people to aesthetic communications of manipulative and unethical interpretations of the world.

One example of manipulative practices that use aesthetic techniques is propaganda. Two general forms of propaganda can be identified: those which seek to sustain existing dominant values, and those which seek to introduce and encourage new and harmful political outlooks.

An example of the former kind of propaganda is the aestheticism of the Catholic Church (during its period of domination over European politics). Dewey develops this example to illustrate the power of aesthetics to influence ordinary people into attitudes and beliefs:

> The historian of intellectual life will emphasize the dogmas of the Church; the historian of political institutions, the development of law and authority by means of the ecclesiastic institution. But the influence that counted in the daily life of the mass of the people and that gave them a sense of unity was constituted, it is safe to surmise, by sacraments, by song and pictures, by rite and ceremony, all having an esthetic strand, more than by any other one thing. Sculpture, painting, music, letters were found in the place where worship was performed... [B]ecause of the esthetic strand, religious teachings were the more readily conveyed and their effect was the more lasting. By the art in them, they were changed from doctrines into living experiences. (Dewey, 1985b, p. 332)

The spread and maintenance of religious values across the European population was successful, in large part, due to the interweaving of aesthetic experiences into its practices. It certainly is a component of a dominant scientistic (and even scientific) narrative that science had to struggle to overcome the blind faith and dogmas of the Church using reason and rationality. If such blind faith and dogmas were sustained by aesthetic techniques "more than by any other one thing," this counts against aesthetics as a method of rendering common sense more democratic. This points to Dewey's failure in discussing art and aesthetics to distinguish between two distinct functions of aesthetics and their corresponding influences on the moral directions of society: the 'liberating' and the 'uniting' (ibid., p. 351). As well as liberating people's perspectives by encouraging novelty, transformation, and the sympathetic understanding of diverse perspectives, aesthetics has the power "to merge different individualities in a common surrender, loyalty and inspiration, a power utilized in religion and in warfare alike" (ibid., p. 338). Art can inspire loyalty to a single vision, resulting in dogmatism and even, as suggested here, participation in and endorsement of violence. As

we've seen over the last three chapters, art can conduct "a criticism of life... through imaginative vision addressed to imaginative experience (not to set judgment)" (Dewey, 1985b, p. 349). It can take our existing interpretive meanings and values, and transform them by presenting familiar objects of experience in the absence of their usual associations, suggesting "possibilities that contrast with actual conditions" (ibid., p. 349). But it also has the power to enforce existing values, and consolidate the authority of dominant narratives. A poetic or novelistic criticism of current forms of social, moral, or political life by the presentation of new imaginative possibilities is a very different phenomenon than the retention of Catholic values, through daily aesthetic influence on a population's immediately felt experience via stories, sculptures, and paintings of the torment of hell and the suffering of Christ, which inspire emotions of fear and guilt. On the one hand, we have the use of aesthetic experience to open up new possibilities of vision; on the other, we have the use of aesthetic experience to continuously reinforce a dominant ideology.

However, even art's so-called 'liberating function' can be manipulated in the service of propaganda. Walter Benjamin, in his seminal essay, *The Work of Art in the Age of Mechanical Reproduction*, discusses the political uses of aesthetics by early twentieth-century Fascist movements. According to Benjamin, "[t]he manner in which human sense perception is organized... is determined not only by nature but by historical circumstances as well," with social-structural changes bringing about new modes of perception (Benjamin, 1969, p. 5). An enormous transformation in modes of perception had taken place in the decades leading up to 1935, the time at which Benjamin was writing the essay, as a result of "decay of the aura" of the objects of experience. The large-scale and rapid expansion of technological possibilities for the mass reproduction of goods, images, and texts, had replaced the predominant perceptual awareness of, and responsiveness to, the unique spatio-physical existence of objects of admiration and value with an acceptance of the object's "likeness," by way of its reproduction, as the predominant or significant feature of an object. As of the late nineteenth century, for example, an 'experience' of the architecture, arts, and fauna of

exotic places had become widely available to the masses by way of constructed replications in expositions such as the Trocadero in Paris; and department stores rendered rare luxury items available by way of cheaply and locally produced replicas (Williams, 1982). According to Benjamin, this had produced in 'the masses' a "bent toward overcoming the uniqueness of every reality by accepting its reproduction" (Benjamin, 1969, p. 5).

These kinds of changes in modes of perception brought with them new aesthetic desires, and new ways in which aesthetic desires could be satisfied. The loss of the uniqueness of objects had brought about a transformation in the population's aesthetics, one in which the 'aura' had become replaced with a desire for technological rapidity, efficiency, enormity, and reduction to sameness and replication. Benjamin argued that Fascism "expects war to supply the artistic gratification of a sense perception that has been changed by technology" (ibid., p. 20). In this way, art's 'liberative' capacity to usher in new forms of perception could be employed in service of propagandist manipulation, the most infamous example perhaps being the 1935 Nazi propaganda film, *Triumph of the Will (Triumph des Willens)*, which utilized aesthetic cinematic images of national-ethnic unity and military might to inspire loyalty and awe for the newly-emerging power of the Third Reich. Through the introduction of aesthetics into their politics with films like *Triumph of the Will* and aesthetic movements like Futurism, Fascists appealed to a transformed and as yet unsated aesthetic—one which desired vistas of mass gatherings, industrialized urban landscapes, highly organized military formations, images of modern technology, and dynamic evocations of speed, change, and progress—to reorient the perceptual sensibilities of their populations in favor of a new, Fascist attitude.

Both Dewey and Benjamin agree upon the important role of aesthetics in structuring human and societal directions. But with an understanding of the embedded moral potency of aesthetic experience comes an appreciation of the inherent political potentialities of art. In a way that Dewey does not make explicit, Benjamin recognizes that art and aesthetics can be used as a tool in ideological struggles, between progressive and conservative, Communist and Fascist. The suitability of art and aesthetics for promoting oppressive politics—whether

novel or reactionary—would suggest that art and aesthetics ought to be avoided in favor of cognitive processes in which competing perspectives can be deconstructed and evaluated using logic and reason. However, there are reasons to resist this conclusion.

Firstly, art and aesthetics are a necessary part of moral life. "Just as physical life cannot exist without the support of a physical environment, so moral life cannot go on without the support of a moral environment" (Dewey, 1985b, p. 347). Shared artistic activities and objects are a necessary condition for collective moral values. They provide the "moral environment" that sustains moral life. Just as alterations to the physical environment, such as railroads, roads, subway lines, and airports, will determine the directions in which we can conveniently and efficiently travel, art will "shape collective occupations,... determine directions of interest and attention, and hence affect desire and purpose" (ibid., p. 347). In the same way art and aesthetics can be manipulated for regressive or undemocratic political purposes, we can see the directive power of technology being exercised and exploited for political ends. The roads urban planner Robert Moses designed leading from New York City into Long Island precluded anyone but car-owners from visiting, by structurally limiting the possibility of subway expansion from New York City, and by constructing low bridges that prevented public transportation buses from traveling on the roads. This technological manipulation effectively barred poor communities from entering or settling in Long Island, and helped to produce the wealthy white suburbs still in existence today. The appropriate response to such politically undesirable uses of technology is surely not to abandon the use of technology—this would most likely be disastrous, given the necessity of technological modifications in facilitating human life. The more sensible response would be to remain aware of the politics involved in decisions surrounding the use of technology, and to demand the allocation of technological resources to more progressive ends. Similarly, we should be aware of the political potential of art and seek to foster a diverse, democratic artistic environment which makes propagandist exploitation of art less likely to succeed.

In this vein, the second and related reason to resist the abandonment of aesthetics in

influencing people's perspectives is that, while "[t]he social effect of the novels of Dickens or of Sinclair Lewis is far from negligible. . . a less conscious and more massed constant adjustment of experience proceeds from the total environment that is created by the collective art of a time" (Dewey, 1985b, p. 247). This suggests that individual works of art or propaganda are not so much of a concern as the cultural environment of a society as a whole. While art can reinforce values that are regressive, oppressive, or cruel, problems are more likely to arise in the context of an artistic culture that does not have a wealth of artistic resources from which to draw perspectives. Benjamin claimed that the way Fascism was able to manipulate the masses was through the satisfaction of a new and *yet unsatisfied* aesthetic. But by no means did the aesthetic have to be satisfied through aestheticized warfare, ethnic unity, and totalitarianism. "The moral and human function of art can be intelligently discussed only in the context of culture," (ibid., p. 347) and so the *collective* artistic culture, more than any *particular* work of propaganda, is a necessary component in rendering individuals vulnerable to propagandist manipulation. While intentional manipulation of a population through aesthetic means cannot be comprehensively eradicated, such manipulation techniques will arguably be more successful if a population is left with an aesthetic void. Humans find simplistic narratives attractive, especially when they promise to answer or give expression to widely felt but poorly understood dissatisfactions in people's lives.

The kind of artistic environment I am recommending would consist in a proliferation of pluralistic perspectives and interpretations of our social, physical, moral, and spiritual world, made possible through well-funded, diverse, and accessible artistic education and cultural events. Such a saturation of the cultural-moral environment may actively *prevent* the moral manipulation of a population, far more than it would encourage it. A democratic artistic culture which seeks to transform hermeneutical resources to render them more inclusive would produce a wider range of expressions of experience, providing people with a collection of perspectives and interpretations to explore. This would fill aesthetic voids—the very thing that makes people susceptible to propaganda—and it would raise people's awareness that

the universe of human experience is not simplistic or unifocal, making the selection of manipulative interpretations less attractive or plausible. It would help absorb the values that are important to a range of subgroups into wider social values, and thereby help prevent the frustration that turns people towards simplistic narratives and makes them vulnerable to propaganda. Simply put, aesthetic *voids* leave populations vulnerable and frustrated; and greater aesthetic opportunities and resources can counteract this. Instead of *avoiding* art and aesthetics as a means of moral-hermeneutical transformation so as to protect ourselves from manipulative propaganda, we should *immunize* ourselves against simplistic propagandist narratives by saturating our artistic-cultural environment with diverse, accessible, and democratic art.

*

Common sense is a basic human faculty and a body of widely accepted truths that together structure our interactions and collective engagements with the world. It is a necessary and often useful resource. An unfortunate fact about resources at the disposal of humanity is that they are not always structured simply for the better management of our affairs, but can become instruments for the the inadvertent reproduction of power and even the intentional manipulation of our social counterparts. When we consider how to correct the flaws of common sense, it has been generally understood that the cultivation of a hermeneutic virtue through philosophical or otherwise cognitive instruction is the best method. Due to prevalent assumptions (themselves errors of common sense) surrounding the appropriate domains and uses of aesthetics and other non-cognitive modes of engagement with the world, art has been overlooked as a potential instrument of common sense instruction. Dewey's aesthetic theory provides a framework in which we can interpret art as a powerful technology for the redirection of collective meanings, values, and associated behaviors and institutions in such a way as to make them more inclusive and democratic, one which holds several significant advantages to exclusively cognitive methods.

CONCLUSION

The problem of scientism has most often been characterized as a problem concerning knowledge—What disciplines are deserving of the name 'knowledge'? What kinds of methods (observation, interpretation, measurement, introspection, logic, imagination,...) are capable of producing knowledge? In the introduction, I recast scientism as a view on knowledge which is dependent on a particular view of experience, nature, and the relationship between the two. Scientism depends on a view of nature as set apart from experience, an ontologically distinct realm whose qualities are independent of humanity. It depends on a corresponding view of experience as outside natural events, whose capacity to grasp nature is about equivalent to its tendency to distort it. This view of experience and nature brings with it the characteristically scientistic view of knowledge as an attempt to parse the reality of the world from the illusions of experience and compose a transcript of nature's true likeness, which can only be achieved through methods which exorcise the human from its representations.

Once we understand experience as continuous with nature—as a way in which nature manifests—we no longer have to separate the qualities of experience into the real and the illusory. The experiencing being is a part of nature, which lives, grows, explores, and enjoys by means of transactions with its surrounding environment. Science and other forms of inquiry can then be understood as activities undertaken to assist in the process of living, as ways to organize and categorize the qualities of nature that manifest in our experience, which enable us to establish expectations and intelligently direct our actions towards our desired ends. This was the view presented in the first half of this work. Popular narratives of science as a body of knowledge presenting an objective view of nature's real qualities, without the distorting effects of human subjectivity, were challenged, along with narratives of scientific methods as means of acquiring such an objective view of reality. Rather than denigrating science's worth, though, these chapters sought to place science as a crucial and sophisticated component of any attempt to successfully navigate and control the environment's qualities in such a way as to secure and enrich human life.

In this view of nature and experience, knowledge and other cognitive processes and activities are a functional component of the complex experience of a living creature. A natural response to scientism is to point out the legitimacy and functional value of alternative forms and subject-matters of cognitive activity, such as interpretive humanities and social sciences which can restructure elements of our social, moral, ethical, aesthetic, and conceptual environments and facilitate successful and progressive living. But a response to scientism which involves framing knowledge as one functional component in broader experiential life also raises questions about what lies outside cognition, what other states and qualities form components of a living experiential creature, and what other processes and activities are parts of a transactive navigation of that environment. If not all experience is knowing, then what can be said of the states of, for example, feeling, wanting, or admiring? The latter half of this work has hopefully gone some way towards convincing the reader that these complex extra-cognitive activities have valuable and unique functions (just as do cognitive processes) in sustaining and expanding human life. Literature and art, which evoke and manipulate states of emotional, imaginative, and aesthetic experience, were shown to have powerful and indispensable capacities to inform human life. Art and aesthetic experience were presented as central to processes of overcoming emotional or moral concerns, reinterpreting the categories of experience, understanding diversely located social counterparts, recognizing one's own prejudices, and other undeniably important processes in navigating lived human environments.

My hope is that pragmatism and its accompanying humanism can lead scholars, scientists, and artists to set aside claims to what is 'real' and instead position contributions to human flourishing and progress in experienced problems as the highest measures of the worth of a practice, product, or process.

BIBLIOGRAPHY

Argyle, M. (1969). *Social Interaction*. London: Methuen.

Atran, Scott (2002). *In Gods We Trust. The Evolutionary Landscape of Religion*. New York, NY: Oxford University Press.

Ayer, A. J. (1952). *Language, truth, and logic.* New York, New York: Dover Publications.

Bacon, Francis (1861b). *The Philosophical Works of Francis Bacon*. Ed. by James Spedding. Vol. II. London, UK: Longman and Co.

— (1861a). *The Philosophical Works of Francis Bacon*. Ed. by James Spedding. Vol. IV. London, UK: Longman and Co.

Bannister, Robert C. (1987). "Scientism and American Sociology". In: *Ten Years of American Studies: the Helsinki Experience*. Ed. by Markku Henriksson. Helsinki, Finland: Suomen Historiallinen Seura.

— (1997). *Sociology and Scientism. The American Quest for Objectivity, 1880-1940*. Chapel Hill, North Carolina: University of North Carolina Press.

Bate, Walter Jackson (1963). *John Keats*. Cambridge, Massachusetts: Harvard University Press.

Benjamin, Walter (1969). "The Work of Art in the Age of Mechanical Reproduction". In: *Illuminations*. Ed. by Hannah Arendt. Trans. by Harry Zohn. Schocken Books.

Bernstein, Richard J. (1966). *John Dewey*. New York, NY: Washington Square Press.

Bois, W. E. B. Du (2007). *The Souls of Black Folk*. Oxford, UK: Oxford University Press.

Boudry, Martin and Massimo Pigliucci (2017). *The Trouble with Scientism: Why History and the Humanities Are Also a Form of Knowledge*. Chicago, Illinois: University of Chicago Press.

Bowker, Geoffrey C. and Susan Leigh Star (1999). *Sorting Things Out. Classification and Its Consequences*. Cambridge, Massachusetts: MIT Press.

Bridgman, P. W. (1947). "Scientists and Social Responsibility". In: *The Scientific Monthly* 65 (1), pp. 148–154.

Brown, Matthew J. (2012). "John Dewey's Logic of Science". In: *HOPOS: The Journal of the International Society for the History of Philosophy of Science* 2.2, pp. 258–306.

Brown, R. W. (1958). *Words and Things*. Glencoe, IL: Free Press.

Buhler, Karl (1990). *The Theory of Language: The Representational Function of Language (Sprachtheorie)*. Trans. by Donald Fraser Goodwin. Amsterdam: John Benjamin's Publishing Company.

Byatt, A. S. (2006). "Observe the Neurones". In: *Times Literary Supplement* September 22.

Canales, Jimena (2015). *The Physicist and the Philosopher. Einstein, Bergson, and the Debate That Changed Our Understanding of Time*. Princeton, New Jersey: Princeton University Press.

Carnap, Rudolf (1959). "The Elimination of Metaphysics Through Logical Analysis of Language". In: *Logical Positivism*. Ed. by A. J. Ayer. Trans. by Arthur Pap. New York: The Free Press.

— (1962). *Logical Foundations of Probability*. Chicago, Illinois: University of Chicago Press.

— (1969). *The Logical Structure of the World. Pseudoproblems in Philosophy*. Trans. by Rolf A. George. Berkeley and Los Angeles: University of California Press.

Carter, Rita (1998). *Mapping the Mind*. Berkeley, California: University of California Press.

Ceci, Stephen J. and Wendy M. Williams (2009). "Should scientists study race and IQ? YES: The scientific truth must be pursued". In: *Nature* 457, pp. 788–789.

Chatterjee, A. (2013). *The Aesthetic Brain: How We Evolved to Desire Beauty and Enjoy Art*. New York, New York: Oxford University Press.

Choudhury, Suparna, Saskia Kathi Nagel, and Jan Slaby (2009). "Critical Neuroscience: Linking Neuroscience and Society through Critical Practice". In: *Biosocieties* 61.1, pp. 66–77.

Churchland, Patricia S. (2016). *Neurophilosophy. Toward a Unified Science of the Mind-Brain*. Cambridge, Massachusetts: MIT Press.

Churchman, C. West (1956). "Science and Decision Making". In: *Philosophy of Science* 23.3, pp. 247–49.

Comte, Auguste (1853). "The Positive Philosophy of Auguste Comte". In: trans. by Harriet Martineau. Vol. I. London, UK: D. Appleton and Co.

Crehan, Kate A. F. (2016). *Gramsci's Common Sense. Inequality and its Narratives*. Durham: Duke University Press.

Dantec, Felix Le (1912). *Contre la métaphysique. questions de méthode*. Paris, France: F. Alcan.

Dar-Nimrod, Ilan and Steven J. Heine (2006). "Exposure to Scientific Theories Affects Women's Math Performance". In: *Science* 314.5798, p. 535.

Daston, Lorraine and Peter Galison (1992). "The Image of Objectivity". In: *Representations* 40, pp. 81–128.

Dawkins, Richard (1976). *The Selfish Gene*. Oxford, UK: Oxford University Press.

Dear, Peter (2005). "What Is the History of Science the History Of?: Early Modern Roots of the Ideology of Modern Science". In: *Isis* 96.3, pp. 390–406.

Dewey, John (1972). *The Middle Works of John Dewey, 1899–1924. 1916-1917, Essays*. Ed. by Jo Ann Boydston. Vol. 10. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985a). *The Later Works of John Dewey, 1925–1953. 1925, Experience and Nature*. Ed. by Jo Ann Boydston. Vol. 1. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985g). *The Later Works of John Dewey, 1925–1953. 1929-1930, Essays, The Sources of a Science Education, Individualism, Old and New, and Construction and Criticism*. Ed. by Jo Ann Boydston. Vol. 5. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

Dewey, John (1985h). *The Later Works of John Dewey, 1925–1953. 1933-1934, Essays, A Common Faith*. Ed. by Jo Ann Boydston. Vol. 9. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985b). *The Later Works of John Dewey, 1925–1953. 1934, Art as Experience*. Ed. by Jo Ann Boydston. Vol. 10. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985d). *The Later Works of John Dewey, 1925–1953. 1938, Logic: The Theory of Inquiry*. Ed. by Jo Ann Boydston. Vol. 12. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985c). *The Later Works of John Dewey, 1925–1953. 1938-1939, Essays, Experience and Education, Freedom and Culture, and Theory of Valuation*. Ed. by Jo Ann Boydston. Vol. 13. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985f). *The Later Works of John Dewey, 1925–1953. 1939-1941, Essays*. Ed. by Jo Ann Boydston. Vol. 14. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985i). *The Later Works of John Dewey, 1925–1953. 1942–1948, Essays*. Ed. by Jo Ann Boydston. Vol. 15. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

— (1985e). *The Later Works of John Dewey, 1925–1953. 1949–1952, Essays, Knowing and the Known*. Ed. by Jo Ann Boydston. Vol. 16. Carbondale and Edwardsville, Illinois: Southern Illinois University Press.

Diamond, Cora (1983). "Having a Rough Story About What Moral Philosophy Is". In: *New Literary History* 15.1, pp. 155–169.

DiAngelo, Robin (2020). *White Fragility. Why It's So Hard for White People to Talk About Racism*. Boston, Massachusetts: Beacon Press.

Dombrowski, André (2020). "Impressionism and the Standardization of Time: Claude Monet at Gare Saint-Lazare". In: *The Art Bulletin* 102.2, pp. 91–120.

Douglas, Heather (2009). *Science, Policy, and the Value-Free Ideal*. Pittsburgh, Pennsylvania: University of Pittsburgh Press.

Edman, Irwin (1950). "Dewey and Art". In: *John Dewey: Philosopher of Science and Freedom*. Ed. by Sidney Hook. New York, New York: The Dial Press, pp. 47–65.

Emerson, Ralph Waldo (1899). *Essays*. London, UK: Arthur L. Humphreys.

Farah, Martha J. (2012). "Neuroethics: The Ethical, Legal, and Societal Impact of Neuroscience". In: *Annual Review of Psychology* 63, pp. 571–91.

Fricker, Miranda (2007). *Epistemic Injustice. Power and the Ethics of Knowing*. New York, NY: Oxford University Press.

Gendlin, Eugene (1997). *Experience and the Creation of Meaning. A Philosophical and Psychological Approach to the Subjective*. Evanston, Illinois: Northwestern University Press.

Gibson, David R. (2003). "Participation Shifts: Order and Differentiation in Group Conversation". In: *Social Forces* 81.4, pp. 1335–1380.

Goffman, Erving (1981). *Forms of Talk*. Pennsylvania: University of Pennsylvania Press.

Goodwin, Charles (1994). "Professional Vision". In: *American Anthropologist* 96.3, pp. 606–633.

Gould, Stephen Jay (1996). *The Mismeasure of Man*. New York, New York: W. W. Norton & Company.

Gramsci, Antonio (1972). *Selections from the Prison Notebooks of Antonio Gramsci*. Ed. by Quintin Hoare and Geoffrey Nowell-Smith. New York, New York: International Publishers.

— (1975). *Prison Notebooks*. Ed. by Joseph A. Buttigieg. Vol. III. New York, New York: Columbia University Press.

— (1985). *Selections from Cultural Writings*. Ed. by David Forgacs and Geoffrey Nowell-Smith. Trans. by William Boelhower. Cambridge, Massachusetts: Harvard University Press.

Greene, Joshua (2003). "From neural 'is' to moral 'ought': what are the moral implications of neuroscientific moral psychology?" In: *Nature Reviews Neuroscience* 4, pp. 846–850.

— (2005). "Cognitive Neuroscience and the Structure of the Moral Mind". In: *The Innate Mind: Structure and Contents*. Ed. by Peter Carruthers Stephen Laurence and Stephen Stich. Oxford, UK: Oxford University Press, pp. 338–52.

Gross, Paul R. and Norman Levitt (1994). *Higher Superstition. The Academic Left and its Quarerels with Science*. Baltimore, Maryland: Johns Hopkins University Press.

Haack, Susan (2009). "Six Signs of Scientism". In: *Skeptical Inquirer* 37.6.

Harrison, Peter, Ronald L. Numbers, and Michael L. Shank (2011). *Wrestling with Nature. From Omens to Science*. Chicago, Illinois: University of Chicago Press.

Hayek, F. A. (1952). *The Counter-Revolution of Science. Studies on the Abuse of Reason*. Glencoe, Illinois: The Free Press.

Heritage, John and Geoffrey Raymond (2005). "The Terms of Agreement: Indexing Epistemic Authority and Subordination in Talk-in-Interaction". In: *Social Psychology Quarterly* 68.1, pp. 15–38.

Huxley, Thomas Henry (1888). *Science and Culture, and Other Essays*. London, UK: Macmillan and Co.

Hyslop-Margison, Emery J. and M. Ayaz Naseem (2007). *Scientism and Education. Empirical Research as Neo-Liberal Ideology*. Springer.

Jakobson, Roman (1960). "Closing Statement: Linguistics and Poetics". In: *Style in Language*. Ed. by Thomas Albert Sebeok. Boston, MA: Massachusetts Institute of Technology.

James, William (1975). *The Meaning of Truth. A Sequel to 'Pragmatism'*. Cambridge, Massachusetts: Harvard University Press.

— (1979). *Pragmatism*. Cambridge, Massachusetts: Harvard University Press.

Jeffrey, R. C. (1956). "Valuation and Acceptance of Scientific Hypotheses". In: *Philosophy of Science* 22.3, pp. 237–46.

Kevles, Daniel J. (1987). *The Physicists. The History of a Scientific Community in Modern America*. Cambridge, Massachusetts: Harvard University Press.

Kitcher, Philip (2001). *Science, Truth, and Democracy*. Oxford, UK: Oxford University Press.

— (2011). *Science in a Democratic Society*. Amherst, NY: Prometheus Books.

— (2012). "Seeing Is Unbelieving". In: *The New York Times* March 23.

— (2013). *Deaths in Venice. The Cases of Gustav von Aschenbach*. New York, NY: Columbia University Press.

— (2017). "The Trouble with Scientism: Why History and the Humanities Are Also a Form of Knowledge". In: *Science Unlimited? The Challenges of Scientism*. Ed. by Maarten Boudry and Massimo Pigliucci. University of Chicago Press. Chap. 6.

Kourany, Janet A. (2016). "Should Some Knowledge Be Forbidden? The Case of Cognitive Differences Research". In: *Philosophy of Science* 83.5, pp. 779–790.

Kuhn, Thomas S. (1977). *The Essential Tension. Selected Studies in Scientific Tradition and Change*. Chicago, Illinois: University of Chicago Press.

— (2012). *The Structure of Scientific Revolutions. 50th Anniversary Edition*. Chicago, Illinois: University of Chicago Press.

Lacey, Hugh (1999). *Is Science Value Free? Values and Scientific Understanding*. London, UK: Routledge.

Laudan, Larry (1984). *Science and Values. The Aims of Science and Their Role in Scientific Debate*. Berkeley, California: University of California Press.

Levi, Isaac (1960). "Must the Scientist Make Value Judgments?" In: *Journal of Philosophy* 57.11, pp. 345–57.

Levinson, Stephen C. (2005). "Deixis". In: *Handbook of Pragmatics*. Ed. by Laurence R. Horn and Gregory Ward. Blackwell Publishing.

Lewontin, Richard C. (1996). "A la recherche du temps perdu: A Review Essay". In: *Science Wars*. Ed. by Andrew Ross. Durham, North Carolina: Duke University Press.

Linton, Simi (1998). *Claiming Disability. Knowledge and Identity*. New York, New York: New York University Press.

Locke, John (1690). *An Essay Concerning Human Understanding*. London, UK: Elizabeth Holt, Thomas Basset.

Longino, Helen E. (1987). "Can There Be A Feminist Science?" In: *Hypatia* 2.3, pp. 51–64.

— (1990). *Science as Social Knowledge. Values and Objectivity in Scientific Inquiry*. Princeton, New Jersey: Princeton University Press.

— (1996). "Cognitive and Non-Cognitive Values in Science: Rethinking the Dichotomy". In: *Feminism, Science, and the Philosophy of Science*. Ed. by Lynn Hankinson Nelson and Jack Nelson. Vol. 256. Studies in Epistemology, Logic, Methodology, and Philosophy of Science. Kluwer Academic Publishers.

Lyons, John (1977). *Semantics*. Cambridge, UK: Cambridge University Press.

Machamer, Peter and Heather Douglas (1998). "How Values are in Science". In: *Critical Quarterly* 40, pp. 29–43.

Martin, John Levi (2011). *The Explanation of Social Action*. New York, New York: Oxford University Press.

Martineau, Harriet (1853). "Preface". In: *The Positive Philosophy of Auguste Comte*. Trans. by Harriet Martineau. Vol. I. London, UK: D. Appleton and Co.

Matoesian, Gregory (2005). "Nailing down an answer: participations of power in trial talk". In: *Discourse Studies* 7.6, pp. 733–759.

McMahon, Peter and James Evans (2018). "Ambiguity and Engagement". In: *American Journal of Sociology* 124.3, pp. 860–912.

McMullin, Ernan (1982). "Values in Science". In: *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association* 2, pp. 3–28.

Medina, José (2013). *Epistemology of Resistance. Gender and Racial Oppression, Epistemic Injustice, and Resistant Imaginations*. New York, New York: Oxford University Press.

Mendelson, Edward (2006). *The Things That Matter. What Seven Classic Novels Have To Say About The Stages Of Life*. New York, New York: Pantheon Books.

Mill, John Stuart (1907). *Auguste Comte and Positivism*. The English and Foreign Philosophical Library. London, UK: Kegan Paul, Trench, Trubner and Co.

Mills, Charles W. (1997). *The Racial Contract*. Ithaca, New York: Cornell University Press.

— (2017). *Black Rights/White Wrongs. The Critique of Racial Liberalism*. Transgressing Boundaries: Studies in Black Politics and Black Communities. New York, New York: Oxford University Press.

Murdoch, Iris and R. W. Hepburn (1956). "Symposium: Vision and Choice in Morality". In: *Proceedings of the Aristotelian Society* 30, pp. 14–58.

Neurath, Otto (1983). "Physicalism: The Philosophy of the Vienna Circle". In: *Philosophical Papers 1913-1946*. Ed. by Rolf S. Cohen and Marie Neurath. Dordrecht: Reidel.

— (1987). "Unified Science and Psychology". In: *Unified Science: The Vienna Circle Monograph Series originally edited by Otto Neurath, now in an English edition*. Ed. by Brian McGuinness. Trans. by Hans Kaal. Vol. 19. Vienna Circle Collection. Boston: Kluwer.

Nussbaum, Martha (1990). *Love's Knowledge. Essays on Philosophy and Literature*. Oxford, UK: Oxford University Press.

— (2001). *The Fragility of Goodness. Luck and Ethics in Greek Tragedy and Philosophy*. Cambridge, UK: Cambridge University Press.

Olson, Richard G. (2008). *Science and Scientism in Nineteenth-Century Europe*. Urbana and Chicago, Illinois: University of Illinois Press.

Ortega, Francisco and Fernando Vidal (2006). *Neurocultures. Glimpses into an Expanding Universe*. UFrankfurt am Main: Peter Lang.

Peels, Rik (2018). "A Conceptual Map of Scientism". In: *Scientism: Prospects and Problems*. Ed. by Jeroen de Ridder, Rik Peels, and Rene van Woudenberg. Oxford, UK: Oxford University Press.

Peterson, Gregory R. (2003). "Demarcation and the Scientistic Fallacy". In: *Zygon* 31.4, pp. 751–61.

Pickersgill, Martyn (2013). "The social life of the brain: Neuroscience in society". In: *Current Sociology* 61.3, pp. 322–340.

Pinker, Steven (2013). "Science Is Not Your Enemy". In: *The New Republic* August 6.

Poirier, Richard (1992). *Poetry and Pragmatism*. Cambridge, Massachusetts: Harvard University Press.

Proctor, Robert N. (1991). *Value-Free Science? Purity and Power in Modern Knowledge*. Cambridge, Massachusetts: Harvard University Press.

Quine, Willard Van Orman (1969). *Ontological Relativity and Other Essays*. New York, New York: Columbia University Press.

Racine, Eric and Zoe Costa von Aesch (2006). "Neuroscience's Impact on our Self-Identity: Perspectives from Ethics and Public Understanding". In: *Neurocultures: Glimpses into an Expanding Universe*. Ed. by Francisco Ortega and Fernando Vidal. Frankfurt am Main: Peter Lang.

Reichenbach, Hans (1938). *Experience and Prediction*. Chicago, Illinois: University of Chicago Press.

— (1949). "The Philosophical Significance of the Theory of Relativity". In: *Albert Einstein: Philosopher–Scientist*. Ed. by Paul Arthur Schilpp. La Salle, Illinois: Open Court, pp. 309–10.

Reichenbach, Hans and Léon Bloch (1922). "La signification philosophique de la théorie de la relativité". In: *Revue Philosophique de la France et de l'Étranger* 94, pp. 5–61.

Rooney, Phyllis (1992). "On Values in Science: Is the Epistemic/Non-Epistemic Distinction Useful?" In: *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association* Contributed Papers, pp. 13–22.

Rorty, Richard (1979). *Philosophy and the Mirror of Nature*. Princeton, NJ: Princeton University Press.

Rorty, Richard (1991). *Essays on Heidegger and Others. Philosophical Papers, Volume 2*. Cambridge, UK: Cambridge University Press.

Rose, Nikolas S. (2007). *The Politics of Life Itself. Biomedicine, Power, and Subjectivity in the Twenty-First Century*. Princeton, New Jersey: Princeton University Press.

Rosenberg, Alexander (2011). *The atheist's guide to reality. Enjoying life without illusions*. New York, New York: WW Norton & Company.

Rosenfeld, Sophia (2019). *Democracy and Truth. A Short History*. Philadelphia, Pennsylvania: University of Pennsylvania Press.

Ross, Andrew (1996). *Science Wars*. Durham, North Carolina: Duke University Press.

Ross, Don (2017). "Economics and Allegations of Scientism". In: *Science Unlimited? The Challenges of Scientism*. Ed. by Maarten Boudry and Massimo Pigliucci. University of Chicago Press. Chap. 12.

Rudner, Richard (1953). "The Scientist Qua Scientist Makes Value Judgments". In: *Philosophy of Science* 20.1, pp. 1–6.

Ruse, Michael (2017). "Why Really Good Science Doesn't Have All the Answers". In: *Science Unlimited? The Challenges of Scientism*. Ed. by Maarten Boudry and Massimo Pigliucci. University of Chicago Press. Chap. 13.

Russell, Bertrand (1939). "Dewey's New *Logic*". In: *The Philosophy of John Dewey*. Ed. by Paul Arthur Schilpp. Vol. 1. The Library of Living Philosophers. Menasha, Wisconsin: George Banta Publishing Company, pp. 135–156.

Saint-Simon, Henri de (1976). *The Political Thought of Saint-Simon*. Ed. by Ghita Ionescu. Oxford, UK: Oxford University Press.

Schivelbusch, Wolfgang (2014). *The Railway Journey. the Industrialization of Time and Space in the Nineteenth Century*. Berkeley, California: University of California Press.

Schottler, Peter (2013). "Scientisme: sur l'histoire d'un concept difficile". In: *Revue de synthese*. 6th ser. 134.1, pp. 89–113.

Scott, James C. (1990). *Domination and the Arts of Resistance. Hidden Transcripts*. New Haven, Connecticut: Yale University Press.

Sellars, Wilfrid (1997). *Empiricism and the Philosophy of Mind*. Cambridge, Massachusetts: Harvard University Press.

Shapin, Steven (1996). *The Scientific Revolution*. Chicago, Illinois: University of Chicago Press.

Shrader-Frechette, K. S. (1996). *Risk and rationality. philosophical foundations for populist reforms*. Berkeley, California: University of California Press.

Silverstein, Michael (1997). "The Improvisational Performance of Culture in Realtime Discursive Practice". In: *Creativity in Performance*. Ed. by R. Keith Sawyer. Ablex Publishing.

Sokal, Alan (1996). "A Physicist Experiments with Cultural Studies". In: *Lingua Franca* 6.4, pp. 62–64.

Sorell, Tom (1991). *Scientism. Philosophy and the Infatuation with Science*. London and New York: Routledge.

— (2017). "Scientism (and Other Problems) in Experimental Philosophy". In: *Science Unlimited? The Challenges of Scientism*. Ed. by Maarten Boudry and Massimo Pigliucci. University of Chicago Press. Chap. 14.

Spencer, Steven J., Claude M. Steele, and Diane M. Quinn (1999). "Stereotype Threat and Women's Math Performance". In: *Journal of Experimental Social Psychology* 35.1, pp. 4–28.

Steele, Claude M. (1997). "A threat in the air: How stereotypes shape intellectual identity and performance". In: *American Psychologist* 52.6, pp. 613–29.

Stenmark, Mikael (2001). *Scientism. Science, Ethics and Religion*. Hants, UK: Ashgate Publishing Limited.

Sue, Derald Wing (2010). *Microaggressions in Everyday Life: Race, Gender, and Sexual Orientation*. Hoboken, New Jersey: John Wiley and Sons, Inc.

Sullivan, Shannon (2006). *Revealing Whiteness. The Unconscious Habits of Racial Privilege*. Bloomington, Indiana: Indiana University Press.

Tallis, Raymond (2008). "The limitations of a neurological approach to art". In: *The Lancet* 372.9632, pp. 19–20.

Teller, Edward (1950). "Back to the Laboratories". In: *Bulletin of the Atomic Scientists* 6 (3), pp. 71–72.

Thornton, Dabi Johnson (2011). *Brain Culture. Neuroscience and Popular Media*. New Brunswick, New Jersey: Rutgers University Press.

Thurs, Daniel P. (2011). "Scientific Methods". In: *Wrestling with Nature*. Ed. by Ronald L. Numbers Peter Harrison and Michael L. Shank. Chicago, Illinois: University of Chicago Press.

Topaz, Chad M. et al. (2020). "Comparing demographics of signatories to public letters on diversity in the mathematical sciences". In: *PLoS ONE* 15.4.

Trivers, R. L. (1971). "The Evolution of Reciprocal Altruism". In: *Quarterly Review of Biology* 46, pp. 35–57.

Vidal, Fernando (2009). "Brainhood, anthropological figure of modernity". In: *History of the Human Sciences* 22.1, pp. 5–36.

Von Mises, Richard (1951). *Positivism: a study in human understanding*. Cambridge, Massachusetts: Harvard University Press.

Vrecko, Scott (2006). "Folk Neurology and the Remaking of Identity". In: *Molecular Interventions* 6.6, pp. 300–03.

Wellmuth, John (1991). *The nature and origins of scientism*. The Acquinas Lecture. Milwaukee, Wisconsin: Marquette University Press.

Whewell, William (1834). "Review of 'On the Connexion of the Physical Sciences'". In: *The Quarterly Review* 51, pp. 54–68.

Whitehead, Alfred North (1948). *Science and the Modern World*. Lowell Lectures 1925. New York, New York: Macmillan.

Wieseltier, Leon (2013). "Crimes Against Humanities". In: *The New Republic* September 3.

Williams, Daniel (2020). "Motivated ignorance, rationality, and democratic politics". In: *Synthese*. URL: https://doi.org/10.1007/s11229-020-02549-8.

Williams, Rosalind H. (1982). *Dream Worlds. Mass Consumption in Late Nineteenth-Century France*. Berkeley, California: University of California Press.

Wilson, Edward O. (1976). "Dialogue. The Response: Academic Vigilantism and the Political Significance of Sociobiology". In: *BioScience* 26.3, pp. 183,187–90.

— (1998). *Consilience. The Unity of Knowledge*. New York, New York: Alfred A. Knopf.

— (2000). *Sociobiology. The New Synthesis*. Cambridge, Massachusetts: Harvard University Press.

Wolpert, Lewis (1993). *The Unnatural Nature of Science*. Cambridge, Massachusetts: Harvard University Press.

Woomer, Lauren (2019). "Agential insensitivity and socially supported ignorance". In: *Synthese* 16.1, pp. 73–91.

Young, Allan (2012). "The Social Brain and the Myth of Empathy". In: *Science In Context* 25.3, pp. 401–424.

Zeki, Semir (1999). "Art and the brain". In: *Journal of Consciousness Studies* 6, pp. 6–7.

— (2008). *Splendors and Miseries of the Brain. Love, Creativity, and the Quest for Human Happiness*. Oxford, UK: Blackwell.

Zola, Émile (1923). *Le Roman Expérimental*. Paris, France: E. Fasquelle.