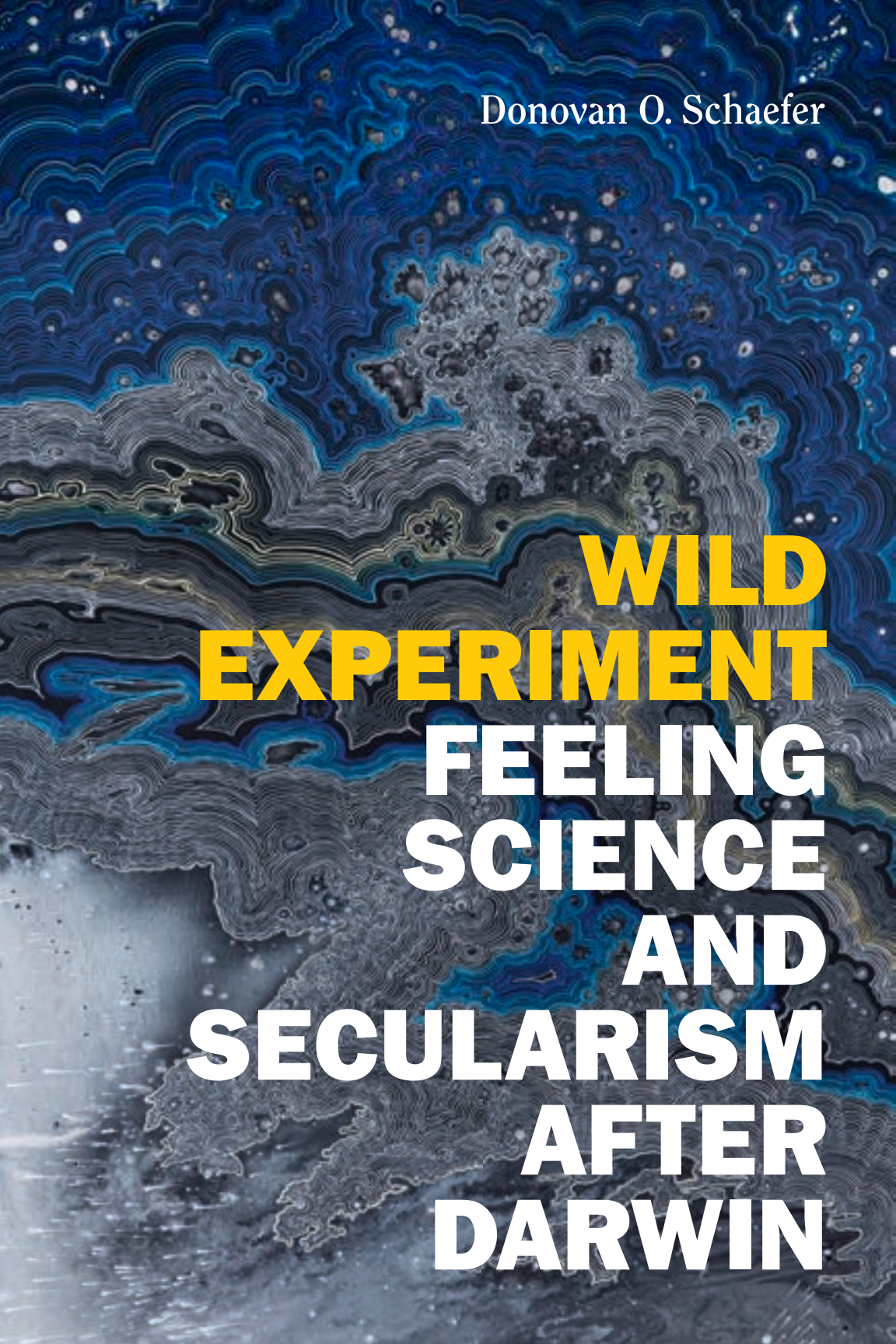
Donovan O. Schaefer
WILD EXPERIMENT
FEELING SCIENCE AND SECULARISM AFTER DARWIN

Wild Experiment

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# WILD EXPERIMENT

## FEELING SCIENCE AND SECULARISM AFTER DARWIN

Donovan O. Schaefer

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For Allison

Our passions do not live apart in locked chambers, but, dressed in their small wardrobe of notions, bring their provisions to a common table and mess together, feeding out of the common store according to their appetite.

—George Eliot, *Middlemarch*

How far is truth susceptible of embodiment?—that is the question, that is the experiment.

—Friedrich Nietzsche, *The Joyful Wisdom*

# Contents

INTRODUCTION

# COGENCY THEORY AN ESSAY ON OUR INTELLECTUAL AFFECTS

### Thinking Feeling

In the early spring of 1863, Charles Darwin wrote to a botanist at London's Kew Gardens asking for specimens of lichens or mosses. "For love of heaven," he pleaded, "favour my madness & have some scraped off & sent to me. I am like a gambler, & love a wild experiment."[1] Darwin's son, Francis Darwin, confirmed this strange self-description, writing that "love of experiment was very strong in him, and I can remember the way he would say, 'I shan't be easy till I have tried it,' as if an outside force were driving him."[2] Janet Browne, Darwin's preeminent contemporary biographer, describes how Darwin found research to be a sort of compulsion. He was "stirred by the excitement of hard scientific thought."[3]

This exhilarating sense of science shows up again in Evelyn Fox Keller's biography of Nobel Prize winner Barbara McClintock, whose research on corn genetics revolutionized her field. She accomplished this through what Keller calls a *feeling for the organism*. "I start with the seedling," McClintock told her, "and I don't want to leave it. I don't feel I really know the story if I don't watch the plant all the way along. So I know every plant in the field. I know them intimately, and I find it a great pleasure to know them."[4] This vivid joy in detail, in mapping the subtleties of a living landscape of

information—the length of the stalks, the tint of the leaves, the jostling rows of kernels—was the driver of McClintock's vision.

Keller likens McClintock to Albert Einstein—an Einstein of the ear of corn. Although Einstein's science was numbers and particles rather than beautiful things like plants and animals, he, too, was convinced that science comes from emotion. Common sense says numbers work is quintessentially boring—exactly the thing you do *without* feeling. But that conventional wisdom doesn't hold up. Mathematicians describe their work as richly emotional, likening it to music, mysticism, or poetry. Mathematician Srinivasa Ramanujan may have had something like this in mind when he famously told a colleague, "An equation has no meaning for me unless it expresses a thought of God."[5]

Einstein—said to have put the finishing touches on his theory of general relativity by sitting down at a piano—wrote in 1930 that science demands "strength of the emotion."[6] Like his hero Spinoza, he rejected the claim that emotion and reason were in conflict. Instead, he insisted that the emotional taproot of science was *identical* with the motivating force driving religion. They were one and the same, a compulsion he called *cosmic religious feeling*. As Einstein's protégé Michael Polanyi wrote, the "inarticulate coefficient by which we understand and assent to mathematics" is not a dry, mechanical function. It's a *longing*, a need, a "passion for intellectual beauty."[7]

It's not just scientists who feel the life of the mind. The rich work of historians, philosophers, anthropologists, and other scholars of the humanities is joyful too. The ecstasy of the historian is the deep dive in the archives, finding connections, tracing the contours of a story—maybe even making a discovery that breaks ground. David Hume called philosophy "the ruling Passion of my Life and the Great Source of my Enjoyments."[8] Narrative pleasure, all the pieces of a story coming together—Chekhov's loaded rifle on the wall in chapter 1 becoming murder weapon in chapter 3—is the same kind of stuff, a *clicking-into-place*. Bad writing—plot hole, weakly drawn character, abrupt deus ex machina—breaks the spell because it interrupts this stream of pleasure, as astringent as a wrong note in a song. The electric charge of *thinking-learning-knowing* is the lifeblood of teaching, too, planting students in their seats, temples tightening, shoulders shifting forward, hands fluttering, then shooting up, just like it keeps us, their teachers, wedded to our archives, our consultants, our laboratories, our calculations, our classrooms, our blackboards, our books, generation after generation. Even the grammar nerd, secretly correcting typos in library books, is playing

with language, mining joy from the arcana of structured rules and subtly mutating conventions.

We can take this further. This isn't just a theory of nerding out; it sets out to explain all our everyday pleasures of exploration and interaction. Like wikiholes, the hypnosis of the encyclopedia sending us scrambling up trellises of fascination, ruining disciplined bedtimes. Or puzzles—crosswords, jigsaws, Tetris—all designed to draw us into a pleasurized sphere of *playing by thinking*, organizing a maze of noise into a tidy whole. We find it in gossip, the piecing together of secrets. It's in the love of devices and contraptions and things that work in weird ways. And the joy of a good mystery. If, as affect theorist Lauren Berlant writes, literary genres are delivery systems for different emotional flavors—horror, romance, adventure—the emotional tone of the detective story has something to do with *neatness*, the way it wraps up the elements of a plot in a satisfying *click*.[9] We thrill to the immaculate resolution, a symphony of details in sudden alignment. A bad detective story overpromises and underdelivers, setting up a dizzying mystery around so many glittering plot points, only to collapse in a screeching mess of forced revelations and junk red herrings.

In bringing all these examples together, my suggestion is this: as diverse as they might seem at first glance, they all draw on the same emotional aquifer. The strange hothouses in which researchers make knowledge—study, archive, seminar room, laboratory, observatory—are just highly structured venues for channeling and focusing something we experience all the time: the way thinking feels. They're the macro forms of a micrological process that's with us every moment of the day, sometimes above, sometimes below, the watery threshold of awareness. Math, science, history, philosophy, and all other forms of formalized knowledge-making are scaled-up versions of this micro-level delight in the subtle click of things coming together. And that's what it really is. *Click*: the feeling that drives us to learn about the world. Click is how it feels when pieces of information coalesce. A phone book is pure information, but it doesn't click. A letter in a shoebox handed down by your ancestors, now crumbling in your basement, may be dull to you, but to a historian immersed in its time and place, for whom the letter solves a puzzle—or changes how the story is told—it's radiant.

With all that said, the emotions that move thought don't just deliver better history books, sharper equations, and more effective medicines. This is the golden age of misinformation—of conspiracy theory, climate denialism, and self-serving selective belief. We have yet to escape from the

droning refrain of those who benefit from slanted regimes of knowledge naming their own thoughts *reason* and dismissing everything else as *emotion*. Discredited race science keeps getting dug up from its shallow grave and retrofitted to contemporary formations of white supremacy. What I'm going to call *cogency theory* sees knowledge-making (from monograph, laboratory, and archive to group text, Reddit thread, and people-watching at a café) as defined by pleasure. But that knowledge includes both truth and error. Feeling makes science work, but it also leads to the *collapse* of good knowledge—the giddy downward spiral of conspiracism or the intoxicated self-confirmations of racialized reason. There's no way out of this dynamic of risk and opportunity. But studying how rationality works by feeling its way along offers our best chance to name and cultivate the habits and dispositions that make up the sense of science and veer away from the traps set by our own sweet tooth.

The conventional wisdom is that thinking and feeling are opposites. *Be reasonable*, we're told. *Don't be ruled by your emotions*. It's the standard maneuver deployed after a crisis—environmental disaster, racist police brutality, senseless gun violence—to fortify the status quo. Even in academic conversations, the divide between feeling and thinking is mostly taken for granted. Although science and technology studies (STS) has spent half a century showing that science isn't just what's in our heads—that knowledge production is always practical, social, and embodied—almost no work has been dedicated to exploring the relationship between knowledge-making and *feeling*.[10] STS pioneer Bruno Latour, for instance, for all his sophisticated accounts of how science is made by coalitions of human bodies and nonhuman actants, still argues that science is *emotionally inert*.[11] Even affect theory (the scene of some of the most interesting contemporary conversations about feeling) often seems to offer a funhouse mirror of common sense, recapitulating the assumption that feeling is separate from thinking.[12]

This thinking/feeling binary is also integral to the self-understanding of many modern visions of secularism. The story of secularization as the slow but steady fade-out of religion depicts rationality floating above the world and guiding history, immune to the local, the particular, the bodily, and—especially—the emotional. As we'll see, cogency theory is by no means anti-secular, but it rejects the mythology of superlunary rationality that sees reason as destined to straighten everything out (a view that, incidentally, also has no shortage of religious advocates). Cogency theory shines a light on the secular not as the gleaming fortress of reason, but as a humming

network of tastes, dispositions, and moods laying down the rhythm that enables our memories, ideas, concepts, and beliefs.

There are, however, academic conversations where the thinking/feeling binary is being challenged. Bringing some of these conversations together is the project of part I of this book. My focus will be on eighteenth- and nineteenth-century philosophy in the prelude and aftermath of Darwin (chapter 1), affect theory (chapter 2), recent research on secularism and what's being called the postcritical turn (chapter 3), neuroscience, and experimental psychology (chapter 4). But disruptions of the feeling/thinking binary have been put forward by many others not considered at length here, including ancient Stoics and their contemporary interpreters,[13] premodern Christians,[14] philosophers like Spinoza and Alfred North Whitehead,[15] French Enlightenment *philosophes*,[16] the New Formalists in literary studies,[17] phenomenologists,[18] Black studies thinkers,[19] moral psychologists,[20] and other lineages of affect theory.[21] And those are just the Western outlooks. These conversations are already happening in Islamic thought, Indian philosophy, and Indigenous philosophy in the Americas, among other places.[22]

This book's goal in pulling these conversations together is to challenge the ambient belief that feeling and thinking are separate. I go further than some others who have advanced this challenge in contending, for instance, that knowledge-making is not just *entangled* with feeling, as some claim (*Feeling* can *shape how we think, under certain circumstances*), but encompassed by it (*Feeling is* necessary *for thinking; there is no thinking that is not feeling*). Moreover, some existing work uses *affect* to indicate the intellect's *affectability*, as susceptible to the world around it.[23] I go further in suggesting that tangible *feelings* make thinking happen. (As we'll see in chapter 1, naming many specific intellectual emotions is vital for understanding how science is made by feelings in tension.) This book also sets out to connect studies of reason and feeling with STS. In particular, a main concern of STS is *methodological symmetry*: explaining *both* good and bad knowledge—both truth and error—with the same theory. The goal of the first half of this book, then, is to link up a landscape of dispersed conversations about the relationship between feeling and thinking, and to place that relationship at the center of a new understanding of truth, persuasion, reason, secularism, and science itself.

This is a first step rather than a detailed schematic, so one feature of this book will be a light-touch approach to some central vocabulary, including terms like *feeling* and *cognition*. *Feeling* is used loosely as a rough-and-ready

synonym for kin words like *affect* and *emotion*, shelving, for now, technical senses of those terms developed in fields like emotion psychology and affect theory.[24] *Cognition* will be used as a catchall to include many kinds of thought like *reasoning*, *knowing*, *recalling, discovering,* and *learning*. Similarly, I'm going to use *knowledge production* and *knowledge-making* as master terms that include science and the humanities as well as the informal, everyday ways bodies watch, learn from, and think about the world. *Science* comes down from its pedestal, too, and should be heard as any organized system of knowledge production, including the human, social, and natural sciences, but also folding in modes of knowledge-making happening outside formal settings. Finally, I won't go deep into debates about *secularism*, *secularity*, and *the secular*. I'll note where different thinkers pose these words in different ways, but my own use will tend to run them together.

### Cogency Theory: Two Arguments

This book makes a small argument and a big one. The small argument is that the reason/emotion binary is a mistake. Thinking feels. There's no thinking that doesn't feel, and nothing that we know that we don't know through feeling. In keeping with STS scholars' interest in methodological symmetry, this approach addresses *both* how science succeeds *and* how it fails.[25] If our bodies can feel their way to truth, how do we stumble into error? And if knowledge is only ever made by riding the current of our feelings, how could it *ever* be true? The small argument maps the feeling of thinking with an eye to understanding how science still works after we've untethered it from the myth of icy reason. New knowledge *feels true* to us because it lands on our existing landscape of understanding in a way that fits. It clicks with the terrain already in place. If the landscape is skewed—if it's out of alignment with the way the world actually is—then the knowledge that clicks with it will all be twisted, too.

The small argument of this book is engaged with a concept still viewed with suspicion in some camps of the humanities: scientific rationality. It's the suspicion of those who have in full view the abuses of natural science—long histories of scientific racism, sexism, homophobia, and transphobia, for instance. It's why Michel Foucault, in the preface to *The Order of Things*, insists that scientific development is not progress, but a randomly guided intellectual shapeshift, the same history of oppression donning new masks and parading on a loop.[26]

When we read Foucault together, my students are often skeptical toward these passages. How can knowledge not get better, they ask? Don't we *know more* now than we did a hundred or a thousand years ago? But when Foucault put pen to paper in the mid-1960s, even though France had not had antisodomy laws since the revolution in 1791, there was no forgetting that gay sex was under permanent siege by psychiatry, medicine, and law. For all he knew, the scientific establishment that had medicalized homosexuality in Britain (where the punishment for those convicted of "gross indecency," like Alan Turing just ten years earlier, was chemical castration) would take hold in France.

And meanwhile, France and other colonial powers were only recently letting go of their overseas claims, often with ferocious violence. Anticolonial thinkers like Frantz Fanon—born in the colonies and daily victims of their cruelty—knew that the European intellectual apparatus of their time was rigged against them. "When someone else strives and strains to prove to me that black men are as intelligent as white men," he wrote in 1952, "I say that intelligence has never saved anyone; and that is true, for, if philosophy and intelligence are invoked to proclaim the equality of men, they have also been employed to justify the extermination of men."[27] That same apparatus defined their race as the biological basis of their oppression. Science (not to mention the humanities) was used to reinforce racist, sexist, and heterosexist hierarchies. So why trust science?

Even though the scientific establishment has today abandoned these positions, the evergreen interest in pseudoscience—like the racial intelligence hierarchies still in common currency in the right-wing mediaverse—puts science under a permanent shroud of suspicion in the eyes of many humanities scholars. There's justification for this wariness. But it's dangerous to cut off contact with science. It ignores the diligent work of antiracist, feminist, and antiheterosexist scientists to mobilize science as a weapon against oppression. It cedes too much ground in the public conversation, allowing science to be picked up and distorted by oppressive power. And it overlooks the vital contributions offered by science to interrupting climate catastrophe, misinformation, and pandemics, not to mention burying the oppressive ideas it once shielded. This leads to a lost opportunity to understand science, learn its limits and possibilities, engage and ally with it. Thinking about science as feeling helps to set up this dialogue.

This brings us to the big argument of the book: if thinking isn't the unfolding of pure reason, then the fact that cognition feels is what makes it

work *and* what leaves it open to error. If reason feels, then it's *susceptible*, rather than immune, to the other emotions swirling around it. This includes emotions wrapped up with self-interest, prejudice, or confirmation bias. Feminist STS scholars Rebecca Jordan-Young and Katrina Karzakis call this the *Mulder effect*, after the motto of fictional conspiracy theorist Fox Mulder: I WANT TO BELIEVE.[28]

*Wanting to believe* is not limited to scientists. The feeling/reason binary makes it impossible to see that all kinds of knowledge production are defined by structures of feeling—sprawling grids of emotion that make our existing prejudices *feel like* neutral reason. Philosopher Imani Perry, for instance, has suggested that the conventional understanding of racism as *intentional*—something we're aware of, something we think and say—is inadequate. She proposes, instead, that we think of racism as something shaped by "visceral responses to assumptions that operate *within* the process of reason and analysis."[29] These visceral responses produce a landscape of thought on which racist logic *feels right*.[30] They're in direct contact with the emotional machinery of scientific knowledge production. That intimacy is exactly what threatens to pull science off course.

Mary Ann Evans—the British polymath who saloned with scientists, translated Spinoza, and helped build nineteenth-century secularism through the novels and essays she published under her pen name, George Eliot—was a shrewd observer of this process. She put it this way: "Our passions do not live apart in locked chambers, but, dressed in their small wardrobe of notions, bring their provisions to a common table and *mess together*."[31] *Messing together* is the big argument of this book in a nutshell. If reason is itself a passion, then it *messes together* with the other feelings that define our lives. It eats (*messes*) at the same table with them, and it sloshes around (*messes*) in the same cup, creating a strange brew of felt intuitions from which thought emerges, dripping. This is how the argument that thinking feels transacts with a set of implications for studying science and secularism.

To understand science, reason, secularism, and our everyday ways of thinking about the world, we need to see them not as cloistered speculation but as rubbing elbows with the other passions of our embodied lives. Science as a felt process that registers the way things are in the world produces good knowledge, but it's also susceptible to contamination. It messes together with the other emotions that give form to our social, embodied lives. A racist society will tend to produce racist science not just because of bad data but because the coordinates of interpretation of that data—of *what feels*

*true*—are disfigured. Science also has a powerful engine of self-correction, though: our felt desire to *get things right*. The struggle—the agonism—between these tendencies is what an affective account of knowledge-making sets out to diagram.

This is the framework of cogency theory. Why *cogency*? To say an argument is *cogent* doesn't mean, exactly, that it's *true*. It means *it appeals,* or *it's compelling.* It means it *feels* true. It has a *pull*—a weight. *Cogency* takes knowledge-making out of a binary frame, in which sovereign reason sizes up a situation, strokes its chin, and then judiciously flicks the switch to YES or NO. It suggests, instead, knowledge-making as an ongoing *process*—a contest of forces—and specifically as a constant measuring and remeasuring of the *felt* weight of facts. Cogency lights up the way our spectrum of confidence and conviction is always constituted by feeling. New information that tips the balance *adds weight*. Changing our minds means changing how we feel.

*Cogency*, at first glance, looks to be related to the Latin *cogito*—the *I think* part of René Descartes's *cogito ergo sum*—and modern English words like *cogitate*. But *cogent* isn't related to *cogito* at all. It comes from the Latin roots *co-*, meaning "together," and *agō*, meaning "drive" or "act." Its descendants are English words like *agent* or *action*. The related Greek root *ágō* gives the further sense of a "guide" or "duct" and enters English in words like the *agonism* of dramatic action, or the *pedagogy* of guiding the young, or *axiom*—a thing found to be weighty. Cogency as *cō* + *agō* corrals all these meanings. This *confluence and contest of forces* is *agonism*, a struggle of different priorities. To say something is *cogent* is not the self-evident testimony of truth to an abstract intellect. It spotlights forces streaming together, creating a tangible *feeling of truth* measured by the body. These forces interact on the microregister of feeling. *Believing* means one of these struggling currents of feeling has prevailed. It has, for now, been found *cogent*.

*Cogitation* pictures rationality as a grid of abacus beads that we carefully arrange to produce a binary YES/NO belief. It obscures the cascade of affective forces that are the real drivers of reasoning, thinking, and believing. Like a light switch, cogitation is either on or off. Cogency is scalar; we feel *more* or *less* convinced. Affect theorist Eve Kosofsky Sedgwick gets at this when she names the fatal defect of so much Western epistemology as the *threshold model* of knowing: "Once you've *learned* it you *know* it, and then you will always know it until you *forget* it. … In this model," she points out, "learning the same thing again makes as much sense as getting the same pizza delivered twice."[32] It's knowing like a computer knows, since

hard drives either contain information or they don't. But nothing we know actually follows this template. We're always in states of varying degrees of conviction. No one believes anything absolutely—even if some beliefs are strong enough to die for. This goes for science, too. Rather than thinking of it as an abstract truth machine, centering cogency allows us to study how scientific rationality is built, how it tests and explores, how it inculcates confidence or gets impaled by prejudice, how it succeeds or falls. Cogency theory is a collection of perspectives on how thinking is made by feeling.[33]

Why a theory? As philosopher of science Thomas Kuhn proposed, a *theory* is a map of what matters for answering a question. A theory of combustion needs to look at both the makeup of the combustible substance and the composition of the surrounding air. If a theory looks at the wrong data points (if we've figured out the importance of substance, say, but not of air), it will produce inconsistent results (like failing to explain why a candle is snuffed out when placed under a glass). Cogitation is our theory of knowledge production in the West—in most academic conversations and at the level of common sense. It starts with a thinking/feeling binary and concludes that we can understand how knowledge is produced by looking only at the intellectual side of the ledger. Cogency theory challenges this. As a theory, it says we'll understand knowledge production, in its successes and its failures, not only by examining feeling, but highlighting how feeling and thinking are a single process.

Of course, no epistemology is total, and most people have already figured out that the cogitation framework is missing something. Things we say all the time like *You only believe what you want to believe* or *He just likes simple answers* reflect our awareness that cognition and emotion are part of the same cat's cradle. The Mulder effect is the same. These are the kinds of intuitions that cogitation can't explain but that cogency theory sets out to organize and develop into a full-spectrum understanding of thinking and feeling.

#### The Intellectual Passions: From Kuhn to Polanyi

The interdisciplinary field of science and technology studies has always been concerned with representing science in its full complexity—as made not only by minds but also by bodies, communities, and material objects. Steven Shapin and Christopher Lawrence, for instance, argue that one flaw of the approach to rationality championed by early modern philosophers like Descartes (Mr. Cogitation himself) was its total exclusion of

the body.[34] Science in the STS picture is historically contingent—on community, on access to resources, on facilities, instruments, and laboratories. Capital-S *Science* comes down from its pedestal and rubs elbows with other everyday modes of knowledge production. Britt Rusert's concept of *fugitive science* or Katherine McKittrick's reframing of Black thought as *scientia*, for instance, are blends of formal and informal knowledge-making that mount a powerful intellectual counterattack against racism. What makes science *science* is the way it brings together a whole ensemble of mundane practices in strange ways. Lorraine Daston and Peter Galison propose that *objectivity* needs to be thought of "in shirtsleeves"—a set of epistemological virtues cultivated from the bottom up through bodily training.[35] Collectively, STS has tracked the way science emerges as *lived science* rather than a mystical freeway to truth.

This is important for pushing back on cogitation. But there's been very little attention in the STS literature to the shaping role of feeling in knowledge production. Reframing knowledge production as emotional brings us back to the big argument of this book. If cognition is felt, it's susceptible to the affective ecology from which it emerges. Knowledge production is emotional, so it's always at risk of messing together with the other spreading inkblots of feeling making up our embodied lives. (The Mulder effect, all the self-serving reasons we might *want to believe*.) This is how powerful prejudices seep into our intellectual bedrock. Cogency theory follows STS in thinking about scientific rationality in shirtsleeves. However, it goes further in picturing science in a feeling body—science with a pulse. This allows it to draw textured, detailed maps of the liquid landscapes of emotion that define our thinking and track the ways wheeling matrixes of feeling lure us to misbegotten beliefs.

But *mistakes* are only half of what cogency theory sets out to explain. From the perspective of cogency theory, good knowledge, too, is made by emotions. It's precisely *because we feel* that knowledge works in the first place. Bruno Latour writes that the project of STS "was never to get *away* from facts but *closer* to them, not fighting empiricism but, on the contrary, renewing empiricism."[36] Cogency theory, putting affect theory and STS in conversation, has the same goal. The feeling of thinking is what guides us to good knowledge. Understanding *how knowledge is made by feeling* is a way of showing our work. It strengthens knowledge claims rather than undermining them.

Good knowledge isn't knowledge that has been drained of feeling. It's knowledge that reflects a working, durable relationship with the things

around us, a relationship resolutely defined by emotion. It's the product of complicated operations of feeling—an agonism, an invisible clash of forces holding our desire to know the world in tension and trying to outmaneuver other felt priorities that might muddy the waters. This *sense of science* isn't a forensic tool for calculating absolute truth. Instead, it's a cultivated contraption for feeling our way toward truth (objectivity in shirtsleeves) without the anticipation of certainty. Collapsing the binary of reason and emotion doesn't leave us adrift. It shines a light on the carefully staged agonism of intellectual feelings that is the real driver of good knowledge. (We'll explore this in detail in chapter 1.)

The contours of STS came into focus in the mid-twentieth century with an increasingly sharp challenge to *logical positivism*—the view that science, by deriving theory from a steadily expanding research base, makes linear progress. Enter Thomas Kuhn, the chain-smoking, hard-driving theoretical physicist turned philosopher of science. Kuhn's 1962 volume *The Structure of Scientific Revolutions* was a watershed moment in overturning positivism. His insight was that the philosophy of science of his day was a cartoonish misrepresentation of how science actually played out on the ground. To solve this problem he created a new genre: a *descriptive* philosophy of science—attached to a rich historical sensibility—detailing science's limitations, rather than a *prescriptive* philosophy that rhapsodized its infinite horizons.

Kuhn argued that science is best understood not as a straight line but as an unsteady cascade of separate periods of *normal science* linked by interludes of radical transformation—*revolutions*. Normal science is governed by a *paradigm*, a set of mostly interlocking theories that organize available data. During normal science, the day-to-day activity of scientists is pretty low-key, amounting to what Kuhn calls *puzzle solving*—plugging new data points into existing theories. In the process, scattered data points emerge—anomalies—that don't fit the paradigm. These anomalies loom outside the paradigm, building pressure. As the anomalies accumulate, the pressure bears down, eventually crashing the paradigm and triggering a revolution. Finally, a new paradigm is assembled from the anomalies stacked in the smoking ruins of its predecessor.[37]

At the heart of Kuhn's picture of science as a cycle was a skepticism—resonant with Foucault—toward the idea that science was getting better. Kuhn saw scientific paradigms as a string of separate intellectual bubbles. His keyword was *incommensurability*: incompatible standards of measurement;

different "ways of seeing the world and of practicing science in it."[38] A paradigm change is not just a theory change. It often goes along with a fundamental reconsideration of *how scientific work is done*. The world looks different after a revolution. The scientist in the new paradigm finds that the ground has shifted so much beneath her feet she can't even talk to the old paradigm.[39] Rather than linear progress, science is a sequence of self-enclosed whirlpools.

The science-skeptical overtone of Kuhn's work has become the template for a lot of the thinking about science done by the humanities in the half century since.[40] The aftershocks of Kuhn's project rumbled through the strong programme in the 1970s and poststructuralism in the 1980s and are still powerfully present in the humanities today. In the early 1990s, Bruno Latour was confronted on the sidelines of a conference by a flustered scientist who demanded to know: "*Do you believe in reality?*"[41] Latour's answer, he assures his readers, is *Yes*—but he can hardly pretend he doesn't know the source of the concern.

Kuhn's science-skepticism won him no friends among hard realists and positivists. They flat-out rejected the new model of science as shaky and uneven. But feminist STS scholars of the past two decades have presented a more textured response. They have called for an approach to science that maps its limitations *and* its successes, allowing new, productive points of contact with the humanities.[42] Stacey Alaimo and Susan Hekman, for instance, point out that the Kuhnian approach to science found in some corners of the humanities has gone so far in the direction of skepticism that it actively "excludes lived experience, corporeal practice, and biological substance from consideration" and "makes it nearly impossible for feminism to engage with medicine or science in innovative, productive, or affirmative ways."[43] Feminist science historians have become similarly concerned with the inability of the humanities to put up a fight against capitalist institutions muddying the waters around, for instance, climate change science.[44] Latour in recent decades has developed a similar anxiety. He and other thinkers have tried to advance a *postcritical* turn, rethinking the default adversarial posture taken by some humanities scholarship toward the natural sciences.[45]

This is where Latour's project of *renewing empiricism* comes in. But these sophisticated responses to Kuhn and the science-skeptical attitude he sponsored still tend to overlook the role of feeling in scientific rationality. Knowledge production may be contingent, historical, social, material, and

even embodied, but it is still, in the words of philosopher of science Alison Jaggar, susceptible to "the myth of dispassionate investigation."[46] This means that they still accept the basic map offered by Kuhn, of a science defined, at heart, by the play of concepts.

To remap science as emotional, cogency theory winds back the clock. Rather than starting with Kuhn, it looks to Michael Polanyi, and specifically his work on *intellectual passions*. Polanyi, the Hungarian Jewish chemist who turned to philosophy after fleeing Nazi Germany and taking refuge in Manchester, published his book *Personal Knowledge* in 1958, four years before *Structure*. Studying the Kuhn-Polanyi relationship is already a cottage industry for historians and philosophers of science.[47] Kuhn himself—though he at first championed Polanyi's ideas—later disavowed the association, announcing late in his life that he saw Polanyi's position as hopelessly misguided. He especially disdained Polanyi's reliance on "something very like ESP" as the motor of scientific discovery.[48] Polanyi, for his part, came to believe that Kuhn plagiarized several of his key concepts, while at the same time mutating them into "nonsense."[49]

But that came later. The historians agree that, early on, Kuhn was aware of, and may well have adapted, Polanyi's idea of *tacit knowledge*, the repertoire of unspoken background coordinates—absorbed through experience rather than language—that powerfully shape scientific knowledge production.[50] Although Kuhn initially neglected him completely, between the first and second editions of *Structure* he added two references to Polanyi in his footnotes.[51] And similarly, Polanyi welcomed Kuhn's appearance on the battlefield, seeing him as an indispensable ally in his solo assault against positivism.[52] Like Kuhn, Polanyi didn't think science advanced on a linear, upward trajectory.[53] Both saw the unfurling of science as jagged and fragmentary rather than an open road.

This has led to a long tradition of reading Kuhn and Polanyi as basically saying the same thing. But as philosopher Maben Poirier shows, this is a mistake. The arch-relativist Kuhn of *Structure* writes in a very different vein from Polanyi, who has a more nuanced take on science's capacity to make good knowledge. "Polanyi may not be an empiricist," writes Poirier, "but he is by no means a relativist either, radical or otherwise." Instead, Polanyi "repeatedly makes it very clear that natural scientists investigate what is real—what exists independently of themselves, in the world beyond their minds—and not some subjective entity which is a construction of their minds."[54] Polanyi says good science is driven by "the feeling of making

contact with reality." His hero is Copernicus, who saw through the grand error of his age, grasped the truth behind the veil, and patiently drew it into view.[55] It wasn't just a new paradigm, destined to be overthrown in the next revolution. It was truth, or at least closer to it than what came before. And it was built by feeling.[56]

The widespread failure to grasp what Polanyi was really saying about science has even led to a tendency (and this on the part of Polanyi's admirers) to read him as a sort of Neoplatonic mystic, who discovered in science a divine resonance between human minds and truth.[57] But Polanyi's theory of science is anything but mystical. It's just that it's organized around, in his words, the *intellectual passions*—and these have been so badly neglected in Western philosophy that they look, to some, like ethereal intuitions rather than extensions of our embodied life. Our received picture of science as pure cogitation totally obscures the real reason why Polanyi rejects the hard relativism of incommensurable paradigms: his conviction that science works through feeling.

Polanyi sees science everywhere. It's down from its pedestal, fully continuous with our everyday ways of making knowledge in the world—and even with what other animals and infants do all the time. "As far down the scale of life as the worms and even perhaps the amoeba," he writes, "we meet a *general alertness of animals*, not directed towards any specific satisfaction, but merely exploring what is there."[58] The mystical reading of Polanyi falls apart when we see how committed he is to a Darwinian frame. If pleasure is a rough-and-ready (though far from perfect) mechanism by which animals are guided to flourishing (the delight of eating good food, the dread of meeting a dangerous predator), then it makes sense that animals would find pleasure in learning about their environments. "These intellectual tastes of the animal prefigure, no doubt," he writes, "the joys of discovery which our articulate powers can attain for man."[59]

We see this same budding intellectual passion in the curiosity and playfulness of infants. These feelings are the precursors to grown-up rationality. "A game of chess creates its own pleasures," Polanyi contends, "but could not do so if babies could not play with rattles."[60] Babies and their games with shapes, words, dolls, blocks, faces, gestures, and toys are already learning to revel in click. Rationality isn't either/or, you have it or you don't—the surreal claim of all the royalized self-portraits in which humans become magically *reasonable* when we cross some secret threshold of development. (This idea, the *black monolith myth*, is discussed below.) All animals and all

humans are *rational* in the sense of desiring, considering, and more or less effectively arranging information about our environments. This is because all animals have intellectual feelings, in different combinations and in varying degrees. What gets called rationality is really a combination of intellectual passions nudging us to know the world.

Polanyi runs down a few of these intellectual passions. There's *interest*—a felt sense of what matters. Only through interest do we get a sense of how to prioritize some pieces of information in the environment over others. Without interest and *intuition* (a felt sense of what *might* be useful in the future), all our science "would inevitably spread out into a desert of trivialities"—a library of phone books.[61] Then there's what Polanyi calls the *persuasive passion*—the desire to convince others.[62] Persuasive passion pulls us into conversation with others. It's what makes science social.

But the overriding intellectual passion, the urge driving the whole ensemble, is the *love of elegance*, or *beauty*. What Polanyi calls *the feeling of making contact with reality* is click, the subtle joy of pieces of information snapping together. "The affirmation of a great scientific theory is," Polanyi proposes, "in part an expression of delight. The theory has an inarticulate component acclaiming its beauty, and this is essential to the belief that the theory is true."[63] This means that the objects held up by intellectual passions are not just holograms projected by artificial paradigms. They can accurately "be said to be right or wrong."[64] Rather than being trapped in our own private intellectual whirlpools, our body's intuitions about how truth feels drive discovery forward. Our persuasive passions scale this up, building good knowledge in community.

Although trained as a chemist, Polanyi holds up math as the ideal of this passion for intellectual beauty, envisioning it as an endless garden of neatly fitted pieces of information. "Nowhere is intellectual beauty so deeply felt and fastidiously appreciated in its various grades and qualities as in mathematics," he writes. "It is by satisfying his intellectual passions that mathematics fascinates the mathematician and compels him to pursue it in his thoughts and give it his assent."[65] Math isn't limited by having to check in with the material world. Like an endless game of polychromatic abstract shapes clicking into place, it pulls us forward as far as we can physically follow it.

That said, throughout the sciences (and, of course, all the other forms of rationality, from babies playing with blocks to giddy proofreaders picking out mistakes in a text), this felt desire to know the world is the propulsive

mechanism at the heart of thinking. We aren't directed by abstract certainty. We feel our way to the most satisfying theory, the conclusion that turns the most tumblers. For Polanyi, we feel the click of information coalescing with what we already know. The domain of *what-we-already-know* can be tacit, an accumulation of experiences, no less powerful for being unsaid, or explicit, conveyed by language and available to our conscious self-inspection. But either way, *intellectual beauty* for Polanyi is the felt admiration for a solution that clicks.

This definition of science as a contraption of intellectual passions is what leaves Kuhn sputtering with fury at Polanyi for centering science on "something very like ESP."[66] Kuhn is so in hock to a picture of science as cogitation—the myth that all knowledge-making is, at its heartless heart, a language-like system, a cipher of words and ideas—that a theory of scientific knowledge production as driven by feeling rather than concepts (and more concepts, all the way down) looks, to him, like gnomes dancing under a toadstool. It just doesn't make sense. Science in Kuhn's eyes is a murmuration of concepts, so it follows that it would amount to nothing more than a maze of speculation—with no mechanism for making contact with reality. Kuhn has no avenue for seeing science as defined by feeling—let alone the possibility that feeling might be the very thing that moves science forward.

My suspicion is that the selection of Kuhn rather than Polanyi as the anointed gadfly of science is a big part of why the feeling/thinking binary still has the power that it does in the humanities (and is also why we're still spiraling in a bottomless pit of debates about relativism). Like a robot that only sees in black-and-white, Kuhn can't wrap his head around the possibility that science could draw on the matrix of our *felt* encounters with the world—the living archive of all our tacit experiences—and that these intuitions could break through our conceptual carapaces.[67] But for Polanyi, intellectual *passions* are melded together into an alloy that creates the canopy of science. The reason/emotion binary collapses. As psychologist Lisa Feldman Barrett (discussed further in chapter 4) writes, "The human brain is anatomically structured so that no decision or action can be free of interoception and affect, no matter what fiction people tell themselves about how rational they are."[68] This landscape of cognitive feeling is the matrix that guides our knowledge production, pursuing the pleasure of a thought that clicks.

We'll hear the pleasure that attaches to knowledge-making called by many names in this book—*the feeling of making contact with reality* for

Polanyi, but also the *sentiment of rationality* for William James, *interest* for Silvan Tomkins, and the *passion for reason* for Antonio Damasio. What they share is a sense that knowledge clicks with us, and that click is *felt*. There are obvious moments where knowledge production is emotional—the *Eureka!* over an astonishing discovery or the quiet spreading sense of awe when everything falls gently into place. Cogency theory proposes that these obvious moments are only the most extreme, most visible manifestations of a much larger network of affects driving knowledge production, the macro version of a process that is always occurring at the micro level. *Eureka!*, in this view, is a monsoon of droplets of feeling coalescing into an emotion. But those droplets are always there, forming a sticky dew on everything around us, subtly guiding belief. And without them, belief would dry up and disappear.

This cognitive-affective intuition (sometimes above, sometimes below the threshold of conscious awareness) is an imperfectly effective means for tracking what works in the world. It's also an evolutionary necessity. Without it, extremely complicated organisms requiring highly specialized resource streams to survive and reproduce—animals like us—would be phylogenetic dead ends. We have to be tuned in to the world in a way that allows us—even compels us—to be right about it often enough to continue living.[69] This grounds both our felt sense of pleasure in things clicking together and our sense of dissonance, frustration, and discomfort when information grates or jars with what we think we know. Yes, we believe what we want to believe. But *one of the things* we want to believe is the way things actually are.

By expanding Polanyi's inventory of intellectual passions, cogency theory lights up knowledge-making as more than just the con job of indoctrination or an endless chain of language games. We know things—and we know them well. We feel the force of truth. At the same time, cogency theory frees truth from the impossible expectation of invincibility. Knowledge emerges in our real-time, fluid, felt relationships with the world around us. It's always susceptible to being pulled off course or landing awkwardly on a skewed surface. But so, too, is it capable of rumbling under the surface, steadily gathering force, and shattering a falsehood. (Anyone who has ever escaped a society, a community, or a relationship defined by the repetition of lies knows this well.) Cogency is our felt sense of the *force* of what we've learned. *I feel that.*

### The Black Monolith Myth: Feeling Secularism

A few months after Darwin's 1863 letter, an ambitious British member of Parliament, Benjamin Disraeli, delivered a fist-pumping political speech at Oxford's Sheldonian Theatre. He saluted the political unity of the Church of England and the British nation by taking square aim at Darwinian theory itself. In the final minutes, Disraeli spoke the lines that would make the speech famous, later reprinted in a pamphlet like this:

> What is the highest nature? Man is the highest nature. But I must say that when I compare the interpretation of the highest nature by the most advanced, the most fashionable and modish school of modern science, with some other teachings with which we are familiar, I am not prepared to say that the lecture-room is more scientific than the Church (cheers). What is the question now placed before society with a glib assurance the most astounding? The question is this—Is man an ape or an angel? (loud laughter.) My lord, I am on the side of the angels (laughter and cheering).[70]

In my first book, *Religious Affects*, I looked at this speech as part of a study of the emotional dimension of embodied life. In particular, I argued that seeing humans as continuous with other animals—rather than as angels—allowed us to focus on how affect and emotion are foundational to subjectivity.

My interpretation of affect theory is that affect is essentially *power*, understood not as an external, oppressive force but, following Michel Foucault, as fundamentally productive.[71] Power is *what makes bodies move* (or binds them). *Affect* is a word for processes—beneath, beside, and within cognition—that register in awareness as feelings, emotions, and moods.[72] At heart, power is affect, affect is power. Everything we do emerges out of an agonism of feelings. There's a fully fleshed-out continuum from the micro to the macro, from the cyclone of small, felt pulses splashing across us all the time—a tug of longing, a pinprick of annoyance, a pang of grief—to thoughts, actions, decisions, moods, words.

In *Religious Affects* I argued that it's a mistake to make feeling into a sideshow far from the main stage of the operations of power. This mistake is the *linguistic fallacy*—the idea that humans are basically thinking, reasoning beings, that what makes us tick is a sedimentation of words and ideas. Language is important, of course—it's a highly sophisticated bodily tool that can circulate and distribute affects with amazing precision (see chapter 2).

But affect theory suggests that to understand how bodies fit into messy contraptions of power, we have to look past words themselves. It's the affects carried by words—as well as by all the other wordless things enfolding our bodies—that add up to make subjectivity.

The book also had a blind spot. In zeroing in on how the affective dimensions of subjectivity shaped religion, it implicitly suggested *religion* was *uniquely* affective—as if only religion was tethered to emotion, while science and the secular peered down from orbit. Cogency theory is designed to correct this oversight. It asserts that *everything* we do as bodies is affective. That includes even the domains of life we imagine to be the most heady, the most angelic—reason, science, secularism. They, too, are saturated with feeling.

This brings us back to Disraeli's speech. Disraeli is on the side of cogitation, likening man (and *man* is the right word here—there were no women in the Sheldonian that day) to angels—those beings Thomas Aquinas described as pure intellect, "quite separated from bodies."[73] But what's even more interesting, for our purposes, is the response to the speech, not spoken by Disraeli but recorded in the pamphlet text: "Laughter and cheering." Why do the attendees laugh and cheer when Disraeli speaks? And what does the reaction to the answer tell us about the question itself? What do we learn about the kind of creatures we are, ape or angel, that we laugh and cheer when we are faced with what we take to be truth? Where *Religious Affects* proposed that affect determines *where bodies go*, this book studies how thoughts, discourses, conversations, arguments, calculations, science, and reason itself are *also* controlled by affective tides. There is, then, no facet of being human in which we are angels. Cogency theory sets out to animalize cognition, language, and rationality. It highlights the ways science and secularism, like religion, are continuous with animal lifeways, the surging emotional ground of our bodies. The laughter and cheering at the Sheldonian in 1863 illustrate this perfectly. The ideas that click are cogent, which means they trigger an emotional response. We believe because it *feels right*.

In his atheist manifesto *The God Delusion*, Richard Dawkins advises us to "be clear, in any particular conversation, what we are talking about: feelings, or truth. Both may be important, but they are not the same thing."[74] For Dawkins, to furnish the house of truth is to declutter it of the emotional relics of religion. Science alone makes truth uncontaminated by emotion. That's what makes secularism inevitable. Elsewhere, though, Dawkins seems to know about a link between feeling and truth. His book *Unweaving the Rainbow*, for instance, is a tactical response to the accusation that science,

by draining off feeling, *disenchants* the world. It's a common technique among some secular partisans who argue that science gives us new figures of beauty and wonder.[75]

But Dawkins's strategy is to shine the spotlight on the extravagance of *discoveries*: the wonder of distant galaxies, our fabulously intricate cells, or the architecture of DNA.[76] The emotionality of science is, in this view, an aftereffect. It's the prize at the end of the race. This science brings beautiful things into our field of view—nebulas and geothermal fauna and teeming canopies—but *knowledge-making is not itself affective*. To see science as *made of emotion* would crash the wall of separation between feeling and truth, locating the scientific method too close to the ambiguities of being a body. So even when Dawkins affiliates emotion and science, he reasserts that science itself is cogitation. Scientific rationality and the secular order that rests on top of it are truth-machines built by eliminating feeling.[77] Cogency theory, by contrast, views thought—all thought—as saturated with feeling. Science never gets outside of the emotional coordinates of our bodies. Affects are the pulse of reason. This is both why science succeeds and why it fails.

These same contemporary forms of atheism also take on the mantle of Darwinism. They hold up Darwin as an ideal of scientific dispassion. Darwin's biographers tell a different story, as we'll see in chapter 5, but even more importantly, Darwin's *own work* contradicts the idea that cognition is feelingless.[78] Darwin was a scientist, and he was sympathetic enough to the secular project to call himself an agnostic. But Darwin was dedicated to defending what he saw as his most urgent contribution to human knowledge—the fact of our continuity with other animals. This meant, for him, a sensitivity to the emotional contours of science as part of the project of understanding where we come from.

If Darwin's portrait of human continuity with animals is our starting point, we should be suspicious of any attempt to place *reason* on a separate plane from the rest of our embodied life. Stanley Kubrick's 1968 film *2001: A Space Odyssey* illustrates this mistake nicely. The opening sequence, "The Dawn of Man," presents a mythic picture of the emergence of humanity. After the appearance of a mysterious black monolith on a primitive savannah, a group of violent apes abruptly discovers how to use tools. In an interview with *Playboy*, Kubrick said this was just the beginning of "progress[ion] from biological species, which are fragile shells for the mind at best, into immortal machine entities."[79] The monolith is a bolt from the blue that jump-starts reason and pushes humans over a metaphysical threshold

to become *Man*, in Sylvia Wynter's sense—the secular "Rational Self."[80] The animal falls, Man stands up. Rationality cleaves us from animals in a single stroke, producing something abrupt and unforeseen.

But *2001*'s story was obsolete before it even came out. In 1960, Jane Goodall had already watched the chimpanzees of Gombe National Park both using and fashioning tools. She built her method from the ground up, relying on a feeling for animals rather than the prevailing scientific wisdom that chimpanzees were furry robots.[81] This was what allowed her to rapidly upend a long-held scientific and philosophical consensus that human tool use was unique. Not only that, but the "Dawn of Man" story also invoked the popular misconception that evolution is a teleological process—a trajectory of improvement directed at a goal (Man) rather than a random set of motions in response to changing geologic landscapes.[82] What *2001* illustrates, then, is what I'll call the *black monolith myth*. The black monolith myth claims there is a wall of separation between humans and animals, minds and bodies, thinking and feeling. It sees Man as standing above the world, rather than living as part of it. Darwin had no time for that mistake and spent half a lifetime trying to overturn it. Cogency theory follows suit.

This brings us back to the secular. Because despite their claim to follow Darwin, many modern visions of secularism fall for the black monolith myth. Secularism's autobiography tells a story of sober philosophers and scientists grinding down religious superstition and revealing humanity's emotionless, rational core. They miss Darwin's insistence that because humans are continuous with other animals, reason must be integrated with feeling. Cogency theory uses the Darwinian insight—that thought itself is animal—to ask, instead, the question posed by scholars of secularism like Janet Jakobsen and Ann Pellegrini: "What does secularism 'feel' like?"[83] The secular isn't the extraction of emotion and the injection of feelingless science. Nor is it an abrupt break with the histories that came before it as reason comes rushing in. It is, instead, no more and no less than an effort to build new formations of feeling—in part by fashioning new modes of knowing. Considering how scientific secularisms build these new structures of feeling is the project of the second half of this book.

The emerging field of *secularism studies* tends not to focus on science. Several early architects of the secularization thesis, such as Karl Marx and Max Weber, did not see science as the driver of religious disbelief. For Marx, the twilight of religion was predicated on the transformation of economic

systems, not new science. For Weber, the "iron cage of modernity" was an elaborate mousetrap triggered by the Protestant Reformation centuries earlier.[84] These sociopolitical concerns set the template for much of today's secularism studies literature, which has primarily focused on secularism as a political project that combines with race, identity, law, and the public sphere. Some other work in this field sees secularism as a metaphysical system, a set of philosophical assumptions to be dug up and examined. Where science is engaged, it's often done with an eye to studying how science comes to be a sort of simulacrum of religious devotion.[85]

But this misses a key part of the picture. Philosopher Charles Taylor writes that secularism transforms religion by making religious belief *one option among many*.[86] Even when it doesn't become an *explicit* reason for departing from faith, the stunning success, reach, and prestige of the programmatic reconstruction of human knowledge achieved by science have totally rebuilt this backdrop of belief. So the eighteenth-century French *philosophes* saw science as the bedrock of their new vision of a churchless society (and influenced Hume's philosophy along the same lines).[87] In the nineteenth century, Percy Bysshe Shelley and Auguste Comte viewed the rise of science as precipitating religion's decline.[88] This was the seed of the science-religion *conflict thesis* in the latter half of the nineteenth century and was a driving force of the X Club, cofounded by Thomas Henry Huxley, the man who called himself *Darwin's bulldog*.[89] "No, our science is no illusion," Sigmund Freud wrote in the final lines of *The Future of an Illusion*, in 1927. "But an illusion it would be to suppose that what science cannot give us we can get elsewhere."[90] And, of course, a zero-sum war between science and religion is the message of New Atheism in the twenty-first century. This book, then, tries to flesh out this relationship between science and secularism and expand the conversation between secularism studies and STS.

### Plan of the Book

To push beyond the reason/emotion binary, this book considers three interrelated key concepts: the *sense of science*, *conspiracy theory*, and *racialized reason*. The *sense of science* is a new way of understanding science as a method. It proposes that rather than seeing the success of science as driven by emotionless cogitation, science works by cultivating an agonism of affects, a permanent struggle between the excitement of click and countervailing

pressures—like fear or shame—about getting things wrong. The sense of science is a kind of ascetic discipline, harnessing click but striving, however imperfectly, not to let it distort the search for good knowledge.

It might seem that click is the feeling of truth. But the reality is more complicated, as we can see by considering conspiracy theory. Click is necessary for knowledge. Our bodies are truth-chasers only because of our capacity to feel it. But click can also totally derail the search for truth, licensing our prejudices as what *feels true*, sanctifying what we think we know and rendering it immune to challenge. And without guardrails, click will multiply exciting connections, producing the lurid string figures of conspiracy theory. Conspiracy theory creates what we might call a *simplex system*—an artificial flattening of the complexity of the world in order to make it more enjoyable (see chapter 1). Click fascination leads to an endless pursuit of interesting ideas with no checks and balances—a corrupt, broken-mirror version of the sense of science. There are lots of reasons conspiracy theory has managed to get our public conversation in a chokehold. But macro-level explanations—dire racial and economic inequality, for instance—need to be fleshed out by a detailed account of conspiracism's emotional structure. That's cogency theory's task.

Conspiracy theory is closely related to *racialized reason*. (As we'll see, it's no accident that conspiracy theory so often comes along with racist stories.) *Racialized reason* is the skin of thought that forms around racist feelings. It's another way of naming what critical race scholars have been saying for decades—namely, that racism isn't just a set of explicit *beliefs*, but a whole topography of ways of thinking.[91] What cogency theory highlights is that racialized reason is itself created by feeling. Rather than a set of propositional claims about who's up and who's down, racism is sunk deep into the bodies of both its agents and its victims. As Perry and others point out, it tinges the way we think about things in ways we don't expect—and that arguably become even harder to detect once we've persuaded ourselves that our thoughts are unaffected by feeling.[92]

Race and racialization come up again and again in the study of secularism, it seems, because secularism creates a canopy of obliviousness to its own affective determination—the way felt lines of continuity bolt secularists to histories, desires, and structures of violence from the past, even when the metaphysical proper nouns have all been changed. Denise Ferreira da Silva goes so far as to argue that the racial order of Euro-American modernity rests on exactly this denial of its own affective influences.[93] Secularism,

repeating the black monolith myth, often offers itself as the transformative irruption of rationality remaking the world. But the concept of *racialized reason* maps how old feelings stick to the new words and the new ideas hawked by modernity, gluing them into grimly familiar shapes.

Cogency theory connects conversations happening across the humanities, social sciences, and natural sciences. There's no shortage of material, and this book will consider only a handful of approaches.[94] The first part of the book surveys four resources for cogency theory: eighteenth- and nineteenth-century philosophy, affect theory, secularism studies, and contemporary psychology. The second part turns to the history of scientific secularism to consider how cogency shapes styles of disbelief—and responds to the question *How does secularism feel?*

Chapter 1 looks at three philosophers whose writings point to the inseparability of emotion and cognition. These philosophers—David Hume, Friedrich Nietzsche, William James—bookend one of the central figures in the story of cogency theory: Darwin. Hume dies before Darwin is born, but Darwin is strongly influenced by Hume's effort to imagine human thought as a feature of the natural world (rather than the shadow cast by a black monolith). Nietzsche, writing almost a century later, responds in complex ways to the challenge to human exceptionalism put down by Darwin. He locates morality, aesthetics, and reason itself inside bodies, though his elitism ultimately leads him to a warped picture of science. William James continues this line of development, building on Darwinian insights in ways that make feeling central for belief. Crucially, these thinkers point to a need to think about philosophy, science, and rationality as made up not just of *one* emotion, but of plural emotional priorities placed in tension. That's the sense of science. These same philosophical resources also help us better understand conspiracy theory—sham knowledge that superficially resembles science, but is built using a skewed emotional palette.

Chapter 2 turns to contemporary affect theory and the theme of racialized reason. Affect theory emerges out of a tradition that runs through Nietzsche (by way of French thinkers like Michel Foucault and Gilles Deleuze), queer theory, and feminism but is also shaped by psychology—both psychoanalysis and academic psychology from James and Darwin to Silvan Tomkins. Tomkins is especially relevant for moving beyond cogitation. His proposal to develop what he called *the psychology of knowledge* was rooted in his conviction that the components of cognition, such as the felt register of *interest*, could all be understood as affects, the matrix

of motivation in animal bodies. This gets picked up by Sedgwick, who develops it into what Lauren Berlant has called a *sensualized epistemology*—a theory of knowledge in full communion with feeling.

Queer theorists who have examined the relationship between affect and race make another vital contribution to cogency theory. Racialization, they show, is quickened by feeling. Racism, in this view, is not just a set of beliefs. Instead, the ideas and concepts that form the surface topography of racism are animated by an underlying emotional configuration. This includes a felt desire for racial others, what Sharon Patricia Holland calls racism's *erotic* aspect. *Racialized reason* names the way racism—both explicit racist beliefs and subtler forms of racist color-blind policy—becomes cogent *by feeling true*.

Chapter 3 considers the interdisciplinary field of secularism studies. It starts with Weber and traces his complex theory of *disenchantment* in the early twentieth century. The peak of the secularization thesis came in the late 1960s and 1970s—when the imminent vanishing of religion from the world was taken as given. But the same theoretical tools that predicted secularization also led to the overturning of the secularization thesis, because secular reason *itself* was increasingly seen as a parochial outlook on the world. Talal Asad, for instance, provides a genealogy of secular reason, analyzing how tendentious priorities, preferences, and concerns are embedded within self-avowedly neutral intellectual traditions. For Asad, this tracks the way secularism constitutes not just an analytic posture but also dispositions and habits—the *secular body*.

This chapter explores how secularism studies has developed two lines of interest relevant to cogency theory: disenchantment and critique. It reassesses Weber's consideration of science as a *vocation*—an emotionally urgent outcropping of the affective landscape of secular bodies—to argue that disenchantment has been misunderstood. For Weber, it wasn't the erasure of feeling; it was the emergence of *new kinds of feeling* as epistemological coordinates shift beneath our feet. The chapter then examines how Asad and Saba Mahmood have challenged the presumptive neutrality of *secular critique*, connecting their work to recent research in what has been called the *postcritical turn* in the work of Sedgwick, Latour, and Rita Felski. Both lines flesh out the question of *how secularism feels* in conjunction with changing horizons of knowledge. This is illustrated through the example of the Sheldonian Theatre itself, constructed in the early modern period, I argue, to architecturally separate secular and religious affects.

The final chapter of part I turns to contemporary psychology, a field in which the rejection of a divide between emotion and reason has been decisive. This consensus was articulated in Antonio Damasio's 1994 volume *Descartes' Error*, but the resources for cogency theory in psychology are extensive. As neuroscientists such as Lisa Feldman Barrett, Luiz Pessoa, and Elizabeth Phelps have pointed out, the integration of reason and emotion is evidenced by the structure of the brain. Neural tissue is so densely interconnected that the metaphysical categories we've inherited to separate *cognition* and *emotion* just don't line up. This chapter considers how contemporary neuroscience has pushed back on the twentieth-century *triune brain hypothesis* of Paul MacLean, which stressed the phylogenetic distinctiveness of the emotional and intellectual faculties. It then turns to experimental psychology, zooming in on the literature surrounding the *mere exposure effect* first examined by Robert Zajonc in the 1960s for another perspective on the relationship between emotion, cognition, and racialization.

Part II, "Feeling Science and Secularism," switches tracks. In light of the reconsideration of the relationship between emotion and cognition, it sets out to retell the story of scientific secularism. The guiding question here is something like this: If reason is felt, how does that change our understanding of the signal moments in Western intellectual history where evolutionary science and secularism seem to march hand in hand? It shows that just as scientific rationality is formed out of an alloy of feelings, so, too, are formations of the secular.

Each of the three chapters of part II reexamines a moment in science history in tandem with one of the book's key concepts. Chapter 5 considers the *sense of science* by looking at Darwin himself, who works at a turning point in the Western understanding of what it means to be human. But the focus will not be on Darwin's discoveries, exactly. Instead, the chapter considers how Darwin's own sense of science intersects with his approach to religious belief and disbelief. Darwin's story becomes even more interesting when we crosscut it with the attitude toward religion of one of his closest allies, Thomas Henry Huxley. Huxley, too, has a clear emotional signature on his science. But whereas for Darwin this leads to shy absorption in his studies, Huxley's science is vividly *social*—and often adversarial. The love of science, for Huxley, messes together with a love of fight. The different affective alloys undergirding the way they do science lines up with their divergence in how they feel their way to secularism.

Chapter 6 looks at the links between scientific secularism and *racialized reason* by reexamining the reception of Darwinism in the United States in the early twentieth century. Although many nineteenth-century American Protestants had found it easy to reconcile Darwinism and Christianity, the emergence of the fundamentalist movement in the 1910s set the stage for one of the most significant case studies in the history of science-religion interaction: the Scopes Trial of 1925. The tendency of scientific affects to mess together with a range of other secular feelings—including the felt component of racialized reason—is on full display in this case. This is particularly well illustrated by the contrast between two of the trial's main figures: William Jennings Bryan, the failed presidential candidate and fundamentalist ally who joined the prosecution, and H. L. Mencken, the eugenics-obsessed journalist who reported on the trial for the *Baltimore Sun*.

Chapter 7 moves to a final case study in scientific secularism: the contemporary New Atheist movement championed by scientists such as Richard Dawkins, Daniel Dennett, and Sam Harris. The chapter argues that the New Atheists are secularism's modern bulldogs, aggressively pushing a version of scientific secularism with more than a passing resemblance to conspiracy theory. As with Huxley and Mencken, their commitment to science messes together with a zeal for combat. This often glides into racialization, especially Islamophobic racism. It's paralleled by a sort of conspiracy theory version of evolutionary biology—adaptationist sociobiology, a simplex system strongly associated with the principal New Atheist writers. But this isn't the only version of secularism on offer. The chapter concludes by considering three atheists writing in the wake of the New Atheism—Sikivu Hutchinson, Anthony Pinn, and Chris Stedman—who are actively trying to rebuild atheism, in part by subjecting secular rationality *itself* to scrutiny. This leads to a sophisticated sensitivity to how racialization seeps through the walls of reason. These thinkers offer their own experiments in composing formations of the secular using feeling. The book's epilogue considers how cogency theory can help us understand contemporary climate denialism.

This book makes two specific arguments. The first is that there is no divide between emotion and reason. The reeling mass of information in our heads is not a grid of ones and zeroes. Thinking and feeling aren't just intertwined—that suggests they could be disentangled. They're a unity, but with distinct profiles when viewed from different angles, like architectural drawings showing two-dimensional aspects of a three-dimensional building.

Thinking *is* feeling. The second argument is that this reframing has consequences for how we think about things like science and secularism. If knowledge is felt, it is always in intimate proximity to *other* things we feel—things we want—including our secretly savored prejudices.

Cogency theory is not exactly new. Thinkers have been making versions of these arguments for centuries. But at the same time, the argument that reason itself is made by feeling is deeply unsettling to liberal common sense and its vision of Man as sovereign, self-lawed creature controlled by a rational soul. It intensifies what Shapin and Lawrence call "the shock value of speaking about scientific knowledge-making in relation to the body," spotlighting the unsteady ground on which the dangerously tilted monolith of secular triumphalism has been raised.[95] It changes our big-picture understandings of science, reason, and secularism itself, not to mention the everyday, embodied ways of knowledge-making from which they're built.

# Notes

Earlier versions of portions of the introduction and chapters 1, 5, and 7 appeared in "Beautiful Facts: Science, Secularism, and Affect," in *Feeling Religion*, ed. John Corrigan (Durham, NC: Duke University Press, 2018), 69–92; "The Secular Experiment: Science, Feeling, and Atheist Apocalypticism," in *Affect and Emotion in Multi-Religious Secular Societies*, ed. Christian von Scheve, Anna Lea Berg, Meike Haken, and Nur Yasemin Ural (London: Routledge, 2019), 211–27; and "The Wild Experiment: Emotion, Reason, and the Limits of Science," In *Are There Limits to Science?*, ed. Gillian Straine (Cambridge: Cambridge Scholars Publishing, 2017), 61–79.

### Introduction

1 Darwin Correspondence Project, letter no. 4061, http://www.darwinproject.ac.uk/letter/DCP-LETT-4061.xml.
2 Browne, *Power of Place*, 169.
3 Browne, *Voyaging*, 185–86.
4 Keller, *Feeling*, 198.
5 Quoted in Ranganathan, *Ramanujan*, 88.
6 Quoted in Jammer, *Einstein and Religion*, 56. See also Einstein, "Religion and Science."
7 Polanyi, *Personal Knowledge*, 201.
8 In Ayer, *Hume*, 2. René Rosfort and Giovanni Stanghellini point out that this comes out strongly in the play of Hume's style, allowing "his passions, sentiments, and taste to animate the text" ("Mood for Thought," 411). See chapter 1.

9 Berlant, *Female Complaint*, 4.

10 See, for instance, Fleck, *Genesis*; Harding, *Science Question*; Latour and Woolgar, *Laboratory Life*; Longino, *Science as Social Knowledge*; Oreskes, *Why Trust Science?*; and Shapin and Lawrence, "Introduction." One exception would be Isabelle Stengers, whose *Cosmopolitics I* does gesture at science as a passionate search for truth (Stengers, *Cosmopolitics*, 6). See also Shah, *Who Is the Scientist-Subject?*; P. White, "Introduction"; and associated special issue of *Isis* for an overview of how emotion has been explored in the history of science.

11 Latour, *On the Modern Cult*, 104.

12 See, e.g., Deleuze, *Bergsonism*; Manning, *Always More Than One*; Massumi, *Parables*; and Shaviro, *Discognition*. For a critique of this approach to affect, see Leys, *Ascent of Affect*. For a response to Leys, see Schaefer, *Evolution of Affect Theory*.

13 See Sorabji, *Emotion*, for an overview, as well as Nussbaum, *Political Emotions* and *Upheavals of Thought*.

14 See Dixon, *Passions*; and essays in Coakley, *Faith, Rationality, and the Passions*. Christian thinkers working on Pascal—author of the phrase "We know truth, not only by reason, but also by the heart"—have reached similar conclusions (see Pascal, *Thoughts*, 99; Ryrie, *Unbelievers*; Wood, *Blaise Pascal*). Ryrie's work is especially interesting in conversation with cogency theory, though he tends to see feelings as producing thoughts that are unmovable by new ideas and reasons (11). In some ways this ends up reinscribing the feeling/thinking binary, while cogency theory seeks to replace it with an intricate cat's cradle model in which pulling on feeling changes thinking and vice versa. For consideration of how Christian thought can be strung together with an affective account of belief, see Ward, *Unbelievable*; and Zahl, "On the Affective Salience" and *Holy Spirit and Christian Experience*.

15 See Colombetti, *Feeling Body*; Maiese, *Embodied Selves*; Protevi, "Adding Deleuze"; Svendsen, "Moods"; and Thagard, *Hot Thought*. See also Spinoza, *Ethics*, esp. part 3; Dumler-Winckler, *Modern Virtue*, on the work of Mary Wollstonecraft; Whitehead, *Process and Reality* and *Science*; and thinkers influenced by Whitehead like Manning and Shaviro.

16 See Riskin, *Science*; and M. Sullivan, *Secular Assemblages*.

17 See Levinson, "What Is New Formalism?"

18 See Heidegger, *Being and Time*; Rabinow, *Essays on the Anthropology of Reason*; Rubenstein, *Strange Wonder*; Maiese, *Embodied Selves*; and Kochan, *Science as Social Existence.* See Ahmed, *Queer Phenomenology* and *Promise of Happiness* for discussion of links between phenomenology and affect theory.

19 See Crawley, *Lonely Letters*; Harney and Moten, *Undercommons*; hooks, "Theory as Liberatory Practice"; Prescod-Weinstein, *Disordered Cosmos*; Quashie, *Black Aliveness*; McKittrick, *Dear Science*; Ferreira da Silva, *Global Idea*; and Wynter, "Disenchanting Discourse" and "Unsettling the Coloniality of Being/Power/Truth/Freedom." Wynter's larger body of work is particularly interesting here; McKittrick, commenting on Wynter commenting on Fanon, sums up their epistemology as "*knowing is feeling is knowing*" (*Dear Science*, 60, emphasis in original).

20 See Haidt, *Righteous Mind*. See also those influenced by the work of Jaak Panksepp, e.g., Asma and Gabriel, *Emotional Mind*.

21 See Blackman, *Haunted Data*; Hamner, "Affect Theory"; and Manning and Massumi, *Thought in the Act*.

22 For Indigenous North American perspectives on disrupting the feeling/reason binary, see, e.g., Deloria, *Metaphysics of Modern Existence*; Harjo, *Spiral to the Stars*; Kimmerer, *Braiding Sweetgrass*; and Wilson, *Research Is Ceremony*. For Islamic perspectives, see Asad, *Secular Translations*, esp. chap. 2. For approaches from Indian philosophy, see Dharwadker, "Emotion in Motion"; and Prakash, *Another Reason*, chap. 2. Some other promising sources have also been neglected: conversations on intellectual emotions taking place in analytic philosophy of science (see Kochan, *Science as Social Existence*, appendix, for an overview); reflections on scientific feeling in scientists' autobiographies (see Thagard, *Hot Thought*, for an excellent survey); and debates about the role of beauty in scientific reasoning (especially physics).

23 Deleuze, *Spinoza*.

24 I don't, for instance, use *affect* to mean *becoming*, as in the works of affect theorists influenced by Gilles Deleuze (see n16 above), or *susceptibility*, used in the work of scholars influenced primarily by Spinoza and Whitehead. See, e.g., Bennett, *Vibrant Matter*; and Shaviro, *Discognition*. See Dixon, *Passions*, 247, for a helpful note of caution about pinning too much hope on precise definitions of key terms like *passion* and *emotion*.

25 Bloor, *Knowledge and Social Imagery*, 7.

26 Foucault, *Order of Things*, xxiv.

27 Fanon, *Black Skin, White Masks*, 28–29.

28 Jordan-Young and Karzakis, *Testosterone*, 60.

29 Perry, *More Beautiful*, 42, emphasis added.

30 Chen, *Animacies*. See chapter 2, below.

31 Eliot, *Middlemarch*, 156, emphasis added.

32 Sedgwick, *Touching Feeling*, 167, emphasis in original.

33 Other terms proposed to consider this relationship include *cogmotive* and *cogaffective* in psychology or affect theorist M. Gail Hamner's notion of the *affecognitive* (Plamper, *History of Emotions*, 246; Hamner, "Affect Theory"). These are helpful terms, but my focus is on hearing existing words differently rather than creating a new technical vocabulary.

34 Shapin and Lawrence, "Introduction."

35 Daston and Galison, *Objectivity*, 52.

36 Latour, "Why Has Critique . . . ?," 231.

37 Kuhn, *Structure*, 6.

38 Kuhn, *Structure*, 4.

39 Kuhn, *Structure*, 112.

40 There are ambiguities in Kuhn's position. Even in his famous postscript—added to the 1970 second edition of *Structure*—Kuhn is difficult to pin down. "I am a convinced believer in scientific progress," Kuhn tells us, but then he scolds us for

thinking this means that "successive theories grow ever closer to, or approximate more and more closely to, the truth" (Kuhn, *Structure*, 206). Maben Poirier reads the postscript differently, seeing it as Kuhn's total capitulation to the empiricists and an invalidation of the argument of the first edition. This seems extreme to me, but it does speak to the stunning ambiguity in Kuhn's own attempts to explain himself (Poirier, "Comment," 266n5).

41 Latour, *Pandora's Hope*, 1, emphasis added.

42 See Alaimo and Hekman, *Material Feminisms*; Barad, *Meeting the Universe Halfway*; Coole and Frost, *New Materialisms*; and Elizabeth A. Wilson, *Gut Feminism*. See also Haraway, *Simians, Cyborgs, and Women*, the philosophical antecedent of contemporary feminist new materialisms, which moves on from Kuhn's mind-only epistemology by thematizing the thinking body as a "material-semiotic generative node" (200). Cogency theory extends this insight by adding feeling to the equation, framing knowledge production as a *material-semiotic-affective* process.

43 Alaimo and Hekman, "Introduction," 4.

44 Oreskes and Conway, *Merchants*; Oreskes, *Why Trust Science?*

45 Latour, "Why Has Critique … ?" See chapter 3 below for discussion.

46 Jaggar, "Love and Knowledge," 155. See also Code, "Taking Subjectivity into Account."

47 See Poirier, "Comment"; Moleski, "Polanyi vs. Kuhn"; Jacobs, "Polanyi and Kuhn"; and Timmins, "Kuhn's *Structure*."

48 In Moleski, "Polanyi vs. Kuhn," 14.

49 Moleski, "Polanyi vs. Kuhn," 17.

50 Jacobs, "Polanyi and Kuhn," 26; Timmins, "Kuhn's *Structure*," 310.

51 Moleski, "Polanyi vs. Kuhn," 17; see also Kuhn, *Structure*, 44.

52 Poirier, "Comment," 264.

53 Polanyi, *Personal Knowledge*, 151.

54 Poirier, "Comment," 267.

55 Poirier, "Comment," 274.

56 Even Kuhn's friendly nods to Polanyi read him as rhyming with the language-obsessed philosophy of Ludwig Wittgenstein. For instance, *tacit knowledge* for Kuhn is nothing more than the pieces of the *language game* of science that remain unsaid (Kuhn, *Structure*, 45–46).

57 Poirier, "Comment," 272; Moleski, "Polanyi vs. Kuhn," 21.

58 Polanyi, *Personal Knowledge*, 140, emphasis added.

59 Polanyi, *Personal Knowledge*, 141.

60 Polanyi, *Personal Knowledge*, 206.

61 Polanyi, *Personal Knowledge*, 143.

62 Polanyi, *Personal Knowledge*, 159.

63 Polanyi, *Personal Knowledge*, 141.

64 Polanyi, *Personal Knowledge*, 142; see also Feyerabend, *Against Method*, 17.

65 Polanyi, *Personal Knowledge*, 200.

66 In Moleski, "Polanyi vs. Kuhn," 14.

67 Even *Structure* has moments where the intuitive component of science breaks in. Most of ordinary science, Kuhn writes, is about chasing down little clicks, "a fact that makes it no less fascinating to the proper sort of addict" (Kuhn, *Structure*, 37).

68 Lisa F. Barrett, *How Emotions Are Made*, 82.

69 But evolution is also messy, and complicated organisms are never fitted into their world in perfectly tailored boxes (Schaefer, *Religious Affects*, chap. 5).

70 Disraeli, *Church Policy*, 26.

71 See Foucault, *History, Vol. 1*, for this analysis of power as something inherent in relationships rather than, as liberal political theory would have it, an external force invading the sovereignty of subjects.

72 Psychologists call this *affect realism*. Lisa F. Barrett, *How Emotions Are Made*, 74.

73 Aquinas, *Summa*, part I, question 51.

74 Dawkins, *God Delusion*, 395.

75 See Goodenough, *Sacred Depths*; and Levine, "Introduction." See Sideris, *Consecrating Science*, for a comprehensive study and criticism of this approach.

76 Dawkins, *Unweaving*, 8; *God Delusion*, 111.

77 Scheer, Johansen, and Fadil, "Secular Embodiments," 2.

78 Schaefer, "Darwin's Orchids."

79 Nordern, "*Playboy* Interview," 49.

80 Wynter, "Unsettling the Coloniality of Being/Power/Truth/Freedom," 281.

81 Goodall, *Through a Window*, 14.

82 Schaefer, *Religious Affects*, chap. 5.

83 Jakobsen and Pellegrini, "Introduction," 22. See chapter 3 below for further discussion of this question.

84 This is complicated by Weber's suggestion in his late essay "Science as a Vocation" that science is responsible for *disenchantment*, or *Entzauberung* (literally "demagification"). See chapter 3 below for further discussion.

85 See, for instance, Farman, "Mind out of Place," "Re-enchantment Cosmologies," and *On Not Dying*; Ogden, *Credulity*; and Elizabeth A. Wilson, *Affect*. Interesting parallels can also be drawn with recent work on Soviet and post-Soviet secularism, such as Luehrmann, *Secularism Soviet Style*; Pelkmans, *Fragile Conviction*; and Smolkin, *Sacred Space*. An exception is Asad, *Secular Translations*, which directly engages—and attacks—science. See chapter 3 for a discussion.

86 Taylor, *Secular Age*, 12.

87 Hume, *Natural History,* 66; see also M. Sullivan, *Secular Assemblages*.

88 Shelley, "Necessity of Atheism"; Comte, *Positivism*.

89 Barton, *X Club*, 31; Draper, *History of the Conflict*; A. D. White, *History of the Warfare of Science*.

90 Freud, *Future*, 71.

91 Lloyd, "Introduction," 4.

92 See Ferreira da Silva, *Global Idea*; S. J. Gould, *Mismeasure*, 36; and Jaggar, "Love and Knowledge," 158.

93 Ferreira da Silva, *Global Idea*, xl.
94 These are mostly drawn from English-language sources. The handful of exceptions, considered in translation, are Nietzsche, Weber, and Foucault.
95 Shapin and Lawrence, "Introduction," 14.

### Chapter 1: The Longing to Believe

1 Hofstadter, "Paranoid Style," 77.
2 See, for instance, Barkun, *Culture of Conspiracy*; Coady, "Are Conspiracy Theorists Irrational?"; Keeley, "Conspiracy Theories"; Lewandowsky and Cook, *Conspiracy Theory Handbook*; Pelkmans and Machold, "Conspiracy Theories"; and Sunstein and Vermeule, "Conspiracy Theories."
3 See Lepselter, *Resonance*; Rice, *Awful Archives*; Sedgwick, *Touching Feeling*; and Stewart, *Ordinary Affects*.
4 Aristotle, *Metaphysics*, 2.
5 Augustine, *Confessions*, 211.
6 Spinoza, *Ethics*, 29.
7 Spinoza, *Ethics*, 29.
8 De Condorcet, *Outlines*, 256. Discussed further in M. Sullivan, *Secular Assemblages*. My thanks to Marek Sullivan for teaching me this material.
9 Popper, *Logic*, 8–9.
10 Colombetti, *Feeling Body*; Maiese, *Embodied Selves*; Protevi, "Adding Deleuze."
11 Nussbaum, *Political Emotions*; *Upheavals of Thought*.
12 In Thagard, *Hot Thought*, 211.
13 Thagard, *Hot Thought*, 21.
14 Huntley, "Hume and Darwin," 465.
15 Browne, *Voyaging*, 364.
16 Hume, *Enquiry*, 19–20.
17 Hume, *Enquiry*, 23, emphasis in original.
18 Hume, *Enquiry*, 22.
19 Hume, *Enquiry*, 151.
20 Kant, *Critique*.
21 Hume, *Enquiry*, 35, emphasis added.
22 Hume, *Enquiry*, 35.
23 Hume, *Enquiry*, 35.
24 Hume, *Treatise*, 416.
25 Hume, *Treatise*, 415.
26 Hume, *Enquiry*, 21.
27 Hume, *Treatise*, 418.
28 Hume, *Treatise*, 437.
29 Harrison, *Territories*, 5.
30 Hume, *Treatise*, 450.
31 Hume, *Treatise*, 423.
32 Hume, *Treatise*, 451.