

Enframing and Enlightenment:
A Phenomenological History of Eighteenth-Century British Science, Technology, and Literature

By

Adam Miller

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Approved:

Jonathan Lamb

Bridget Orr

Dahlia Porter

David Wood

Nor ye who live
In luxury and ease, in pomp and pride,
Think these lost themes unworthy of your ear:
Such themes as these the rural Maro sung
To wide-imperial Rome, in the full height
Of elegance and taste, by Greece refined.
In ancient times, the sacred plough employed
The kings and awful fathers of mankind:
And some, with whom compared your insect tribes
Are but the beings of a summer's day,
Have held the scale of empire, ruled the storm
Of mighty war; then, with unwearied hand,
Disdaining delicacies, seized
The plough, and greatly independent lived.
Ye generous Britons, venerate the plough!

(Thompson 1788, 4-5).

Introduction

This is the story of Enframing as it appeared in Britain from 1660 to 1800. This word, Enframing, is the standard English translation of the German neologism *Ge-stell*, invented by Martin Heidegger in his 1954 essay, “The Question Concerning Technology.” Heidegger calls Enframing the essence of technology: that which structures technology’s myriad instantiations or “self-revealings” as material objects (e.g., hydroelectric dams, personal computers, automobiles, and so on). Enframing also structures the way humans experience these objects and the raw materials they manipulate. Humans, machines, materials: Enframing orders all of these things as potential resources—a “standing reserve” of past, present, and future use. The motion of a river is captured by the turbines of the dam, the energy of the electron is routed by the computer, and the liquefied bones of ancient lizards lubricate motor engines. As a “challenging claim,” Enframing goes further than merely revealing a thing’s potential utility; it forecloses *all other* possibilities of a thing’s self-revealing—its non-useful possibilities—as less “true,” less close to the reality of what the thing *is*.

The principle means of accomplishing this foreclosing, Heidegger claims, is modern physical science. It too is structured by Enframing, for the language of science—quantitative, categorical, atomistic—delimits the vocabulary by which a thing reveals itself to human beings. Heidegger’s emphasis on the language of science also dictates the setting of the story I mean to tell. While Heidegger’s discussion of technology is primarily aimed at the twentieth century, I turn to an earlier chapter in Enframing’s history—the century and a half that falls between Europe’s Scientific and Industrial Revolutions. It is during this period, I argue, that the work of Enframing came to be represented in a way which we might call modern. Thanks to the institutionalization, proliferation, and commodification of physical science, Enframing found its voice in the form of empirical fact.

Other scholars have recognized the epistemological significance of this period as well. Economic historian Joel Mokyr calls this epoch the Industrial Enlightenment: “that part of the Enlightenment which believed that material progress and economic growth could be achieved through increasing human knowledge of natural phenomena and making this knowledge accessible to those who could make use of it in production. It was believed that social progress could be attained through the ‘useful arts,’ what we today call science and technology, which should inform and reinforce one another” (Mokyr 2009, 40). Following the methods of economic history, my historical archive includes documents which pertain directly to fields like legislation and industrial infrastructure. I examine letters patent, scientific experiments, and philosophical doctrines that I believe contribute to this conditioning work.

To focus only on those documents, however, would inevitably produce a teleological narrative of events: everyone knows how this story ends, and an examination of such “technical” documents is valuable only insofar as it details the means by which this story’s *telos* was achieved. It is here that literature, particularly the advent of the European novel, enters the scene. As mimetic work, fiction contributes to the detailing of the modes of conditioning mentioned above. As aesthetic work, it can condense and frame these modes of conditioning in discrete, legible units. As political work, it can represent social resistance to or advocacy of this developing narrative of scientific and industrial progress. And finally, as fictional work, literature is capable of imagining *alternative* modes of ordering the relationships between humans and things.

It is this last capability that fascinates me most, for it raises the possibility of a proliferation of relationships between humans and things rather a singular dialectic between say, subject and object, user and tool, or owner and property, which might ultimately be synthesized or deconstructed. Fiction, I argue, allows us to consider all of these possible relationships; to hold them at once apart and together like specimens in a cabinet or pages in a book. It allows us to contemplate them; to *think* about them. It is my belief, as it was Heidegger’s, that

by way of thinking, we open ourselves to a more complete and more true picture of the relationships between humans and things. This ambition is not motivated by radical post-humanism or anti-technological anxiety. The work of Enframing—the revealing of the world as standing reserve—is not in itself good or bad, empowering or endangering. But if this work is indeed occurring, it is critical—if we are to form a more complete picture of historical conditions—to tell its story, and in so doing, to acknowledge that its narrative, like any narrative, is discrete, historical, and dialogical.

Everyday Enframing

Before diving headlong into an exegesis of Enframing, phenomenology, and Heideggerian thought more generally, I would first appeal to some of “our”—by which I colloquially mean “twenty-first century Western”—observations on technology and its protocols.¹ I will refer to the latter as techno-logic to distinguish these *prima facie* observations from Heidegger’s strict definition of Enframing and essence. Published in 1954, “The Question Concerning Technology” was written amidst the technological boom that occurred after the Second World War. The West was flooded with new technologies: televisions, radios, commercial airliners, atomic bombs, and hydroelectric dams. A century earlier the Industrial Revolution had transformed Western Europe and the United States with its propagation of steam power, chemistry, metallurgy, and mass production. Today, the same revolutionary status is awarded to digital technologies like personal computers and the myriad servers that compose global networks of electronic data. In the future, perhaps, the same will be said of quantum processing or interplanetary travel.

¹ A major task of this book is to provincialize this kind of Occidentalism, but for purposes of introduction, I will reproduce it here.

What could be more marvelous, more paradigm shifting, than reaching the next horizon of technological innovation? This ambition drives industries, governments, and the rare Edisonian geniuses to invest capital, material, and scientific research in the pursuit of invention.² It also inspires artists from science fiction authors to cyborg embodiment artists to imagine this technological future for their respective communities.³ Meanwhile, the mere hint of “the next big thing” compels consumers to invest in the iterative steps towards technological improvement: the smaller phone, faster computer, or more fuel efficient car.

One need not reductively conflate these impulses with free market capitalism, either. Even Karl Marx would agree with the objectives behind this production and consumption, if not its actual mode. He writes: “The object of labor is... the *objectification of man’s species-life*: for he duplicates himself not only, as in consciousness, intellectually, but also actively, in reality, and therefore he sees himself in a world that he has created” (Marx 1988, 77). In other words, we see ourselves—locally and on rarer occasion universally—in our technological achievements. Technology, we intuit, is and has always been what separates “us” *homo faber* from the beasts. We may not be the only tool-users in the animal kingdom, but we are the only practitioners of techno-logic: the rationalization that technology can continually be improved for our benefit.

But what would happen if we questioned this belief? What if we were to ask instead: “Is technology really moving itself *towards* something or is it moving *away* from something else?” In both scenarios, one foot is put in front of the other, so to speak, but the compulsion to move and the consequences of failing to

² At the time of this writing, the inventor *du jour* is Elon Musk who is pushing the development of the electricity powered car on Earth and the first human landing on Mars. He was preceded, at least in the popular consciousness of the American consumer, by the late Steve Jobs.

³ The concept of the “singularity”—the historical moment when human and artificial intelligences become indistinguishable—has been popularized via the fiction of Vernor Vinge. For cyborg embodiment, the reader would do well to seek out the works of Australian performance artist Stellarc.

do so are drastically different. If, for example, the latter were the actual case, then what would technology be running from? Imagine: Prometheus descends Olympus, torch in hand. Fire is brought to the mortals and human history changes forever. But there is an important absence in Hesiod's telling of the Prometheus myth: what happens when the flame dies out? Does humanity stumble back into darkness or must Prometheus scramble up the mountain to pilfer a new one? Neither, so long as we mortals respond to Prometheus' gift with techno-logic—the concession that it is incumbent upon us to invent torches that burn longer and brighter; torches that amplify light through the use of mirrors; torches that no longer depend on wood for fuel, but now burn the fat of animals or neon and fluorescent gasses; torches that pass electrical currents through wire-thin filaments and burn for months instead of hours. One foot in front of the other, each torch more brilliant than the last.

If this is “progress,” then again one might ask: progress towards what? What criteria would need to be met for humans to stop inventing new ways to generate light? How would one define the “ideal” torch that would render all further torch innovation pointless? Perhaps a torch that never dies, or that shines brighter than the sun? Humans may be capable of dreaming and even achieving such ends, but techno-logic, I argue, is indifferent to these ambitions. Consider the twentieth-century “space race” between the U.S.S.R. and the United States. There can be no clearer example of goal-oriented technological progress than John Kennedy's 1962 address at Rice University: “We choose to go to the moon in this decade and do the other things, not because they are easy, but because they are hard, because that goal will serve to organize and measure the best of our energies and skills, because that challenge is one that we are willing to accept, one we are unwilling to postpone, and one which we intend to win.” Astoundingly, this goal was achieved. The race was “won,” and technological innovation was key to that victory. As a result, Neil Armstrong's voice crackled a few choice words after they were sent hurtling across 230,000 miles of vacuum in 1.5 seconds before

being volleyed around the planet by an array of radio towers: “One small step for [a] man, one giant leap for mankind.” One more foot in front of the other.

Yet while it is correct to say that technology enabled humans to walk on the moon, it would be another thing to claim that landing on the moon was a techno-logical achievement. This is because the techno-logic of the space race responded *only* to a very human and very ancient shortcoming that remains as problematic today as it did in 1962: the human body cannot survive in the vacuum of space.⁴ The computers, the rocket fuels, the navigation systems, the piloting controls, the Lunar Landers, the space suits: each of these innovations responded to a *lack* in capability; an aversion to the myriad ways vacuums kill; ways which humans have known about since the English natural philosopher Robert Boyle first put birds and insects in his seventeenth-century air-pump. There was *never* a dream of building a perfect spacecraft, only one that could get three humans to the moon and back again, which is to say, only one that could shore up the fragilities of the human body just long enough for the ambition of space travel to be achieved. It is for this reason that techno-logic, even when imbricated with human achievement and progress, is an anti-regressive practice. Technology shores up the fragility of our human intentions against the unruly, uncaring, nature of things.

If this characterization squares at all with our everyday experiences of technology, then a second observation comes into view: technology must also be, somehow, surreptitious. Intuitively, it appears to us as a symbol of progress—good or bad—and yet this appearance conceals the actual impetus of its proliferation: anti-regress. How does this concealment work? Why do enemies and proponents of technology alike find its fundamental progressivism so readily believable? The answer, I think, can be given in two words: *things work*. One need not be standing on the moon to concede this; we depend upon it every day. When we flip the switch, the room is flooded with light. When we turn the key, the engine starts. Each time technology seamlessly causes things to work in

⁴ Not to mention the many other dangers—radiation, foreign objects—that confront astronauts.

accordance with our intentions—to see, to go, to breathe, to sleep—it affirms its progressive truth. Things work. Our intentions are met. We see with corrective lenses. We go in subterranean trains. We breathe machine-conditioned air. We sleep on therapeutic mattresses.

Things do not only work, they work *for us*; they are there *for us*. The concealing character of technology appeals to our anthropocentrism. None other than the ostensible creator of the scientific method, Francis Bacon, conjectured that after Prometheus brought the torch down from Olympus mankind entered an anthropocentric Golden Age. In *The Wisdom of the Ancients* he writes:

Man is as it were the centre of the universe, with relation to final causes, so that if man be removed from nature, all other things appear to fluctuate in endless error, and to be as it is called deprived of their tendency, and left without a scope to seek... For all things are subservient to man... The revolutions and periods of the stars apply both to the division of time and to the distribution of climates. Celestial appearances are employed for prognostics of weather, winds for navigation... (Bacon 1840, 311).

The entire cosmos is there, waiting for us to use and employ it to our own ends. Without us, there is only matter fluctuating in an endless vacuum. While it is true that stars are used for navigation and the measuring of time, and that winds are used to propel vessels both in sea and air, it is also true that these things are just as likely to lead us astray as they are to aid us in our ambitions. The same winds that propelled the famed explorer James Cook around the globe sent the equally renowned Admiral Cloudesley Shovell to his death amongst the rocks off the coast of his native England. And yet, for all the scientific impact of Cook's voyages, it was Shovell's catastrophic trip—which lasted less than a month—that spurred one of the greatest technological achievements of the eighteenth century:

John Harrison's invention of the ocean chronometer and its accurate accounting of a ship's longitude at sea.

Indeed, it is often when the security of our anthropocentrism is threatened or displaced that we turn a skeptical eye to the techno-logic that we rely on every day. Airplanes are an everyday sight over our skies. They rarely give us pause, unless we are their passenger. Then—then!—we pray to the gods of artifice (“Preserve us this aluminum shell!”) and the gods of nature (“Spare us thy turbulence!”) for our safe deliverance. And if those gods do not answer, we answer for them: “Global Positioning Satellites provide the most accurate coordinates available. Triple fail-safe computers manage the plane's pitch and heading. The cabin is pressurized and regulated by environmental control systems. The wings are attached by a cantilever system of spars and ribs refined over a century of flight.” And if we still doubt, there is one final god we can appeal to, science herself: “Drag, lift, speed... Physics tells us that the plane *wants* to stay in the air.”

And then, upon landing, how quickly we abandon these disturbing thoughts!

Still, technology need not be a harbinger of death for us to cast a contemptuous eye in its direction. When, upon turning the key, our car fails to start or when, upon flipping the switch, the torch fails to light, we mutter to ourselves about the shoddiness of our technological condition. And yet our solutions to these technological shortcomings seem always to remain technological. Our thoughts turn to repairing the situation; to returning the technology to its “proper” role as that which works for us; not that which interferes with our intentions.

These observations, drawn from a certain “everyday” techno-logic, begin directing us (however superficially) towards an understanding of Heidegger's concept of Enframing. Techno-logic, as the word suggests, reflects a belief system, a rationale, or an ideology, as it were. Enframing, as we will see, is something slightly different; something which Heidegger calls an essence.

The Problem of Essence

Heidegger calls Enframing the “essence” of technology. Thus, to understand what Enframing “is,” it is necessary to establish what Heidegger means by essence. An essence, in the context of phenomenology, signifies the “true”—sometimes interpreted as “original”—phenomenon that gives a thing its structure or makes a thing present itself the way it is. The essence of a thing is *not* the sum of its material properties or components, rather these elements are the effects of a thing’s essence. To illustrate, consider the classical “Ship of Theseus” paradox. In the story’s original form, The Greek historian Plutarch writes:

The ship wherein Theseus and the youth of Athens returned from Crete had thirty oars, and was preserved by the Athenians down even to the time of Demetrius Phalereus, for they took away the old planks as they decayed, putting in new and stronger timber in their place, in so much that this ship became a standing example among the philosophers, for the logical question of things that grow; one side holding that the ship remained the same, and the other contending that it was not the same (Plutarch 1885, 21).

The phenomenological resolution to the paradox highlights the difference between essences and properties. In Plutarch’s telling, the material properties of the ship change, but the *essence* of the ship—its *shipness*—remains intact. For it is this essence, this “shipness”, that gives structure to the renovation of its material properties. Hulls are not suddenly repaired with cloth, or sails with wood. Nor is the ship suddenly treated as, say, a living animal. The phenomenological paradox, therefore, is less concerned with the moment when the thing ceases to be the ship “of Theseus,” and more concerned with when the thing ceases to be a

ship at all; that moment when “shipness” ceases to be the essence that gives structure to the arrangement of the object’s material properties.

I invoke the term essence in order to qualify what counts as transformation or change. Theseus’ ship undergoes numerous material changes, but it never undergoes an essential change: the termination of ship as ship and the successive becoming of ship *as* something else. Both kinds of change play a part in the historical record, but for the purposes of telling the story of Enframing, these essential changes or “turnings” are of special importance.

It quickly becomes clear why this is so. Just as the essence of ships has nothing to do with planks or sails, the essence of technology, Heidegger writes, is “by no means anything technological.” Rather, “The manufacture and utilization of equipment, tools, and machines, the manufactured and used things themselves, and the needs and ends that they serve, all belong to what technology is” (Heidegger 1977, 20). Heidegger’s diminution of instrumental definitions of technology (“technologies are means to ends”) saves us from many of the blind alleys that have confused earlier attempts to analyze technology and the Industrial Revolution. The story of Enframing will not be written in the dualisms of primitive versus modern or tool versus machine. Nor will it be discovered in the deconstruction of those dualisms. Modernity or automated machinery (or digitalized information or quantum mechanics) may structure what technology “looks like” in the same way that the refurnishing of Theseus’ ship changes its material components, but they do not transform the essence of technology. Indeed, to do so would be to change technology into some-thing-else, an historical event more radical than the invention of the microprocessor or the steam engine.

While the capacity for essence to measure radical, phenomenological change is of great critical value, it also comes with serious risks and burdens. First, the quasi-material nature of essence poses a problem for anyone attempting to produce traditional historical and literary readings of Enframing, for it immediately refuses the triangular structure of the dialectic (thesis / antithesis -> synthesis) which has propelled post-Hegelian and post-Marxist histories of the

Enlightenment.⁵ Questioning after essences invokes a different geometric figure: the circle. Heidegger embraces this: “Anyone can easily see that we are following a circle... This is neither a makeshift nor a defect. To enter upon this path is the strength of thought, to continue on it is the feast of thought, assuming that thinking is a craft” (Heidegger 2001, 18). Despite Heidegger’s triumphalism, circular thinking runs nervously close to that “violation of logic,” the tautology. If one is careless in this kind of thought, a rather ugly picture can emerge:

- (i) Technology presents itself the way it is because its essence is Enframing.
- (ii) Enframing presents itself as technology because Enframing is the essence of technology.

Such painful assertions must obviously be avoided if essences like Enframing are ever to inform our analyses of literature and history. Indeed, it is precisely this kind of thinking that compels Heidegger to hastily assert that the essence of technology “is by no means anything technological,” for claiming the opposite would trap him in a circular *logic* rather than a circular thinking. A given technology is *one* expression of Enframing just as the ship of Theseus is *one* expression of “shipness.” If I am to defend against claims of tautology, I must find other, non-technological expressions of Enframing to compare to the technologies themselves. Only by populating an archive with these discrete expressions can one begin to induce the presence of Enframing as phenomenon—just as one would induce the presence of any other historical structure (i.e., race, gender, class, and so on).

That said, the danger of tautology is perhaps the least problematic aspect of phenomenological essentialism. The concept of essence has largely been

⁵ I have in mind the kind of histories painted by Adorno, Horkheimer, and Foucault.

ushered out of fields like the history of science, if it was ever welcome in the first place. Actor-network theory, one of the most successful methodological interventions in the history of science, rejects any attempt to explain or even identify the structures that cause networks of knowledge or practice to appear the way they do. Instead, its objective is merely to describe such networks; much as an anthropologist might describe the organization of an indigenous community rather than hypothesize as to why that community came to be organized in such a way.⁶ Consequently, there is no room to suppose the presence of such a thing as Enframing in this theoretical approach. To do so would be to suppose something “outside” the network which gives structure *to* the network.

Similar reservations towards essentialism are held by scholars entrenched in the humanities. For many, Heidegger’s essentialist thinking was outmoded by the post-structuralist “turn” championed by Jacques Derrida and Jacques Lacan. Essentialism has also been associated with conservative political agendas in contexts of gender, race, and class—the very ranks of phenomena I encourage Enframing to join. To posit, for example, that there is some essential element to “being human,” is inevitably to exclude individuals or groups that either objectively fail to exhibit that essence or actively reject that essence for political reasons.⁷

Heidegger might counter that the political and the social are, almost by definition, superficial structures; structures which conceal the “true” essences that catalyze them. The only way to look past these structures is through a disciplined thinking of essence. A typical—and controversial—illustration of this thinking is expressed by Heidegger’s remarks on Europe’s post-World War housing crisis. In the essay “Building, Dwelling, Thinking” he writes:

⁶ See Latour 2013 for a book-length demonstration of this approach.

⁷ Indeed, the methodologies of queer theory, post-humanism, eco-criticism, and animals rights theory have all mobilized the shortcomings of essentialist claims towards their respective critiques of the Enlightenment.

On all sides we hear talk about the housing shortage, and with good reason. Nor is there just talk; there is action too. We try to fill the need by providing houses, by promoting the building of houses, planning the whole architectural enterprise. However hard and bitter, however hampering and threatening the lack of houses remains, the *real plight of dwelling* does not lie merely in the lack of houses. The real plight of dwelling is indeed older than the world wars with their destruction, older also than the increase of the earth's population and the condition of the industrial workers. The real dwelling plight is this, that mortals ever search anew for the nature of dwelling, that they *must ever learn to dwell*. What if man's homelessness consisted in this, that man still does not even think of the *real* plight of dwelling as *the* plight. Yet as soon as man *gives thought* to his homelessness, it is a misery no longer (Heidegger 2001, 158-9).

Heidegger admonishes post-war reconstruction efforts for rushing to build before stopping to think about the “deeper” structures building relies upon (namely, dwelling). It is our disregard for dwelling, Heidegger suggests, that truly gives misery to our homelessness. A common response from Heidegger's critics is that once one of these deep structures or essences is named it becomes open to deconstruction and exception. Why should the essence of building be dwelling and not moving? What about the nomad? Or, more damningly, the gypsy—who was murdered by the very Nazi Party that Heidegger belonged to?

On these specific points I can only agree with his critics: Heideggerian essentialism *does* run into the problem of material history, which is so vast and so fluid that any essentialist claim erodes against a flood of counter examples. Indeed, what can be questioned about the essence of building can also be questioned about the essence of technology. Why should the essence of

technology be Enframing? Why is there an imperative to invoke such an essence at all? Heidegger was asked almost this exact question about the most contested essence of them all, Being. In a letter, a student asks Heidegger, “Whence does thinking about Being receive... its directive?” In other words, why bring up all this essentialism in the first place? Heidegger replies:

In thinking of Being, it is never the case that only something actual is represented in our minds and then given out as that which alone is true. To think ‘Being’ means: to respond to the appeal of its presencing. The response stems from the appeal and releases itself toward that appeal. The responding is a giving way before the appeal and in this way an entering into its speech (Ibid, 181-2).

The key words of this passage, I believe, are presence and speech. To think about Being—or any essence—is to think about the ways by which it presents itself to us. This presencing is always contingent on time, place, and community (i.e., the “us” to which it presences). Enframing *presented* itself differently in eighteenth-century Britain than it did in twentieth-century Germany. Britons in 1790 did not have to worry about an arsenal of atomic weapons that could wipe life from the face of the planet. This is a material, historical fact that must be treated seriously. At the same time, this material fact does not mean that atomic bombs and power looms are essentially alien to each other. On the contrary, Heidegger would argue, the essence which structures them, Enframing, has remained largely unchanged from the eighteenth century till now. Only its *presencing* (that which it comes to be as) has evolved.

But how does one express this presencing and/or its evolution without misrepresenting it? This problem applies to the second key word of Heidegger’s passage, speech. It is in the translation of presence into speech (and then into language) that distortions occur. Heidegger impels us to enter into “its” speech; to hear the speaking of the essence before translating that speech into “our”

language.⁸ He continues, “The responding must take into account all of this, on the strength of long concentration and in constant testing of its hearing, if it is to hear an appeal of Being. But precisely here the response may hear wrongly. In this thinking, the chance of going astray is greatest” (Ibid, 182). This is the twofold hermeneutic prompted, but not guaranteed, by Heidegger’s essentialism: it is to recognize or “hear” the presencing of essence, and to translate the speech of that presencing into language, as thoughtfully as one can.

As we have seen already, this can be an “errant,” even dangerous hermeneutic, but its errancy, I argue, is where scholarly critique and debate can productively take place. If we return to Heidegger’s statement regarding the post-war housing crisis, we might argue that he “mistranslates” the speech of *dwelling* in the post-war acts of building. But we need not therefore claim that the essence dwelling does not exist or, even worse, is beyond intelligibility. For in reading “Building, Dwelling, Thinking,” I would hope, one can recognize *some truth* to the essential relationships Heidegger describes, even if one objects to his specific translation of its presence.

The task of this dissertation, therefore, is to carry this hermeneutic to eighteenth-century Britain, to listen for the speech of Enframing in that time and place, and to translate that speech as accurately as possible. In short, the task is not only to recapitulate how Enframing *works*—a task that Heidegger has attempted at length—but to explain how and why it *presences* in a specific time and place: namely, the British Industrial Enlightenment.

The British Industrial Enlightenment

Historian Joel Mokyr dates the Industrial Enlightenment from 1700 to 1850, but I meddle with his dates somewhat in order to better understand the

⁸ This approach stands at odds with Derridean deconstruction, which would hold that language (*langue*) always precedes speech (*pârole*).

traditional epochs it bridges: the Scientific and Industrial Revolutions. In the British context, the beginnings of the Scientific Revolution can be associated with Francis Bacon and his publication of *Novum Organum* in 1620. Bacon's writings are less important for the scientific data they generate than for their rough sketching of what would come to be known as the scientific method.

In *Novum Organum*, Bacon accused his contemporaries of relying on deductions from the works of ancient philosophers, common sense, and superstition to explain natural phenomena. By attempting to derive explanations from authorities *other* than nature, Bacon believed, the human mind got in its own way. Its biases and prejudices obscured the "true" mechanics of nature. Bacon's methodological solution was comprised of three techniques: observation, experiment, and induction. Combined, these techniques encouraged natural philosophers to turn to "things themselves" for an explanation of natural causes, rather than to the opinions of ancient authorities.⁹

Bacon's recommendations were not without their practical incentives. By giving up their reliance on ancient or absolute authorities and turning instead to the authority of nature, philosophers (and their patrons) would learn to apply natural laws to human ends. Bacon writes:

The sovereignty of man lieth hid in knowledge; wherein many things are reserved, which kings with their treasure cannot buy, nor with their force command; their spials and intelligencers can give no news of them, their seamen and discoverers cannot sail where they grow: nor we govern nature in opinions, but we are thrall unto

⁹ Julie Solomon argues that this turn to the "things themselves" marks the beginning of "objectivity" in the modern sense (Solomon 1998).

her in necessity: but if we would be led by her in invention, we should command her by action (Bacon 1819, 126).¹⁰

As the language of this passage suggests, Bacon cautions that political authority is just as inefficient as scholastic authority in advancing natural discovery. He also implies that a corps of natural philosophers would prove more valuable to the Crown than any army or navy.

Scholars typically refer to this merging of scientific research with national, political interest as the “Baconian program,” but it would not be put into widespread practice during Bacon’s lifetime. Instead, it would take another forty years for another Englishman, Robert Boyle, to demonstrate the immense power of experimental science. Boyle’s experiments with a contraption known as an air-pump sparked astonishment and controversy in a nation that had just restored its monarchy after a decade-long Interregnum, preceded by a bloody Civil War. Boyle used his air-pump for a variety of experiments, but the best-known involve tests on the properties of vacuums. Prior to his demonstrations, many philosophers—most notably Thomas Hobbes—did not believe vacuums could exist. These plenists, as they were called, cited Aristotle and more recent philosophers such as René Descartes to assert that “nature abhors a vacuum.”¹¹ Boyle’s experiments and his critics’ responses to them have been cited as perfect illustrations of the rise of the Baconian program: the modern experiment versus the ancient authority.¹² The air-pump and the experimental method would prove victorious in this contest—as the corpses of numerous suffocated animals would

¹⁰ The quotation also inspired Horkheimer and Adorno’s Introductory chapter to *Dialectic of the Enlightenment* (Horkheimer and Adorno 2002).

¹¹ It is important to note that Boyle was hardly the first natural philosopher to disagree with the doctrine of plenism or the first to perform experiments to this effect. Blaise Pascal and Evangelista Torricelli both believed vacuums to be theoretically possible, and executed experiments to that effect.

¹² For the definitive account of this episode, see Shapin and Shaffer 2011.

attest. In the wake of Boyle's experiments, the experimental method would come to dominate natural philosophy and science.

Boyle also helped fulfill another component of the Baconian program: the integration of scientific discovery with national interests. Boyle was a founding member of the Royal Society, established under the motto, "*Nullius in verba*"—"Take nobody's word for it." The Society's first Royal Charter, written on behalf of the recently restored Charles II, reads in part: "We have long and fully resolved with Ourselves to extend not only the boundaries of the Empire, but also the very arts and sciences. Therefore we look with favour upon all forms of learning, but with particular grace we encourage philosophical studies, especially those which by actual experiments attempt either to shape out a new philosophy or perfect the old."¹³ In theory if not always in practice, experimental science was now bound to England's national ambitions. The King Himself had effectively endorsed the aphorism frequently attributed to Bacon: "knowledge is power."¹⁴

In the decades that followed, experimental science would also proliferate in the private sphere. A fundamental characteristic of the experiment was—and still is—its reproducibility. Boyle was not the only person who could build an air-pump; other individuals could conduct experiments of their own and compare results. By the mid-eighteenth century, air-pumps had been so refined that they could be brought into private households and exhibited for lay audiences, as depicted in Joseph Wright of Derby's aptly named painting, "Experiment on a Bird in an Air-Pump." Yet while the coincidence of experimental science and national interest was officially recognized by the Royal Society's 1662 charter, it

¹³ An English translation of the Society's First Charter is hosted at the Royal Society's current website, <https://royalsociety.org>.

¹⁴ Bacon never used this exact phrase in his writing, but elsewhere in *Novum Organum* he states, "Human knowledge and human power meet in one; for where the cause is not known the effect cannot be produced. Nature to be commanded must be obeyed; and that which in contemplation is as the cause is in operation as the rule."

would take another fifty years for private interests to widely capitalize on these scientific methods because, as Mokyr argues, there was little economic incentive to do so. While the public reproducibility of experiments helped legitimate the scientific method in the public square, it failed to reward the individuals who invested resources in developing the apparatuses necessary to refine these experiments, much less any industrial innovations that might derive from scientific discoveries.

Missing from the economic equation were intellectual property rights. The philosophical conception of these rights is most often traced to John Locke's theory of property and labor, explained in his 1689 *Second Treatise on Government*. Locke argues that the act of labor—physical or intellectual—instills ownership in the thing worked upon, whether that thing is an apple plucked from a tree or the design for an air-pump drawn from the imagination. Prior to Locke's writing, intellectual property rights were governed by the *Statute of Monopolies*, passed in 1624. The *Statute* was meant to encourage innovation by granting a fourteen year legal monopoly to inventors over their works. In practice, however, it quickly became an avenue for courtly abuses. Inverting the ostensible purpose of the patent, the monarch could “grant” letters to almost any commodity and subsequently charge the producers of that commodity a patent “fee”, effectively raising revenue for the crown without imposing new and politically volatile taxes.¹⁵

Conversely, the monarch could use letters patent to reward political allies. Royal favorites could be rewarded with a patent—and the accompanying fourteen-year monopoly—without showing any feasible means of bringing their invention into existence. Consider, for example, a 1664 patent granted to Abraham Hill for “An instrument or engine for Breaking of Hemp and Flaxe, and

¹⁵ The volatility of taxation was no trifling matter. One major catalyst for the English Civil War was Parliament's *de facto* power to raise taxes. The abuse of the nascent patent system offered the monarch a way to circumvent Parliament's authority in this regard.

Dressing the same in a new way” (Hill 1664 No. 143).¹⁶ It is the earliest English patent on record for textile manufacturing—the industry that would catalyze the Industrial Revolution a century later. Hill certainly possessed the *bona fides* and resources to invent such a machine. He was a founding member of the Royal Society and a successful merchant who had inherited his father’s immense fortune only four years earlier. But if he ever succeeded in his project, no details of it existed in his patent application, for under the *Statute of Monopolies* patentees were not required to describe the functionality or even feasibility of their apparatuses.

Nullius in verba, indeed. (Letters patent notwithstanding).

This state of affairs would change dramatically during the reign of Queen Anne (1702-1714).¹⁷ Reforms to the *Statute of Monopolies* required applicants to submit written specifications for their inventions and, frequently, diagrams illustrating the invention’s parts and operation. These changes are reflected in the patents themselves. Contrast, for example, Hill’s mysterious hemp breaking machine to the specifications for Richard Arkwright’s 1769 “spinning machine.” An excerpt from Arkwright’s patent reads:

¹⁶ Unless otherwise noted, the patents cited in this dissertation were accessed via the collections of the British Library. My citations include both the year of the patent’s publication and its patent number. Fellow researchers interested in accessing these or other patents will require these two pieces of information. The relevant index of British patents was published by George E. Eyre and William Spottiswoode for the Great Seal Patent Office, London in 1857. A copy is held by the British Library.

¹⁷ These reforms are often referred to as the *Statutes of Anne*, although the Queen had little to do with them, and was indeed deceased before the final reforms were passed. Instead, these patents were the work of Whig politicians in Parliament who were hardly allies of Queen Anne. From the perspective of political history, patent reform was yet another battleground between the fading Royalists and the ascendant Whigs led by Robert Walpole.

... A, the cogg wheel and shaft, which receive their motion from a horse; B, the drum or wheel which turns C, a belt of leather, and gives motion to the whole machine; D, a lead weight which keeps F, the small drum, steady to E, the forcing wheel; G, the shaft of wood which gives motion to the wheel H, and continues it to I, four pair of rollers (the form of which are drawn in the margin), which act by tooth and pinion, made of brass and steel nutts, fixt in two iron plates K. That part of the roller which the cotton runs through is covered with wood, the top roller with leather, and the bottom one fluted, which lets the cotton, &c. through it, and by one pair of rollers moving quicker than the other, draws it finer for twisting, which is performed by the spindles T... (Arkwright 1769).

Arkwright's specifications correspond to an attached diagram of his apparatus. The capital letters (A, B, C, etc.) refer to parts labeled in the drawing, much like the assembly instructions packaged with goods today. As John Bender & Michael Marrinan explain in *The Culture of Diagram*, the diagram was a critical mode of representing knowledge in the eighteenth century. The Industrial Enlightenment, they argue, coincides with a culture of the diagram, which moved knowledge beyond the anthropocentric viewpoint of the subject by relocating it into the visual field of the page, as in Arkwright's schematics or Jean le Rond d'Alembert and Denis Diderot's *Encyclopédie*. The diagram, Bender and Marrinan write, is "a hybridized form of knowledge in which a user's imagination intertwines with the world of fact to produce new understanding" (Bender & Marrinan 2009, 91). The imagining inspired by diagrams, however, was rarely coded as a *mere* understanding of fact. Instead, diagrams expressed what Mokyr calls "useful knowledge:" facts and information which are already ordered towards a specific application rather than a theoretical exposition.

The emergence of useful knowledge after eighteenth-century patent reforms and the increasingly rapid dissemination of that knowledge suggest that

members of Britain’s “use community” were indeed living in a culture of diagram. They also suggest that this culture—in Britain at least—emerged as much from the ambitions of Industry as they did Enlightenment. As Mokyr notes, the reforms to patent law were a near perfect solution to the problem facing private innovators. The reforms struck a deal: inventors were granted a fourteen year monopoly on their invention, and in exchange they provided to the public a detailed explanation of how their invention worked. The reproducibility of the experiment was effectively married to the economic interests of the inventor, and the Industrial Enlightenment began in earnest.

My analysis of the Industrial Enlightenment ends with the turbulent final decade of the eighteenth century. Although the French Revolution revealed political divisions in Britain that would spill over into the Romanticism of the early nineteenth century, the 1790s also ended on important notes of consensus. In the legal realm, patent reforms would enjoy their last major revision in sundry legal cases involving James Watt and those who tried to imitate his patented steam engines. Watt won or settled all cases, but more importantly, these trials established the precedent that new patents could be granted for improvements of existing designs rather than wholly radical inventions, implying that utility, rather than novelty, was the main quality patents were meant to reward. In the same decade, philosophy would offer its ultimate commentary on the Industrial Enlightenment in the form of Jeremy Bentham’s utilitarianism. Defining the principle of utility as that which produced the most happiness for the most people, Bentham effectively synthesized a century of “use theory” dating back to Locke’s *Second Treatise on Government*. Bentham’s improvement was to assign a use “value” to all objects and actions. Thus, via utilitarianism, utility could be used as the default metric for all social activity.

This chronological history reflects traditional understandings of the Industrial Enlightenment (or Scientific and Industrial Revolutions, if one prefers). Its narrative implies an order of cause and effect: the successes of the scientific method prompted an economic or industrial response, but this response could not

be fulfilled without the legal interventions of eighteenth-century patent reforms. These reforms, therefore, constitute the crux of the Industrial Enlightenment. They are literally what integrated the theoretical and the practical, the scientific and the technological, in the realm of private interest.

From the perspective of material or economic history, this argument is convincing and its assertions are not challenged here, but they will be complicated. These complications begin to take shape only when one attempts to combine material history with an understanding of phenomenological essence—in our case, the essence of technology. Heidegger gestures as to what these complications might look like: “Chronologically speaking, modern physical science begins in the seventeenth century. In contrast, machine-power technology develops only in the second half of the eighteenth century. But modern technology, which for chronological reckoning is the later, is, from the point of view of the essence holding sway within it, the historically earlier” (Heidegger 1974, 22). This claim seems to contradict the historical narrative I have just assembled. How is it that the “essence” of the Industrial Revolution is “historically earlier” than the Scientific? Because, Heidegger says, the essence which structured the Scientific and Industrial Revolutions—Enframing—preceded them both. Therefore, to suggest that one was appropriated by the other—as in the sense that technology is “applied science”—is misleading. Better would be to say one “prepared” for the other. The advent of modern science, Heidegger argues, was always already a preparing for the technological inventions that followed. This reading of history in terms of the succession of structuring essences rather than chronological events is the definition of what I will refer to as phenomenological history.

Towards a Phenomenological History

So far I have treated phenomenological essentialism and material history on their own terms. In this penultimate section I mean to put the two

methodologies in dialogue with one another. How, then, is such a phenomenological historicism to be executed? How is one to move from the essential to the material? From the ontological to the historical? And back again in the circular “thinking” Heidegger prescribes? The solution, derived from Heidegger, requires us to “return” to where this introductory chapter began: the everyday.

Heidegger’s most famous exposition of the everyday is found in his first major work, *Being and Time*. By “everyday” Heidegger did not mean that mundane things like bars of soap or traffic accidents were the principle objects of study. Rather, he posited that one could come to a philosophical understanding of even the most elusive, metaphysical concepts—Being, World, Time—*by way of* everyday things like bars of soap or traffic accidents. But already this approach encounters the same historical problems as essentialism: whose everyday? when? where? Immediately it becomes clear that for a phenomenological *history* the “everyday” must be circumscribed as carefully as the objects which it gathers for our consideration.

This is the task which historicism proper is particularly well-equipped to handle. The “everyday” of an eighteenth-century Londoner can be defined by what that Londoner has left behind in material archives. And yet, the historicist’s circumscription of his or her archive’s time and place is itself the artifact which phenomenological history aims to expand and revise by submitting to it essences such as Enframing. One carefully delimits a material archive only to introduce an alien element, essence, to it. This revision of the material signifies the critical turn from phenomenology’s use of the “everyday” to its use in phenomenological historicism. The former uses the everyday to direct our thinking to essences like Being, World, or Enframing. The latter aims to return that essentialist thinking back to and test it against the historically circumscribed “everyday” which

presented it in the first place; to complete, as it were, the circle that Heidegger and other phenomenologists began drawing.¹⁸

That said, if this circle is not to collapse into a tautology, then the particular “essence” of interest must, in the final analysis, be re-established *a posteriori*. Enframing, in this dissertation’s case, must be considered as an “essence” *and* as an “object” that is as empirically present as oxygen or gravity. This goal may at first seem to stand in complete opposition to Heidegger’s life’s work, which was to rescue “Being” from millennia of its forgetting; to divide “beings” (entities) from Being (essence); and to return to Being the fullness of phenomenon (event) in lieu of its traditional use as empty signifier.¹⁹ But again, I do not consider the effort to return essences to objects to be an undoing of Heidegger’s work, only a revisiting of (or re-turning to) the historical, material, and empirical objects—lamps, watches, spinning wheels—which opened his awareness to essence in the first place.

Unfortunately, recent revisions of ontology and phenomenology have pushed in very different directions. Speculative Realism has attempted to move further into the realm of the Essential without circling back to these empirical touchstones. Indeed, empiricism is eschewed by that movement’s core critique of correlationism, “The idea to which we only ever have access to the correlation between thinking and being, and never to either term considered apart from the other” (Meillasoux 2008, 5). The problem with correlationism, Speculative Realists argue, is that it privileges entities which can think—typically, humans—

¹⁸ See for example the work of Heidegger’s former student, Hans-Georg Gadamer and his best-known work, *Truth and Method* (Gadamer 2004).

¹⁹ As Heidegger remarks in the introductory paragraphs of *Being and Time*: “The question [of being] has today been forgotten... Not only that. On the basis of the Greek point of departure for the interpretation of being a dogma has taken shape which not only declares that the question of the meaning of being is superfluous, but even sanctions its neglect. It is said that ‘being’ is the most universal and emptiest concept. As such it resists every attempt at definition” (Heidegger , 2008, 1).

and is therefore anthropocentric. Any ontology that privileges humans over other beings, Speculative Realists argue, is inherently biased and therefore flawed.

The criticism does not stop at the post-human. Object-oriented ontology—one subset of the Speculative Realist movement—rejects not only anthropocentrism, but *all* correlative relationships between things, sentient or not. As Graham Harman writes in the introduction to his influential *Tool-Being: Heidegger and the Metaphysics of Objects*:

When the things withdraw from presence into their dark subterranean reality, they distance themselves not only from human beings, but *from each other* as well. If the human perception of a house or tree is forever haunted by some hidden surplus in the things that never becomes present, the same is true of the sheer causal interaction between rocks or raindrops. Even inanimate things only unlock each other's realities to a minimal extent, reducing one another to caricatures (Harman 2001, 4).

The result of such a philosophy is a universe in which all things are locked away from each other; locked away even from themselves. The thingness or “tool-being” of an apple is as remote from the color of its own skin as it is the depths of a black hole. Empiricism can gain little traction in such a compartmentalized universe, leaving metaphysical approaches to the ontology of things as the only viable means of constructing ontological knowledge.

In rejecting empiricism, such a philosophy also rejects history itself, or at least posits that history is a metaphysical construct. History, in this view, can only be an imaginary attempt to correlate things which, in their very “essence,” are infinitely removed from each other and themselves. Strangely, Harman reaches these conclusions by way of Heidegger, and a brief comparison between his reading of *Being and Time* and my own can only underscore the crucial differences in our arguments while also introducing Heidegger's solution to the

problem which launched this section: how does one move from the everyday (bars of soap, hammers, etc.) to the essential (Being, Enframing, etc.)? Only after contesting the claims of Speculative Realism can I take up the more difficult question: how does one put into dialogue the essential and the historical?

For Harman, Heidegger's great insight is his analysis of "tool-being" (Harman's phrase) in the third chapter of *Being and Time*, titled, "The Worldhood of the World." There, Heidegger lays out a famous opposition between two modes of experiencing the objects that surround us. Heidegger calls one mode *Vorhandenheit*, translated as present-at-hand. In this mode, objects are perceived at the theoretical or contemplative level and are typically mediated through language. If we were to describe a table, for example, our response would already be present-at-hand: four legs, flat surface, stained wood, place for sitting, eating, etc. Opposed to this mode of experience is *Zuhandenheit*, translated as ready-to-hand. In what Harman will call "standard" readings of Heidegger's tool analysis, the ready-to-hand is the experience of objects via practice instead of theory. The same table experienced ready-to-hand is simply used for sitting, writing, eating, etc. Right now, reading this text, you are likely experiencing a variety of objects as ready-to-hand: perhaps the pair of reading glasses resting on the bridge of your nose, or the chair you are seated in, or even the very pages (digital or otherwise) of this dissertation. All of these things "disappear" or withdraw into the task of reading. Alas, once we attend to these objects consciously, they are no longer experienced ready-to-hand, but instead are returned to the mode of present-at-hand.

The above represents a typical synopsis of Heidegger's tool analysis, but Harman argues that all prior interpretations of this passage—including, I would argue, Heidegger's own—miss its key innovation. Harman explains:

The tool-analysis is read as the triumph either of practical activity over theoretical abstraction, or of the network of linguistic signs over the ever unpopular "things in themselves"... Contrary to the

usual view, tool-being does not describe objects insofar as they are handy implements employed for human purposes. Quite the contrary: readiness-to-hand (*Zuhandenheit*) refers to objects insofar as they withdraw from human view into a dark subterranean reality that never becomes present to practical action any more than it does theoretical awareness (Ibid, 1).

Harman's reading is certainly radical. It is also—and this he acknowledges as well—a stark departure from Heidegger's intent. Harman argues that Heidegger's tool analysis has been treated too narrowly. It is not a commentary on "tools" in the everyday sense (hammers, saws, etc.) but rather on all objects, which, as explained above, are always ready-to-hand to each other. Harman justifies this expansive move by critiquing Heidegger's admittedly correlative and anthropocentric use of *Dasein* to establish the phenomenological essence of Being, or, in this particular chapter, World.²⁰ By removing *Dasein* from the equation and arguing that the withdrawing effect of the ready-to-hand is a universal constant of all things at all times, Harman produces a new metaphysics.

My reading of Heidegger's tool analysis moves in the opposite direction. Rather than extending the meaning of "tool" to include all objects, I argue that Heidegger's tool analysis is already too totalizing to begin with. The objective of the tool analysis passage, it should be remembered, is not to reveal the essence of tools or any object for that matter. It is to reveal the world as phenomenon. Heidegger states this explicitly:

What can be meant by describing 'the world' as a phenomenon? It means to let us see what shows itself in 'entities' within the world. Here the first step is to enumerate the things that are 'in' the world:

²⁰ Heidegger used the term *Dasein* frequently in his early writings, including *Being and Time*. It was his way of referencing a specific state of being (literally "being there") enjoyed by humans.

houses, trees, people, mountains, stars. We can *depict* the way such entities ‘look’, and we can give an *account* of occurrences in them and with them. This, however, is obviously a pre-phenomenological ‘business’ which cannot be at all relevant phenomenologically. Such a description is always confined to entities. It is ontical. But what we are seeking is Being. And we have formally defined ‘phenomenon’ in the phenomenological sense as that which shows itself as Being and as a structure of Being... Thus, to give a phenomenological description of the ‘world’ will mean to exhibit the Being of those entities which are present-at-hand within the world, and to fix it in concepts which are categorical (Heidegger 2008, 91).

Heidegger is attempting to solve the first half of the problem that introduced this section—how does one move from everyday beings to essential Being? He begins with a critique: one cannot simply “account” for things in the world and then from this accounting posit the essence (worldhood) of the world. World is not simply an accumulation of all the things “in” it, nor is it an account of the present-at-hand properties of those things. No, Heidegger says, the showing of the Being of the world requires us to “exhibit” the Being of things in the world.

And yet, as the word “exhibit” suggests, even *this* effort risks returning us to a “present-at-hand” accounting of things. The very moment we start looking to beings that might exhibit Being we have already mediated the effort through our conscious attention—we are operating in the modes of language, representation, and the present-at-hand. It is in response to this *specific* problem that Heidegger introduces the idea of the ready-to-hand. He reasons that perhaps we can evade the interference of the present-at-hand, language, and representation by attending only to those things which are nearest to us—things so near that we do not consciously perceive their presence (i.e., the ready-to-hand). By retrospectively

thinking about our experience of the ready-to-hand, Heidegger concludes, we can feel more secure in making claims about the World as phenomenon.

Framed in this way, Heidegger's tool analysis emerges as a means to an end. It is one attempt to move from the everyday to the essence of World, *not* the essence of things. Furthermore, I submit that it is an *errant* attempt because Heidegger fails to "hear" in the speaking of *Zuhandenheit* the voice of another phenomenon, Enframing. Rather than arguing, as Harman does, that the ready-to-hand is a universal essence, I argue that it is a derivative effect of Enframing. The ready-to-hand does not conceal the essence of thing *qua* thing, tool or otherwise, it conceals the work of Enframing as that which structures our experiences of things like hammers, reading glasses, and writing instruments. In short, Harman sees readiness-to-hand as the solution to a universal ontology of things while I see it as the problem—or at least a derivation of the larger problem—of the concealing nature of technology and the work of Enframing. The "dark, subterranean reality" of things he imagines is, to borrow the language of the gothic romance, only the veiling of another presence: the presence of Enframing.

Errant as Heidegger's tool analysis may be as a means of identifying the essence of things, it does establish a useful metric for constructing a phenomenological history of Enframing. Instead of airily referencing the everyday, we can ask questions about the specific conditions which must exist for a thing to be experienced ready-to-hand rather than present-at-hand. In his "tool analysis," Heidegger offers some answers which I will paraphrase via the example of a hammer:

- (1) The hammer is ready-to-hand when it is being put to work in the building of a house. In such a moment, the hammer all but disappears into the work of building itself.

(2) The hammer is present-at-hand when it is “thought” about. For example, when a carpenter purchases or crafts a hammer for a particular job.

(3) The hammer is also present-at-hand when it breaks, goes missing, or simply interrupts the work for which it is intended.

The list of instances where the hammer is experienced present-at-hand can quickly balloon beyond Heidegger’s initial considerations:

(4) The hammer is present-at-hand when it is introduced and explained to a person who has never used a hammer before.

(5) The hammer is present-at-hand when it becomes an object of history or aesthetics, such as a Neolithic artifact hung in the British Museum.

(6) The hammer is present-at-hand when a novel use for it is first discovered or...

(7) ... when the act of hammering itself is “discovered” for an individual or a community.

These addenda are not exhaustive, but they illustrate an important point: there are far more *discrete* instances when hammers are experienced present-at-hand than ready-to-hand. And yet, in the temporal context of the everyday, it *makes sense* to say that the hammer is more frequently experienced ready-to-hand if it is experienced at all. For if this list does not hold true in a given individual’s “everyday” for a hammer, then perhaps it does for a chair, if not a chair then a computer, if not a computer then a shoe, and so on. Returning to the Occidental voice of this chapter’s first section, “we” know, as if by instinct, that *temporally* speaking, *most* of our experience operates in the mode of *Zuhandenheit* even

though there are far more discrete conditions that induce *Vorhandenheit*. Nevertheless, we cannot help but think of conditions two through seven as *exceptions* to the default: things work.

It is only when things fail to work, or are perceived to not be working, that they demand our conscious attention. We attend to the river when the levee breaks. We attend to the stars when they fall from the sky and to the air when it becomes too poisoned to breathe. What is more, attention in this regard is almost always directed towards getting these things working again. This, for example, is the logic of magisterial environmentalism and a significant amount of ecocriticism.²¹ For example, the second paragraph of the United States' "Clean Air Act" finds,

that the growth in the amount and complexity of air pollution brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare, including injury to agricultural crops and livestock, damage to and the deterioration of property, and hazards to air and ground transportation (1972).

Notably absent is any concern for the air itself. Rather, the "danger" of air pollution is the interruption of work which depends upon "clean" air for its success. The strangeness of this cannot be emphasized enough. Something as "everyday" as air enjoys the concern of the world's most powerful government. It demands the attention of a federal institution, the Environmental Protection Agency, the administrator of which is granted a *de facto* seat in the Presidential Cabinet. And yet the entire aim of this concern and attention is to maintain the everyday experience of air as some-thing-ready-to-hand. Some thing that works.

²¹ See Hiltner 2014 for a survey of ecocritical approaches.

We might suspect that Enframing is at work in this passage, but more importantly this text is not some philosophical abstraction. It is a specific document written in a specific time and place. It is a linguistic document, yes, but it is also an object that bespeaks its structuring essence. Its speech can begin to tell us a great deal about the interactions—real and prescribed—between Americans in the 1970s and air. What, in the 1970s, did Americans believe air was *for*? How did this belief correspond to or depart from the ontological question of what air *is*? The answers to these questions are discrete rather than universal. What happens when the same questions are asked, for example, for 2000s China? Or again when the questions are asked for specific individuals? Poets, politicians, children... Or, as Harman would have us do, asked on behalf of non-sentient things?

Through phenomenological historicism I might *argue* that this document evinces the speech of Enframing itself. I might bolster this argument as I would any other in the empirical tradition: with evidence. Patent applications, instruction manuals, advertisements, reviews, literature, and receipts of purchase contribute to this speaking as well. Their form and content are as varied as the myriad technologies that have appeared over the millennia. Despite this variety, we can look for patterns of speech to emerge. By listening for these patterns, we can begin to record Enframing's echoes in a material archive that can be examined, adapted, and critiqued.

Consider, for example, language from two eighteenth-century advertisements for very different objects. First, an excerpt from a 1797 advertisement for James Jordan's patent on bridges, which stresses the advantages of bridges supported by suspension rather than piers:

... by which means [i.e., suspension], intermediate piers will be avoided, the navigation of rivers be improved, many causes of obstruction and damage be removed, and bridges be constructed and placed in a way like to preserve them from decay, a much

greater length of time than when they have a connection with the river under them (Jordan 1797).

And here, an excerpt from a 1798 patent granted to Abraham Bosquet for the preservation of ships' hulls:

The rapid decay of ships, and their perpetual repairs, are attended with an enormous expence both to the nation and individuals, and claim the most serious attention, particularly as the oak of this country, which is the best of all other, cannot much longer supply the increasing occasion for it... To apply at once a sovereign remedy all these evils, unattended with a single inconvenience, the mode I have adopted is the occupying or filling up the void spaces between the planks, lining and timbers of the ship to which the planks are bound with hot or melted pitch, tempered, as far as found necessary, with a due yet small proportion of tar, common glue, bee's wax, and tragacanth, to render the pitch less brittle, more tenacious, and durable (Bosquet 1798).

Both inventions attempt to resolve inconveniences of current designs and to improve not only the objects themselves (bridges and ships), but the *practices* associated with these objects: navigation, commerce, repair, or, simply, the movement of persons and goods from one place to another. These extracts share only a single word—"decay"—but their sentiments are nearly identical. They aim to make existing technologies work "better," in this case, by reducing the technologies' need of repair.

From what does this shared sentiment, this aversion to decay, derive? The answer cannot be found only in the material properties of pitch or suspension cables. No, the aversion to decay comes from the interruption of the *work* associated with these objects: the work of crossing a river or sailing an ocean.

These inventions are motivated by the always already decayed versions of themselves—by collapsing bridges and rotting hulls, past, present, and future. It is work, or rather the interruption of work, which compels the aversion of decay manifested in the language of both documents.

Like the bridges and hulls themselves, I argue, the languages of decay and repair are manifestations of the “speech” of Enframing. Furthermore, the distinction of this speech from the technologies themselves helps us to evade the kind of tautologies mentioned above. When we find the language of decay and repair, for example, do we find things that presence Enframing? Conversely, where we believe we have caught sight of Enframing’s presence in a steam engine or an air-pump, do we also find the language of Enframing? Does this language contract or expand? What, if any, are its patterns?

This is the beginning of phenomenological historicism. The exceptional conditions that produce those moments of *Vorhandenheit* and the material and discursive archives that ventriloquize the speech of Enframing in empirical “history” begin to circumscribe the everyday withdrawal of *Zuhandenheit*, techno-logic, and their structuring essence, Enframing.

Genres of Enframing

This dissertation’s final area of investigation concerns literary genre. By telling the story of Enframing through historical and literary texts, I am inclined to make generic claims about the texts themselves. Since the publication of Ian Watt’s *Rise of the Novel*, the eighteenth-century has often been described in terms of the early novel’s affinity for realism. Its ability to simultaneously represent the interiorities of its characters and the physical exteriorities of the situations those characters confront combine to create a powerful “reality effect.”²²

²² The term was first used by Roland Barthes. See Barthes 1986.

This reality effect, I argue, is a powerful vehicle for representing Enframing as well precisely because it reproduces the modes of the present-at-hand and ready-to-hand so accurately. In realist novels, such as Daniel Defoe's *Robinson Crusoe*, things which work withdraw into everyday practice. Things which interrupt this work, by contrast, are described as alarmingly present. Indeed, I would argue this is the defining feature of *Crusoe's* narrative structure. Initially stranded on an island, the first half of the novel is an account of Crusoe's rendering the present-at-hand into the ready-to-hand. He describes in detail, for example, the challenge of building shelters for himself; hollowing out caves, fixing shelves, relocating his stocks of goods. But as his narrative continues, these shelters—once symbols of Crusoe's vulnerability—recede from his attention and the reader's as well. Once these things are made to shelter—to work—they are literally withdrawn from the attention of the text. This withdrawing is itself an aspect of the novel's reality effect, for it mimics the everyday experiences of the ready-to-hand and present-at-hand I have described previously.

Non-realist fiction can also contribute to Enframing's reality effect. For example, utopian satires, which I examine in chapter one, exaggerate the presence of non-working or useless things. Useless inventions, like those found in Jonathan Swift's *Gulliver's Travels* or Margaret Cavendish's *The Blazing World*, are often described in excessive detail. By making these apparently useless things overbearingly present, I argue, Cavendish and Swift ultimately reinforce appropriateness of Enframing's work. Everyday things *should* withdraw into the daily experiences of seventeenth- and eighteenth-century Britons; behold the absurdities that occur when they do not!

Genres which I find to be truly exceptional representations of Enframing fall somewhere between the steady withdrawing of realist fiction and the exaggerated presencing of satire. I have in mind the romance, specifically its "gothic" incarnation popularized in the late eighteenth century. The gothic romance, I argue, frequently represents work and presence in tandem. Its use of the picturesque provides lush descriptions of everyday, pastoral things. Its trope

of the ancient ruin is the antithesis of Crusoe's shelter building; it makes work eerily present by emphasizing the ruin's qualities of disrepair. Finally, the genre's juxtaposition of the "real" and the "supernatural," and its varying resolutions of that juxtaposition, put work and presence in explicit dialogue with one another.

Other genres make appearances as well, and admittedly deserve more attention than they receive. Though poetry is a frequent interloper in these chapters, its generic distinctions (e.g., pastoral, Georgic, romantic) are passed largely without comment. An even larger omission is drama which does not appear at all in this draft of Enframing's story. This is not say drama does not belong in the narrative I am trying to construct. On the contrary, I would hypothesize that theatrical spectacle was an important space-event for the formation of Britain's communities of use. At the same time, however, the very nature of drama's spectacle points "away" from the everyday. While theatre-going was an everyday experience, the theatrical production itself complicates representations of useful knowledge via practices such as performance, gesture, exaggeration, misdirection, and dissimulation. These complexities make drama a difficult category with which to establish the structuring work of Enframing and its consequent effects on work and presence. Drama depends on those structures—literally in the machinery of theatrical production—but it also creates simulacra of them. This doubling of Enframing—its re-production—is worthy of a book-length inquiry of its own, but its arguments would rush past many of the "everyday" claims I aim to make here, and so I omit it.

In sum, I see these interpretations of genre as the beginning of a cohesive literary history that responds, in this case, to the presence of Enframing, but which might grow to include an array of essences that may be uncovered in future phenomenological histories.

Chapter Descriptions

This dissertation is divided over four chapters. For the most part, each chapter moves forward in a chronological manner, beginning with the Scientific Revolution of the early seventeenth century and concluding with the Early Industrial Revolution in the 1790s. Each chapter integrates Heidegger's writings with the contemporary genres described above, as well non-literary texts such as philosophical prose, letters patent, advertisements, and legislation.

My first chapter deals with the Scientific Revolution and its integration into British moral philosophy. I argue that the Baconian program had to prove its usefulness, its potential to work, before the Industrial Enlightenment proper could begin. In order to gauge early philosophical and literary reactions to Bacon's science I examine the stadial theories of Thomas Hobbes and John Locke and the utopian fictions of Margaret Cavendish and Jonathan Swift. All of these writers held reservations regarding science's impact on English civilization. Its redirection of knowledge, or worse, power, to "things themselves" was discomfoting in a nation still recalibrating itself in the sunset of the Age of Absolutism. The critical point of this chapter, however, is not with which political philosophy science ultimately aligned itself, but rather that the imbrication of science and technology, presence and work, was itself manufactured by the shifting ideologies of seventeenth-century and early eighteenth-century Britain.

Chapter two picks up where the first left off. It is set in the wake of the *Statutes of Anne*, and thus supposes that science has more than "proven" its capacity to work. This chapter turns instead to the aesthetic question of how one represents a novel invention as that which is truly useful—that which will ultimately withdraw into the everyday work of an eighteenth-century Briton. The best solution to this problem came, not surprisingly, from moral philosopher and political economist Adam Smith and his description of the "beauty" of utility in *The Theory of Moral Sentiments*. Smith argues that consumers are more interested in the appearance of utility or the elegance of a thing's design rather than its actual use.

The question of aesthetics and presence more generally raises the problem of provincializing Enframing. Smith's aesthetic theory is only applicable to specific communities of use; communities which are already disposed to "preceive" utility in a similar way. I explore communities of use and their relationship to aesthetics via Jean-Jacques Rousseau's *Discourse on Inequality* and apply his ideas to a range of texts including Jonathan Swift's "The Lady's Dressing Room," Daniel Defoe's *Robinson Crusoe*, and Olaudah Equiano's *Interesting Narrative*. In addition, I use a variety of ephemeral documents pertaining to the revolutions in textile manufacture—including worker protest pamphlets, poems, and ballads—to examine the relationship between what I call Britain's "hegemonic" community of use and more traditional social categories of class, gender, and race.

Chapter three initiates a turn in my narrative by confronting the presence of work itself. I claim that Enframing's best interests lie in concealing work—an activity, a doing—"behind" useful things. When these things break, go missing, or in any way fail to conceal the work associated with them, the result is that work becomes present as a distinct entity, a thing unto itself. These moments are hazardous, for they reveal Enframing to be a discrete phenomenon rather than a totalizing truth, and, I argue, this discrete presencing of work opens the possibility of alternative modes of interacting with things. The ready-to-hand and present-at-hand dualism is revealed to be non-universal even *within* a hegemonic community of use.

The countermeasure to this presence, I argue, is repair. By restoring the utility of an object, the present-at-hand / ready-to-hand relationship is once again secured, work withdraws into things, and the "truth" of Enframing is again legitimated. To illustrate these points, I re-examine now familiar texts including patent designs and early fictions of repair such as *Robinson Crusoe* and *Gulliver's Travels*. I then shift my approach by examining this logic of repair in terms of British colonialism. I read Sidney Owenson's *The Wild Irish Girl* and Maria Edgeworth's *The Absentee* as fictions of "colonial" repair, which attempt to

“mend” the relationship between England and Ireland via the same logic that Crusoe mends a broken tool. I conclude by broaching the topic of “disrepair” as represented in the gothic romance.

I further develop my reading of the gothic romance in my final chapter. I focus on what I term the Counter Industrial Enlightenment. Eighteenth-century Britain was not monolithic in its representations of work and presence, utility and things. I focus especially on the gothic romances of Ann Radcliffe and those writers I believe to be her major influences: James Thompson, Jean-Jacques Rousseau, and sundry members of Birmingham’s Lunar Society. By setting her romances on the cusp of the Scientific Revolution, I argue that Radcliffe creates a fictional space wherein scientific practice leads to domestic harmony and spiritual devotion rather than industrialization and utilitarianism. I support this claim with close readings of her prose style—derived, I argue, from Thompson’s *The Seasons*—and infamous tropes such as the “explained supernatural.” Contra her critics—Sir Walter Scott chief among them—I argue that Radcliffe’s romances are philosophically- and politically-minded critiques of the ideologies of the Industrial Enlightenment, and that they remain relevant today as a means of “seeing” the relationship between humans and things differently.

I conclude this chapter—and the dissertation—by using the themes gleaned from Radcliffe’s writing to consider what the “end” of Enframing might look like. In a sense, this conclusion is itself a small example of imaginative fiction, since the premise of this dissertation is that Enframing is very much “alive and well” today. My aim in this conclusion is only to “turn” the Heideggerian circle a few degrees further; to imagine Enframing itself as a thing, a discrete entity that is ontologically no different than rocks, automobiles, printing presses, and human beings. I submit that by ultimately treating Enframing as thing rather than truth, it is possible to imagine alternative modes of interacting with things.

Chapter 1

Realism, Utility, and the End of Science

At the heart of positivist or progressive histories of science and technology is the belief that scientific discovery and technological invention are mutually beneficial. Science reveals the true causes of natural phenomena. At its best, science makes the alien seem familiar and the familiar seem alien. It draws our attention to these phenomena, making them present if not present-at-hand. Technology applies these revelations to practical purposes. It takes that which science has made present and sets it into human intentionality and work. In return, technological advances find their way back to science itself, which can then reveal ever more faithfully the true face of nature. The discovery of the electron, atmospheric pressure, alloyed metals—technology incorporates these scientific accomplishments into its apparatus and techno-logic. In return it gives science microscopes, air-pumps, computers, and rocket engines with which to probe nature's most remote phenomena.

And yet, despite this apparent congruence between the work of science and the work of technology, one also observes that the instant technology makes use of scientific revelations it begins to conceal them; it withdraws them into the ready-to-hand work that technology sets out to accomplish. The electron disappears into the flipping of the light switch. The atmospheric pressure vanishes into the propulsion of the steam engine. The immense heat necessary for the smelting of steel recedes into endless miles of railroad. At stake, then, is the *telic* relationship between science and technology. If this *telos* is to make things work, then science and technology act in mutual accord. If, however, the *telos* of their relationship is to make things present, then technology functions at science's

expense, for in putting scientific knowledge to work, technology withdraws from the presence of the very things which engender it.

This chapter turns to seventeenth- and early eighteenth-century texts in order to show how the *telos* of utility came to be defined as the proper or moral end of science; to show how a thing's work came to be valued over its presence. In this chapter, I argue that this perception was brought about by associating with work with the real and presence with the fictitious or fanciful. This may at first seem to be a paradoxical statement. After all, realism is strongly associated with mimesis—the artistic representation of things “as they are.” Yet I posit that for the authors studied in this chapter, things “as they are” are things that work. In other words, a thing must work in order to qualify for mimetic or realist representation. By contrast, a thing that “merely” presences—that appears without showing potential to work—is represented as a fictitious or fanciful entity.

This crucible of representation informs my understanding of the reception of physical science in the late seventeenth and early-eighteenth centuries. All of the authors considered here agree that scientific methods allowed things to be made present in novel ways. The question for these authors, however, was whether this presencing could ultimately be withdrawn into the work of civilization.

For historians, the next question must be what caused this relationship between science and technology—presence and work—to develop over the long eighteenth-century. I concur with Heidegger that the language and methods of science itself was always already destined for work, use, and application. I therefore begin with a critique of twentieth-century histories of science, which have generally taken the telic relationship between science and utility as a function of capitalist ideology. I instead argue the merits of Heidegger's claim via the writings of Francis Bacon. In my reading of *Novum Organum*, it is clear that Bacon always imagined his scientific methods to end in utility and developed them accordingly.

But not all of Bacon's contemporaries accepted his argument at face value. Rather than championing open practitioners of Bacon's methods—such as Robert Boyle—I turn emphasize authors who were skeptical of the scientific method. I divide this skepticism into two different genres of writing. The first, stadial narratives, responded to science's new modes of making things present by attempting to naturalize the *telos* of utility as essential to the health of civilization. For Thomas Hobbes and John Locke—whose stadial theories I consider here—science and its discoveries might ultimately find their place in modern civilization, but this place must be carefully defined by the *telos* of utility, for it is only the act of making things work (and work for us) that secures Western civilizations against regression to an anarchic state of nature.

The second genre by which I measure science's early reception in England might be characterized as utopian satire. I focus on Margaret Cavendish's *Blazing World* and Jonathan Swift's *Gulliver's Travels*. These texts leave even less room for science's potential ingratiation into civil society by painting its modes of making things present as false. For these authors, science is not only useless, it is deceptive; it beguiles and distracts individuals from the proper and truly useful operations of civil society. Nevertheless, even these authors' hostility towards science reinforces the thesis that work is valued over presence; that the former is "real" and the latter "fanciful." Indeed, for Hobbes, Locke, Cavendish, and Swift, any novel presencing of things is to be viewed warily if not contemptuously, for this kind of "thingly" novelty threatens to exceed the laws and orders of state.

Thus the motives behind Cavendish and Swift's early rejection of Bacon's methods are actually in accord with the ideologies of authors like Daniel Defoe, who I position as an early advocate of the Industrial Enlightenment. The only "failure" of the authors considered in this chapter—from the perspective of progressive histories of science—was to miss the potential work science had to offer British civilization. Still, it is precisely this failure—this "mis-hearing" of the speech of science—that creates the critical space necessary to interpret the

Industrial Enlightenment in the phenomenological terms of work, presence, and Enframing.

Utility and Modern Histories of Science

In this section I mean to offer two critiques of popular histories of science via Heidegger's peculiar brand of historiography. First, I critique the notion that science can be divided into the domains of "pure" and "applied" science. Second, I reiterate my criticism of the claim that science and technology are fundamentally progressive enterprises. As a prelude, however, I wish to address several recent critiques that have emerged from popular scientific. Well-known astrophysicist Neil deGrasse Tyson and mathematician Stephen Hawking have both recently made public statements critiquing the relationship between science and philosophy. In his monograph, *The Grand Design*, Hawking opens by declaring that in light of the advances of astrophysics, philosophy is, in a word, "dead" (Hawking & Mlodinow, 5). Tyson has similarly commented that the constant questioning of philosophy is "distracting" from the progress of science and, by extension, the progress of human civilization.

If these claims are to have any merit at all, one must first assume that science is indeed always progressing and that the scientific method really does raise questions of far more benefit to society than philosophy has ever mustered. In other words, the attitudes of Hawking and Tyson reflect the very belief in a progressive science that I intend to critique. In a sense, their "philosophy" is no different than early science skeptics like Hobbes and Swift. For all of these authors, despite their differences, utility *is* the proper end of civil endeavors. The question is only whether science (for Hobbes and Swift) or philosophy (for Tyson and Hawking) can meet that requirement. Neither party supposes the alternative *telos*—presence—but it is precisely this supposing that brings philosophy and science into direct conversation with each other. By at least supposing this alternative *telos* for a moment, by presenting ourselves with a choosing rather

than a destining, we arrive at an ethical problem rather than a scientific one. Which end “should” societies value and pursue?

Unfortunately, this potential dialogue was foreclosed almost as soon as it was opened. At the height of the Industrial Enlightenment, Jeremy Bentham published his first utilitarian treatise, *Introduction to the Principles of Morals and Legislation* (1789). Bentham’s principle of utility—the doing of the most good for the most individuals—is the most totalizing response to this ethical question yet conjured. As Bentham was fond of pointing out, it is almost impossible to make an argument that is *not* utilitarian in nature: “When a man attempts to combat the principle of utility, it is with reasons drawn, without his being aware of it, from that very principle itself. His arguments, if they prove anything, prove not that the principle is *wrong*, but that, according to the applications he supposed to be made of it, it is *misapplied*” (Bentham 2008, 3). Bentham claims that one cannot make an argument that does not promote an interest or (happiness), even though the author of the argument may not *think* he is arguing in those terms. For example, certain religious doctrines might ask humans to submit themselves to a god via some penance or sacrifice. In the immediate, this sacrifice—if it is to be called a sacrifice at all—must incur pain for the subject. But the reasoning behind this induced pain is nevertheless utilitarian: by sacrifice, the god is pleased and may bestow her blessings or restrain her wrath.

More fundamentally, however, the totalizing success of Bentham’s philosophy stems from his application of utilitarian teleology to *actions* as well as objects. The use-value, to use a Marxist term, of a shovel may be tied in some way to its potential to dig. It may be purchased or crafted on account of this potential utility. But the utilitarian analysis does not end there. Where does one dig? How does one dig? What is one digging for? These questions of the use-act are also subject to utilitarian calculus. In total, then, utility is the measure of all actions and objects, and the *telos* of all relationships must be the increase of happiness or its opposite. In Bentham’s view, therefore, my questioning after the relationship between science and technology is a non-starter. So long as

technological invention benefits society—increases our happiness—then the relationship is morally just.

Bentham's philosophy did not spring from nothing, and indeed as a starting point it is somewhat misleading. By the time Bentham published his philosophical works, the "fact" of science had long been established and culturally disseminated. Indeed, with the advent of the Early Industrial Revolution, science had more than proven its usefulness and its principles were increasingly folded into the everyday operations of industrial machinery.

Thus to "begin" a history or philosophy of science with Bentham and the Industrial Revolution of the nineteenth century is to begin too late. It is to concede the *telos* of utility and to view science, technology, and philosophy through that lens alone.

Worse still would be to read these views "back" into the centuries that came before, and to evaluate earlier scientific practices by that measure. When Heidegger wrote the "The Question Concerning Technology," the dominant histories of the Scientific and Industrial Revolutions held that they were distinct events. Scientists (natural philosophers) rarely mixed with engineers or inventors (mechanics). The first camp was committed to "pure" or theoretical knowledge while the second was devoted to application and practice. Indeed, the rise of disciplinarity in the nineteenth-century seems to bear this notion out. Natural philosophy or science became partitioned from itself with the rise of distinct fields (e.g., biology, physics, chemistry) and practitioners within those fields might focus only on research or application. This arrangement is arguably even more calcified today. Research institutions conduct "pure" research while corporate research and development teams apply that research to the development of new products. Only capital links the two. Corporations donate large sums to universities which in turn, hopefully, make scientific discoveries which can, perhaps, be developed into new technologies.

To again invoke Marx, this "division of labor" likely influenced historians of science into concluding that "science" always operated in these two distinct

domains (Musson 1972). Pure science aims only to increase human understanding of the natural world. Applied science aims to deploy that understanding in the service of technological progress. It was only the mediating influence of capital that brought these distinct practices into a dialectical relationship with one another.

Heidegger, by contrast, holds that this dialectic is flawed precisely because the nature of scientific inquiry *itself* was always already “Enframed” in service of technological application. It is not who controls the modes of scientific production—through capital or other means—that dictates science’s applicability; it is the orders and languages of science itself. Heidegger writes, “Modern science’s way of representing pursues and entraps nature as a calculable coherence of forces... it therefore orders its experiments precisely for the purpose of asking whether and how nature reports itself when set up in this way” (Heidegger 1977, 21). In other words, scientific practice, despite its penchant for inductive reasoning, still anticipates the *kind* of answers it expects to find in nature: a kind defined by “calculability.” It is this calculability, this quantification of things, which makes possible their application and potential commodification.

Heidegger attempts to prove this by seizing upon the empirical angst prompted by the advent of quantum physics in the early twentieth century. Quantum physics challenged the deterministic representational models of classical physics that had reigned since Isaac Newton by claiming that very small elements of matter behaved according to laws of probability rather than direct causation. Put simplistically, calculability, at the quantum level, means that one plus one does not equal two, it *probably* does. Though twentieth century physics had obviously expanded beyond Newton’s three laws of motion, the probabilistic models of quantum physics questioned the ability of Newtonian mechanics to predict cause and effect. Readers may be familiar with Einstein’s famous retort to the ideas of quantum physics, “God does not play dice [with the universe]!”

This schism allows Heidegger to lever “science” away from its traditional modes of representation—its “language”—just enough to show its staunch commitment to the calculability of nature. He writes:

If modern physics must resign itself ever increasingly to the fact that its realm of representation remains inscrutable and incapable of being visualized [*in light of quantum theory*], this resignation is not dictated by any committee of researchers. It is challenged forth by the rule of Enframing, which demands that nature be orderable as standing-reserve. Hence physics... will never be able to renounce this one thing: that nature reports itself in some way or other that is identifiable through calculation and that it remains orderable as a system of information... Because the essence of modern technology lies in Enframing, modern technology must employ exact physical science. Through its so doing, the deceptive illusion arises that modern technology is applied physical science (Heidegger 1977, 23).

Why, Heidegger wonders, does science cling so tightly to its old representational models in the face of quantum physics’ radical insights—insights that seem to demand a wholly new approach to scientific representation or language? The answer, for Heidegger, is that there is no such thing as *pure* scientific language—for science is only the ventriloquized speech of Enframing. The uncertainty of quantum physics seemed to endanger Enframing’s promise of calculability and consequent security—*things work*—and the responses of post-Newtonian physicists were, at first, to shore up the reliability of their practice rather than embrace this new model.

Of course, if Heidegger was hoping that quantum mechanics would revolutionize the ends of scientific practice he was mistaken. Quantum theory effectively undergirds all of our modern, electronic technology. We rely on its

probabilistic models of matter and energy as diligently as Newtonians relied on the universal behavior of gravity. Nevertheless, Heidegger's example does indicate that pure science has remained, at least in Western practice, a myth; that even the most abstract scientific discourses are structured by the *telos* of utility.

My second critique of histories of science concerns the assertion that science is a progressive enterprise—another notion embraced by spokesmen like Tyson and Hawking. Its history can be told in terms of advancing changes in its modes of representation: paradigm shifts (in the words of Thomas Kuhn) or *épistèmes* (in the language of Michel Foucault).¹ Kuhn and Foucault rightly acknowledge that what “counts” as knowledge varies depending on a given epoch's “conditions of possibility.” As Foucault writes, “The episteme is the ‘apparatus’ which makes possible the separation, not of the true from the false, but of what may from what may not be characterized as scientific,” or what may be characterized as knowledge more generally (Foucault 1980, 197).

It is debatable, however, whether these epistemic shifts mark the introduction of something new or the recasting of something old. Where Foucault might see epistemic rupture, for example, I would see return. I argue that it is the *same* aversion to ancient decay or annihilation that motivates these evolutions of representation. As Jonathan Swift puts it via the reanimated corpse of Aristotle: “New Systems of Nature were but new Fashions, which would vary in every Age; and even those who pretend to demonstrate them from Mathematical Principles, would flourish but a short Period of time, and be out of Vogue when that was determined” (Swift 2003, 184).

There are political consequences for a progressive view of science, even if that view is critical of scientific progress. Indeed, for Foucault and others it is because science, technology, and ideology work together *so well* that they are so dangerous. Knowledge is power, these critics concede, and the

¹ See Foucault 2004 and Kuhn 2012.

“power/knowledge” construct is precisely what must be identified and critiqued in any rigorous analysis of the Enlightenment and its afterlives.

The philosopher Herbert Marcuse develops this political theme in *One-Dimensional Man*:

If we attempt to relate the causes of the danger [of atomic catastrophe] to the way in which society is organized and organizes its members, we are immediately confronted with the fact that advanced industrial society becomes richer, bigger, and better as it perpetuates the danger. The defense structure makes life easier for a greater number of people and extends man’s mastery of nature. (Marcuse 1991, xli).

For Marcuse, “progress” is literally built upon a ticking time bomb. It is the fear of future death and annihilation that compels societies to submit to technocratic rule. It perhaps goes without saying that this future threat is grounded in the assertion that scientific discovery and technological invention really do progress. Technology really does lead to a greater degree of mastery over nature (and consequently over human beings).

Marcuse’s thesis is at odds with my position that technology is anti-regressive; that it is compelled by an aversion to a *past* annihilation that continuously threatens to return. For Heidegger this is the annihilation of the thing *qua* thing—that is, the thing (rock, tree, automobile) as it presents itself as itself, according to its own structuring essence, whatever that may be; or, to put it in the negative of my theoretical framework thus far, the annihilation of thing as that which is *not* ordered by Enframing as a species of standing reserve; the thing which is not understood in terms of its potential work. By relying for now on this negative definition of the thing, we can understand Heidegger’s point without necessarily exploring, for the time being, the ontological question of what a thing “is.”

Instead, we might simply contrast Heidegger's description of annihilation to Marcuse's, paying special attention to the difference in tense: "Science's knowledge, which is compelling within its own sphere, the sphere of objects, already had annihilated things as things long before the atom bomb exploded. The bomb's explosion is only the grossest of all gross confirmations of the long-since-accomplished annihilation of the thing: the confirmation that the thing as thing remains nil" (Heidegger 2001, 168). In Heidegger's view, the annihilation has already happened. Science, which Heidegger elsewhere calls the "herald" of Enframing, "prepares" the way for the *material* annihilation of the atomic bomb by representing things as that which can be annihilated—that which can be decomposed into particulate matter, heat, and kinetic energy.

In sum, my take on Heidegger's interpretation of science demands that we interpret it with a view to what came before rather than what might come next. Even when science appears "new," as it did for many in Early Modern Europe, we would do well to see what it has re-turned or re-surfaced for the cultures engaging with it. By turning our thinking towards anti-regress instead of progress, I believe it becomes possible to listen more carefully for the speech of Enframing and its slogan: things work. With this attitude in mind, I now wish to turn to the "father" of England's Scientific Revolution, Francis Bacon.

Knowledge Is Power / Submission Is Subdual

In part due to the histories of science cited above, Bacon's immediate influence on the Scientific Revolution has been debated. While his impact was frequently lauded during the eighteenth century, modern scholars have noted, correctly, that despite the resemblance between Bacon's proposed methods and the methods of modern science, he, like Galileo or Copernicus, was in many ways an "early" modern thinker. Bacon maintained, for example, a healthy belief in "pseudo" scientific arts such as numerology and alchemy. In his stead, modern scholarship has more frequently turned to the work of Robert Boyle as the first

expression of truly modern science.² Boyle, these critics note, refined the experimentalism proposed by Bacon in *Novum Organum* (1620) and put it to practical use with his experimental air-pump. Boyle also fulfilled Bacon's ideal of Solomon's Academy, described in *New Atlantis* (1627), by participating in the founding of the Royal Society. It is with Boyle and the founding of the Royal Society, these critics argue, that the episteme of modern science emerged in any meaningful, material sense.

Although there are good reasons to cite Boyle as the founder of modern scientific *practice*, Bacon's theoretical insights should not be overlooked. Indeed, it is precisely Bacon's transitional or "early" modern thinking that helps preserve the uncanniness of this emergent scientific enterprise. Of course, the best known—and most hackneyed—of Bacon's insights is the aphorism, "Knowledge is power." The phrase—or at least the sentiment behind it—found purchase in the Enlightenment. Indeed, as Clifford Siskin and William Warner write in the introduction to *This Is Enlightenment*, the era's clarion call was none other than Immanuel Kant's romantic version of the same, "*Habe Muth dich deines eigenen Verstandes zu bedienen!* [Have courage to use your own reason!]," itself a revision of Horace's "*Sapere aude!* [Dare to know!]" (Siskin & Warner 2009). Phrased in these ways, the sentiment is not only empowering, but fundamentally humanistic. It prescribes a clear, progressive path for individuals and communities to improve their condition. "The more you know," the more power, influence, and control you will possess. Or, in the cynical spirit of Foucault and Marcuse, the more *they* [oppressive governments and institutions] know, the more power they will have over you.

In order to shake off the familiarity of such thinking, we might return to Bacon's actual language in *Novum Organum*. Bacon never used the exact phrase, "knowledge is power" in that text, but in its opening chapter he writes, "Knowledge and human power are synonymous, since the ignorance of the cause

² See Latour 1991, Poovey 1998, and Shapin & Shaffer 2011.

frustrates the effect; for nature is only subdued by submission, and that which in contemplative philosophy corresponds with the cause in practical science becomes the rule” (Bacon 1902, 11). Despite the similarity of Bacon’s phrasing, his actual claim answers a question that the aphorism does not. Namely, *how* does knowledge become power?

The answer, I think, is found in the more unsettling language of “submission” and “subdual.” These terms, I argue, more accurately signify the Baconian process of converting knowledge into power—human power. This process begins with an act of submission to the laws of nature. This was a politically dangerous step, even in the twilight of England’s Age of Absolutism.³ Political philosophies of the period still advocated Feudal ideas such as the Divine Right of Kings and the Great Chain of Being—concepts which placed absolute authority in the hands of the monarch, whose power was not only second to God’s, but a manifestation of it. To suggest that natural laws were independent of the monarch’s authority—and a more direct metonym of God’s—would have been politically discomfiting if not, as Galileo and Copernicus discovered, heretical.

In any case, this act of submission, according to Bacon, requires attending to “things themselves” rather than human preconceptions *about* things. Bacon calls these preconceptions idols, which he enumerates and allegorizes as idols of the tribe, cave, market, and theatre. Briefly: idols of the tribe stem from predispositions of human nature, specifically Protagoras’ notion that “man is the measure of all things.” Idols of the cave—a reference to Plato’s allegory of the cave—refer to an individual’s personal experience—his or her education, upbringing, religious indoctrination, and so on. Idols of the market relate to humans’ social interactions, the descriptive limitations of language, and the biases inculcated through commercial ideologies. Finally, idols of the theatre—which Bacon finds to be the most pernicious—represent mythological traditions,

³ See Adorno & Horkheimer 2002.

sophistry, and the numerous fictions and false narratives humans have used to explain phenomena they do not otherwise understand.

Together, these idols signify the misconception of anthropocentric causation: the idea that human actions have anything to do with natural causes. No amount of ritual or prayer, Bacon says, will cause the clouds to rain. No amount of channeling or purification of an alchemist's soul will transform lead into gold. No amount of political or military influence will cause the seas the part or the sun to hover in the sky.

Bacon gives a fascinating and apparently paradoxical example of his critique in *Natural World* via the practice of alchemy. Alchemists, at least in Bacon's view, believed that human behavior, constitution, need, or action were the chief causes of natural phenomena. Thus to transform lead into gold the alchemist must purify his soul in order to purify the lead.⁴ This is precisely the kind of "idolatrous" violation Bacon enumerates, and he writes accordingly, "The Alchymists call in likewise many vanities, out of Astrology, Natural Magick, Superstitious Interpretations of Scriptures, Auricular Traditions, Feigned Testimonies of Ancient Authors and the like" (Bacon 1677, 71). Nevertheless, Bacon was a proponent of alchemy, and in the same section writes, "The Work itself, I judge to be possible" (Ibid). The word "work" provides an important insight into Bacon's method. The principle problem with the methodologies of the alchemists has nothing to do with metaphysics per se (Bacon, like many early natural philosophers, was a committed theist). No, the problem with the alchemists' methods is simply that they *don't work*. Bacon supposes that his methods do, and the key to these methods is to better understand the nature of gold rather than the nature of man. He continues:

⁴ Theories of alchemy generally held that gold was the purest metallic substance, and thus to transform an object into gold was merely a matter of removing its impurities.

Gold hath these Natures: Greatness of Weight, Closeness of Parts, Fixation, Pliantness or Softness, Immunity from Rust, Colour or Tincture of Yellow. Therefore the sure way... to make *Gold*, is to know the Causes of the several Natures before rehearsed, and the Axioms concerning the same. For if a Man can make Metal that hath all these Properties, let Men dispute, whether it be Gold, or no? (Bacon 1677, 73).

Rather than beginning with the talent of the alchemist, Bacon turns to the properties of gold itself. Only by understanding the natural causes that effect those properties, he argues, can humans ever hope to master the work of creating gold. If alchemists were to succeed, they would do so only by submitting to the natural laws discovered through their experiments, and would direct only the ends or effects of those natural causes.

While this logic might seem antiquated in the context of alchemy, the principles of Bacon's method have long served technological applications. There is a reason why an airplane has a cylindrical fuselage and cantilevered wings. That reason derives from the laws of fluids, especially the rules of lift and drag. Wondrous as the airplane is, it is incapable of changing the laws of nature. It *works* precisely because it, its pilots, and its engineers obey and *submit* to these laws absolutely.

And yet, Bacon suggests, by our submission nature will be subdued—made pliant to human purpose and desire. Already, with this idea of subdual, we have stumbled into the speech of Enframing. Is it truly nature *qua* nature to which Bacon asks humans to submit, or nature-as-that-which-can-be-subdued (i.e., nature as standing reserve)? Depending on how one frames this question, the choice of word, “subdue,” strikes as more or less strange. How, for example, does one subdue a tree, or a rock, or a sunset? How does an airplane subdue the air or gravity? How does one subdue a *thing*?

For these answers, I turn not to Bacon, but to the stadial theories of Thomas Hobbes and John Locke, which dealt with this question in the explicit context of modern civilization. How, they ask, were primitive humans able to subdue natural objects and behaviors in such a way as to allow civilizations to coalesce and flourish?

Work in the State of Nature

In his influential book, *Social Science & The Ignoble Savage* Ronald L. Meek develops the thesis that “state of nature” or stadial narratives reflected European attitudes about the progress of modes of subsistence (Meek 2010). Proponents of stadial or “four stages” theory believed that human societies progressed through four modes of subsistence: hunter-gatherer, pastoral, agricultural, and ultimately commercial. These modes indicated the “advancement” or progress of that civilization.

Meek rebuts the claim that stadial theory was purely a manifestation of Eurocentric imagination. He instead argues that stadial theory emerged from Europe’s Age of Discovery. The discovery of human cultures such as American Indian tribes in locations only recently known to exist spurred a wealth of new empirical data. Stadial theories emerged in an effort to synthesize that data into a narrative of cultural progress. Importantly for Meek, this means that stadial narratives were not topics of pure speculation; rather, they are the flipside to Mary Poovey’s definition of the “modern fact.” If the fact, as Poovey describes it, is created in such a way as to appear unadorned with theoretical apparatus or prejudice, these stadial narratives represent early efforts to synthesize sociological and anthropological theory, to use modern verbiage (Poovey 2008).

The main theoretical or explanatory question of stadial narratives is *what* compels a civilization to move from one mode of subsistence to the next. The responses to this question fuel both the philosophy and the fiction behind a given

author's stadial theory. Consider, for example, two passages from William Chambers' *Treatise on Civil Architecture*:

The advantages arising to Society from Houses, are alone very considerable; as they have an influence both on the body and mind: for in countries where Men live in woods, in caves, or in miserable huts, exposed to the inclemencies of seasons, and under continual apprehensions of heat, cold, tempests, rain, or snow, they are indolent, stupid, and abject; their faculties are benumbed, and all their views limited to supplying their immediate wants (Chambers 1759, i).

Chambers makes the case that architecture lifts civilization out of the hunter-gatherer mode of subsistence. The non-European "savage" appears here in caricature: wanton and simple, living from one meal to the next, and thus incapable of producing the kind of surplus needed to maintain a pastoral or agricultural society. By contrast, Chambers continues:

Architecture prepares the way for Commerce: she builds ships, with ports and piers for their reception and security; forms roads and causeways in the marshes, and other impracticable places; levels mountains; fills up valleys; throws bridges over deep and rapid rivers; turns the course of torrents; cuts canals; erects sluices; and conquers every obstacle that nature opposes to her progress: facilitating by these means the conveyance of Merchandize, and passage of travelers from one country to another (Ibid).

Meek's modes of subsistence are clearly delineated here: the hunter-gatherer society is contrasted explicitly with the commercial. Architecture again makes the difference, but architecture has now expanded beyond mere shelters to include a

half-dozen ways of manipulating the terrain. It materially transforms the world into a place more hospitable to commercial society: more mobile, more networked, and more tame. Architecture in this passage not only keeps off the wind and rain, it builds, forms, fills, turns, cuts, erects, and conquers. It subdues, and it is via this subdual that things are made to work.

Stadial narratives such as Chambers' imply an obviously progressive structure. Civilization moves from one form of subsistence to the next, more "advanced" form. Indeed, in examining the language of Hobbes, Locke and (in the next chapter) Rousseau, one can see in all of these writers the belief that European civilization is more advanced than any other in the world. This consensus does not mean, however, that the motivation behind imagining these stadial theories is progressive. Technological "advancements" enabled humans to propel themselves to the moon, but the motivation of those innovations, I argue, is anti-regressive: humans cannot survive the vacuum of space. Similarly, though these authors imagine a progressive narrative, they were motivated by the dissolution and regression of civilization, not its advancement.

There are several historical and cultural reasons that help explain why this anti-regressive thinking was popular in the second half of the seventeenth century. Neoclassicism, for example, had restored European interests in Ancient Greek and Roman civilization, but it also reminded Europeans of an obvious historical problem: those empires fell. For all their advancement, these societies ultimately collapsed into what Petrarch famously characterized as the "Dark Ages." While Neoclassicists considered the ancient and future collapse of European civilization, the Age of Discovery brought English citizens into contact with "primitive" cultures, and the effects of such encounters were frequently ambivalent. Coincidentally, Bacon played a significant role in the early stages of England's colonial history. He was an influential member of Elizabeth I's court during the failed attempt to establish a colony in modern day North Carolina. Tales of this "lost colony" claim that the colonists "disappeared" into the North Carolina swamps. According to legend, they left behind a single trace—a sign marked with

the word “Croatan”—suggesting that the colonists had sought refuge with a nearby tribe of that name. Though their fate remains uncertain, tales of “blue-eyed” Indians in the region became popular. Stripped of European implements, had these early colonists melted back into their own primitive past?⁵

Likewise, as Linda Colley has argued in *Captives*, the subsequent Age of Empire continued to produce these kinds of encounters (Colley 2004). British sailors, such as the mutinous crew of *HMS Bounty*, abandoned European civilization in search of a primitive utopia among the islands of the South Pacific.⁶ These stories prompt the anti-regressive question, the question that concerns technology, “What is to keep us from surrendering to the uncanny call of the past, the wild, the savage?”

In England especially, this possible collapse threatened in the wake of the English Civil War. Indeed, it was precisely this recent conflict that inspired Thomas Hobbes’ *Leviathan*. In a bit of historical irony, Hobbes had served briefly as Bacon’s secretary, only to later engage in an iconic rivalry with Robert Boyle, the man many consider to be Bacon’s spiritual successor. Despite Hobbes’ and Boyle’s similar political views—they were both Royalists in a nation emerging from the decade-long Interregnum—they disagreed on the authority that legitimated their political outlook. For Hobbes, this authority was “Leviathan”—a self-contained apparatus of state in which subjects willfully resigned their individual authority to an absolute ruler via the so-called social contract. As Simon Shaffer and Steven Shapin have argued, Boyle’s authority was also emblemized in a self-contained apparatus: the air-pump (Shapin and Shaffer 2011). The air-pump’s “ruler,” Nature, may have been an invisible tyrant, but she was no less powerful than Hobbes’ oligarch. Birds, insects, and other small animals would be sacrificed to the vacuum Boyle’s machine created. Hobbes famously wrote that life in the state of nature was “solitary, poore, nasty, brutish,

⁵ For an account of the lost Roanoke colony see Kupperman 2007.

⁶ See Alexander 2004 for a modern account of *The Bounty*’s ill-fated voyage.

and short,” and the same could be said for the creatures lodged in the transparent glass bulb of Boyle’s air-pump, gasping in the absence of a being they did not know existed—air—and dying from a presence that Hobbes and other contemporaries did not believe existed—vacuum.

Boyle’s experiments modeled a new political body comprised of human and non-human actors—a “parliament of things” as Bruno Latour has called it—but Hobbes’ was less concerned with making things representative and more concerned with making them work (Latour 1991, 142).⁷ For Hobbes, the state of nature was equivalent to a perpetual state of war, “of every man, against every man” (Hobbes 1985, 185). In this state, Hobbes explains, there could be no technology, society, science, or industry. In short, without Leviathan things devolve into chaos, fluctuating, as Bacon would say, in “endless error.” Hobbes writes:

Whatsoever therefore is consequent to a time of Warre, where every man is Enemy to every man; the same is consequent to the time, wherein men live without other security, than what their own strength, and their own invention shall furnish them withall. In such condition, there is no place for Industry; because the fruit thereof is uncertain: and consequently no Culture of the Earth; no Navigation, nor use of the commodities that may be imported by Sea; no commodious Building; no Instruments of moving, and removing such things as require much force; no Knowledge of the face of the Earth; no account of Time; no Arts; no Letters; no

⁷ Not surprisingly, the legacy of submission’s reception in eighteenth-century Britain maps, broadly, to the political opposition between Whig and Tory. This is not to say that one party was pro-science and the other against. Rather, as historians of science have observed, partisans might be more inclined to debate the proper *domain* of science; or, to use Bruno Latour’s terminology, the bounds of the “network” through which science transmits its information.

Society; and which is worst of all, continuall feare, and danger of violent death; And the life of man, solitary, poore, nasty, brutish, and short (Ibid, 186).

Implicit in this passage is the belief that nature is always already a standing reserve. It is ready and waiting to be put to work; to be “subdued”—cultured, navigated, used, moved, and removed. Furthermore, it is not *ignorance* that stands in the way of this use: knowledge, arts, and letters are depicted as if they too were waiting for humans to develop them. No, Hobbes says, standing in the way of these resources is human selfishness. It is *human* nature which must be subdued. In order to subdue it, humans must submit to the authority of an absolute ruler: a king, an oligarch, a tyrant. Hobbes writes, “Men have no pleasure, (but on the contrary a great deal of griefe) in keeping company, where there is no power able to over-awe them all” (Ibid, 185). This is the work of the oligarch—to over-awe other humans; to harmonize them into a society by threatening to annihilate them all.

For Hobbes, Leviathan is the instrument that levers humanity out of this dread condition. The social contract, the mutual agreement to “submit” to an over-awing authority is a prerequisite to the exploitation of world as standing reserve. In this sense, Leviathan is both techno-logical and explicitly anti-regressive. It exists to prevent humans from returning to their brutish, natural state. But Leviathan suffers for its anthropocentrism. Hobbes expresses significantly less concern for the “agency” of things to buck the authority of the oligarch. Rocks, trees, and vacuums never signed this social contract, and the question as to whether they could was debated throughout the eighteenth-century.

Hence the deodand, defined in English law as “a personal chattel which, having been the immediate occasion of the death of a human being, was given to God as an expiatory offering, i.e. forfeited to the Crown to be applied to pious uses, e.g. to be distributed in alms” (OED). For example, if a horse kicks over a lantern that starts a fire, the horse can be held legally responsible for the ensuing

destruction. Via the deodand, one can further understand Hobbes' reticence towards the scientific experiment and the "parliament of things" it calls to session. As literary scholar Jonathan Lamb observes in *The Things Things Say*, the deodand was deployed in an effort to bring inanimate or non-sentient objects into the realm of the social contract (Lamb 2011). The results were mixed: it is one thing to pass a law that declares it illegal for a person to fire a gun in a crowded theater, but it is far more difficult to legislate *to the gun* under what conditions it may or may not discharge itself. Ultimately, the deodand would be erased from the pages of British law. The last British deodand trial, according to historian R. W. Kostal, involved an 1841 train accident resulting in the deaths of eight people (Kostal 1997). The jury found the train responsible and valued its forfeiture at over one thousand pounds. The case prompted Parliament to pass the 1846 *Deodands Act*, abolishing the legal category.

For Hobbes, the presence of things preserves the lawlessness of the state of nature—no government, it seems, can over-awe *them*. When a train derails or a cart overturns, where is the punitive power of Leviathan? For Hobbes, to further legitimate the authority of things (as Boyle's experiments did) is to yield unnecessary political ground.

In contrast to Hobbes, the "state of nature" as described by John Locke in the *Second Treatise of Government* does account for the "agency" of inanimate things, albeit in a limited sense. Locke and Hobbes are often taught as political opposites. Where Hobbes offered the last serious philosophical defense of Absolutism, Locke embraced the republicanism ushered in by the Glorious Revolution (1688) and favored by the Whig political party. Locke's views would heavily inform the British Enlightenment's legal, political, and literary discourses. It was Locke's philosophy, after all, that helped legitimate the reforms to patent and copyright law that catalyzed the Industrial Enlightenment.

That said, Locke, like Hobbes, was skeptical of experimental science, especially when its experiments relied on the prosthetic augmentation of human

senses. In the *Essay Concerning Human Understanding* Locke worries over the impact of microscopes on the understanding of substances:

The infinitely wise Contriver for us, and all things about us, hath fitted our senses, faculties, and organs, to the conveniences of life, and the business we have to do here. We are able, by our senses, to know and distinguish things; and to examine them so far, as to apply them to our uses, and several ways to accommodate the exigencies of this life... We are furnished with faculties (dull and weak as they are) to discover enough in the creatures, to lead us to the knowledge of the Creator, and the knowledge of our duty; and we are fitted well enough with abilities to provide for the conveniences of living: these are our business in this world. But were our senses altered, and made much quicker and acuter, the appearance and outward scheme of things would have quite another face to us; and I am apt to think, would be inconsistent with our being, or at least well-being, in this part of the universe which we inhabit (Locke 2008, 185).

This passage is a direct rebuke to Bacon's claim in *Novum Organum* that the human mind must rely on "mechanical helps" to more accurately reveal the true face of nature. Locke embraces rather than rejects the idols of the tribe.⁸ Indeed, he argues that these idols enable humans to make "use" of things in a way that is best fitted for them. Already, one can see Locke's emphasis of work ("business") over the kind of presencing enabled by such things as the minutiae seen through a

⁸ The issue of prosthesis—the manipulation of sensory impression via technology—will come up again in the writing of Pope, Cavendish, and Swift below. It has also been discussed at length by John Bender and Michael Marrinan in *The Culture of the Diagram*.

microscope. Such augmentation, Locke says, would distort our very being; a being which he believes is already perfectly suited to work.

To better understand Locke's emphasis of work over presence, I turn to his version of the state of nature in *The Second Treatise on Government* (1689). There Locke argues that humans transform things into property by affixing their labor to them. The state of nature, he claims, is a common given to humankind by God, who "hath also given them reason to make use of it to the best advantage of life and convenience. The earth, and all that is therein, is given to men for the support and comfort of their being" (Locke 2003, 111). Like Hobbes, Locke presumes that the world is already ordered as a standing reserve. Locke's justification for this claim is rather scant. In lieu of an essence such as Enframing, he claims that the command of God has ordered it so. Again, the question of presence or work is foreclosed. Instead, the question for Locke, as for Hobbes, is how humans transformed the common into personal use, or as Locke describes it:

And though all the fruits [the common] naturally produces, and beasts it feeds, belong to mankind in common, as they are produced by the spontaneous hand of nature; and nobody has originally a private dominion, exclusive of the rest of mankind, in any of them, as they are thus in their natural state: yet being given for the use of men, there must of necessity be a means to appropriate them some way or other before they can be of any use, or at all beneficial to any particular man (Locke 2003, 111).

The solution to the problem of appropriation, Locke argues, is not social contract, but labor. By "affixing" labor to a thing, one invests a right of property in it. Locke continues, "The grass my horse has bit; the turfs my servant has cut; and the ore I have digged in any place, where I have a right to them in common with others; become my property, without the consent or assignation of anybody. The labour that was mine, removing them out of that common state they were in, hath

fixed my property in them” (Locke 2003, 112). The moment of acquisition, Locke says, makes a thing my own, even if the acquisition is perpetrated by someone whose labor I also own.

Having solved the problem of acquisition, however, Locke’s theory immediately runs into another: what is the natural limit to this acquisition? What is to stop a person or community from taking “too much” from the common? This is precisely the problem that concerned Hobbes: “If one plant, sow, build, or possess a convenient Seat, others may probably be expected to prepared with forces united, to dispossesse, and deprive him, not only of the fruit of his labour, but also of his life, or liberty. And the Invader again is in the like danger of another” (Hobbes 1985, 184). Hobbes assumes a paucity of common resources, perhaps because he does not imagine any natural limit to an individual’s right to acquire things in the state of nature. To avoid this scenario, Locke imposes a second natural law, which he also ascribes to divine command: “As much as any one can make use of to any advantage of life before it spoils, so much he may by his labour fix a property in: whatever is beyond this, is more than his share, and belongs to others. Nothing was made by God for man to spoil or destroy” (Locke 2003, 113). For Locke, use and its opposite, waste, are the natural (or divine) limitations of appropriation. No person may take more than he or she can use.

With the introduction of waste, one can begin to see the tandem of submission and subdual emerge in Locke’s stadial theory. Indeed, it is only by introducing the delimiting function of use/waste that Locke revises and restates his principles in the explicit language of subdual:

God, when he gave the world in common to all mankind, commanded man also to labour, and the penury of his condition required it of him. God and his reason commanded him to subdue the earth, *i.e.* improve it for the benefit of life, and therein lay out something upon it that was his own, his labour. He that, in obedience to this command of God, subdued, tilled, and sowed any

part of it, thereby annexed to it something that was his property, which another had no title to, nor could without injury take from him (Locke 2003, 113-4).

Locke continues, shortly thereafter:

And hence subduing or cultivating the earth, and having dominion, we see are joined together. The one gave title to the other. So that God, by commanding to subdue, gave authority so far to appropriate: and the condition of human life, which requires labour and materials to work on, necessarily introduces private possessions (Locke 2003, 114).

In some respects, Locke is only restating his earlier thesis: the person who affixes labor into a thing also fixes his or her right of property in it. But the language of subdual implies a kind of imperialism. It suggests that things are somehow *resistant* to the gathering or cultivating that Locke imagines. This resistance manifests itself in the tendency of things to turn to waste: for gardens to become choked with weeds, for apples to become infested with worms, for grain to spoil, and so on. From a purely analytic perspective, waste is a puzzle in Locke's theory of the state of nature. If God has given the common to humankind so that they may make use of it, then why is this common prepared in such a way as to rot as soon as it is appropriated? Why, in other words, are the very gifts of God resistant to the appropriation for which they are supposedly destined?

Whatever the reason, Locke proposes a practical solution to the problem of waste: money, "a little piece of yellow metal, which would keep without wasting or decay" (Locke 2003, 115). For Locke, money is the technological innovation that propelled humans out of the state of nature precisely because it displaces the problem of decay. Instead of storing a surplus of grain, the laborer could sell it in exchange for these pieces of yellow metal, thus preserving the

value of his labor while displacing the object of his labor onto another who, presumably, would make more ready use of it.

While Hobbes' Leviathan is a purely social technology, Locke's money is a hybrid of the material and the social. Its material properties respond to the natural phenomenon of decay, yet its "value" exists only by social contract: a common consent that pieces of gold and silver really do relate to the utility of an object. Without that social contract, money is literally useless, prompting Locke to write, famously: "For I ask, what would a man value ten thousand, or an hundred thousand acres of excellent land, ready cultivated, and well stocked too with cattle, in the middle of the inland parts of America, where he had no hopes of commerce with other parts of the world, to draw money to him by the sale of the product? It would not be worth the enclosing, and we should see him give up again to the wild common of nature, whatever was more than would supply the conveniences of life to be had there for him and his family... Thus in the beginning all the world was America, and more so than it is now; for no such thing as money was any where known" (Locke 2003, 121). Here, Locke wanders to the same kind of "savage" Chambers would later imagine in his treatise. Without money, some lasting thing, it is impossible to accrue resources beyond what one can immediately consume.

The inverse is also true, as described in Daniel Defoe's *Robinson Crusoe*, a novel often read as a kind of rehearsal of Locke's theory. Stranded upon an island that he believes to be uninhabited, Crusoe bemoans the "useless" resources he has secured from his wrecked ship:

In a Word, the Nature and Experience of Things dictated to me upon just Reflection, That all the good Things of this World, are no farther good to us, than they are for our Use: and that whatever we may heap up indeed to give others, we enjoy just as much as we can use, and no more. The most covetous griping Miser in the World would have been cur'd of the Vice of Covetousness, if he

had been in my Case; for I possess'd infinitely more than I knew what to do with. I had no room for Desire, except it was of Things which I had not, and they were but Trifles, though indeed of great Use to me. I had, as I hinted before, a Parcel of Money, as well Gold as Silver, about thirty six Pounds Sterling: Alas! There the nasty sorry useless Stuff lay; I had no manner of Business for it; and I often thought with my self, That I would have given a Handful of it for a Gross of Tobacco-Pipes, or for a Hand-Mill to grind my Corn; nay, I would have given it all for Sixpenny-worth of *Turnip* and *Carrot* Seed out of *England*, or for a Handful of *Pease* and *Beans*, and a Bottle of Ink: *As it was*, I had not the least Advantage by it, or Benefit from it; but there it lay in a Drawer, and grew mouldy with the Damp of the Cave, in the wet Season; and if I had had the Drawer full of Diamonds, it had been the same Case; and they had been of no manner of Value to me, because of no Use (Defoe 1994, 94-95).

Defoe captures the fundamental ambivalence towards money encompassed in Locke's philosophy. As a hybrid technology, money's power to "subdue" natural decay is limited. At best, it can only defer or displace waste—not stop it. In this passage, we can also see the anti-regressive nature of technology manifesting itself. The uselessness of Crusoe's Pounds Sterling invites him and us to look backwards into Locke's supposed state of nature. Likewise, for Locke, money bears with it this possible return to the state of nature, to "America" as Locke figures it. Like Leviathan, money is that which preserves us from this return.

Defoe, as we will see in subsequent chapters, was perhaps the greatest literary spokesperson for Enframing in the eighteenth-century. *Robinson Crusoe* effectively models many of themes I will discuss in later chapters, including the aesthetics of use, the logic of repair, and the relationship between use and national community. In the final section of this chapter, however, I wish to turn to two

authors who are often considered intellectual opponents of Defoe and Locke. Margaret Cavendish and Jonathan Swift antagonized the scientific method in their writing and were both opposed to the Whig political ideals held by Defoe. Nevertheless, I will argue that despite their resistance to new scientific methods, Cavendish and Swift reinforce the principle ideas of stadial narratives: things are valuable to civilization only insofar as they work.

Utopias and Scientific Critique

Fictions about the state of nature aim to “naturalize” the *telos* of utility and consequently delimit the domain of science as that which must be useful. Utopian satires, however, represent science as that which makes things present *without* making them work. Instead, the “work” that Bacon supposes science to accomplish, these texts argue, is ultimately fruitless, or worse, divisive. As a result, utopian satires represent science in non-realist or fanciful terms. The texts examined in this section achieve this by removing their European characters to an alien world in which things are overbearingly present. The familiar becomes the foreign. The gigantic becomes the microscopic. Technologies become curiosities. Time and space are collapsed into each other. These satires revel in the “lunacy” modern science has created with its array of instruments, prostheses, and apparatuses, and their making present things that have no apparent bearing on the work of maintaining civilization.

Bacon’s writings are a helpful reference for this genre as well. *New Atlantis* proposes a utopian island in the South Pacific, Bensalem, inhabited by a race of natural philosophers. The island is home to the “School of Solomon,” Bacon’s vision of institutionalized science. The School of Solomon literalizes the *telos* of utility: “The End of our Foundation is the Knowledge of Causes, and Secret Motions of Things; And the Enlarging of the Bounds of Human Empire, to the Effecting of all things possible” (Bacon 1677, 259). But it is the structuring of the school that bears on the satires to follow. The School of Solomon is highly

specialized, with different subjects being divided into houses, each house corresponding to an area of research: perspective-houses study optics, sound-houses acoustics, perfume-houses smells, engine-houses machines, and so on. The organization of human personnel is also segregated, with each “officer” of the house playing a separate role in Bacon’s overall method of induction. In many respects, the School of Solomon is still recognizable in the modern university or research institution, thanks in part to the legacy of the Royal Society.

In a way, then, the School of Solomon is now less utopia and more everyday actuality, but for contemporary satirists it was nothing of the sort. Margaret Cavendish’s *The Blazing World* blasts the Baconian program, allying itself far more closely with a Hobbesian conception of governance. For Cavendish, social harmony is achieved by “allowing it but one religion, one language, one government” (Cavendish 2004, 224). The School of Solomon, with its multitude of houses and professions, seems to promise the exact opposite, prompting a skewering by Cavendish.

Cavendish critiques Baconian science in three ways. First, she asserts the results of scientific experiments are erroneous or at best inconclusive. Second, she claims, much like Locke, that the prosthetic instruments of scientific experiment are deceptive—they mislead the human observer by presenting things in artificial dimensions (enlarged or miniaturized). Finally, she argues that the Baconian program proves divisive to the order of the state. It fosters dissent over matters that should have no bearing on a political body.

Cavendish’s protagonist—who will come to be called the Empress of the Blazing World—arrives in this alien place during a calamitous voyage to the North Pole. Initially, the Empress attempts to organize the Blazing World much like the School of Solomon. Its subjects are divided according to their profession, “especially those that had applied themselves to the study of several arts and sciences; for they were as ingenious and witty in the invention of profitable and useful arts, as we are in our world, nay, more; and to that end [the Empress] erected schools, and founded several societies.”

Very quickly, however, the Empress discovers the useless and even deleterious effects of this academy. She asks her astronomers (a race of bird-men), “What kind of substance or creature the air was?” This question, of course, is in many ways *the* scientific question of the seventeenth century, thanks in large part to the celebrity of Boyle’s experiments. The astronomers can give her no satisfying answer, however, other than that the air is that which they breathe. “For nature,” they state, “is so full of variety, that our weak senses cannot perceive all the various sorts of her creatures” (Ibid, 138). Instead, the astronomers begin to invent objects to explain various atmospheric phenomena. For example, a debate over the phenomenon of thunder prompts one camp of bird-men to claim that “Thunder was a sudden and monstrous blas [sic], stirred up in the air, and did not always require a cloud” (Ibid, 140). What a “blas” is, exactly, is never revealed, “for even [the bird-men] themselves were not able to explain the sense of the word.” Needless to say, the Empress is unimpressed. Experimental science has failed on its own terms: it generates no new knowledge (never mind power).

Turning next to her experimental philosophers (a race of bear-men), the Empress develops her critique of the scientific instrument. Her hope—a parody of Bacon’s thesis—is that the supposed objectivity of the scientific apparatus would help “to avoid hereafter disputes, and have the truth of the phaenomenas [sic] of celestial bodies more exactly known” (Ibid, 140). But these instruments fail to produce the consensus the Empress demands. In reference again to Boyle’s demonstrations with the air-pump the Empress complains that “notwithstanding their great skill, industry and ingenuity in experimental philosophy, [the bear-men] could yet by no means contrive such glasses, by the help of which they could spy out a vacuum, with all its dimensions, nor immaterial substances, non-beings, and mixed-beings, or such as are between something and nothing” (Ibid, 145).

Even when these instruments do work as they are supposed to, the objects they make present are irrelevant to the order of the Blazing World. After viewing a louse through a microscope—and nearly fainting from the sight—the Empress

asks her experimental philosophers, “Whether their microscopes could hinder [the louse’s] biting, or at least show some means how to avoid them? To which they answered, that such arts were mechanical and below the noble study of microscopical observations” (Cavendish 2004, 144). In many respects, this passage echoes Locke’s argument that scientific study can tell us very little about the “business” of everyday life. Even if instruments and prostheses allow humans to modify their powers of perception, what purpose would such modifications serve?

Worse still is the fact that these observations are apt to cause civil dissent. For example, in their efforts to observe celestial motions, the bear-men’s “telescopes caused more differences and divisions amongst them, than ever they had before; for some said, they perceived that the sun stood still, and the earth did move about it, other were of opinion, that they both did move; and others said again, that the earth stood still, and the sun did move; [etc.]” (Ibid, 140). Dissatisfied, the Empress demands the experimental philosophers to break their telescopes for they are “false informers, and instead of discovering the truth, delude your sense.” The Empress treats the telescopes as deodands, holding them “personally” responsible for the dissent amongst this scientific community. She begins “to grow angry at their telescopes” and, in demanding their destruction, implies that the telescopes themselves bear responsibility for the deceit.

The bear-men counter with Bacon’s thesis of “mechanical helps” for the mind, arguing “that it was not the fault of their glasses, which caused such differences in their opinions, but the sensitive motions in their optic organs did not move alike, nor were their rational judgments always regular.” Thus, the bear-men argue, it is not the telescopes that are flawed; it is the bear-men themselves who do not live up to the demands of true discovery. The Empress, however, remains unmoved, repeating that the telescopes “are mere deluders, and will never lead you to the knowledge of truth.” Distraught, the bear-men in a final plea, “petitioned that [the telescopes] might not be broken; for, they said, we take more delight in artificial delusions, than in natural truths” (Ibid, 142). By resigning

experimental science's relationship to reality, Cavendish resolves the dangerous novelty of science's presencing by transforming it into solipsistic farce. Cavendish here attempts to turn modern science's strength into a weakness by arguing that instruments can only report their own artifice. For indeed, if instruments did all that thinkers like Bacon and Boyle claimed them to do, they should bring everyone's senses into align, or as the Empress states: "If their glasses were true informers, they would rectify their irregular sense and reason" (Ibid, 141).

Cavendish's critique, in other words, is as much a statement about the nature of truth and fiction as it is presence and work. Reality, the Empress implies, is regular or at the very least can be regulated. Useful objects contribute to this regulation while useless objects (like scientific instruments) produce idiosyncratic results and are for that reason "fictions." This is not to say that fiction itself is harmful. On the contrary, the Empress learns that fiction is a powerful tool with which to construct alternative worlds. Rather, fiction—and its apparatuses—must be clearly defined as such lest they distract from or interfere with the regulation of society.

Next to Cavendish, the most sustained satire of Bacon's *New Atlantis* is delivered in the third voyage of Swift's *Gulliver's Travels*. Like the Empress, Gulliver arrives in an alien world by way of naval catastrophe. He discovers the Laputians, a society of mathematicians, musicians, and astronomers who inhabit a floating island. Gulliver emphasizes the fact that the Laputians are a purely rational people. He states, "Imagination, Fancy, and Invention, they are wholly strangers to or have any Words in their Language by which those Ideas can be expressed" (Swift 2003, 152). This, of course, is precisely the assertion that Swift proceeds to satirize. For all its claims of objectivity and rationality, Swift argues, science ends up producing its own fictions.

Unlike Cavendish, Swift does not question outright the validity of the work of science. Laputa really does float, and Gulliver even provides a diagram to prove it. Science does, however, lead humans astray from their "natural" order,

which leads to irrational behavior. For example, Gulliver describes the architecture of the Laputians:

Their Houses are very ill built, the Walls Bevil, without one Right Angle in any Apartment, and this defect ariseth from the Contempt they bear to practical Geometry, which they despise as Vulgar and Mechanic, those Instructions they give being too refined for the Intellectuals of their Workmen, which occasions perpetual mistakes. And although they are dextrous enough upon a Piece of Paper in the management of the Rule, the Pencil and the Divider, yet in the common Actions and behaviour of Life, I have not seen a more clumsy, awkward, and unhandy People (Swift 2003, 152).

Comically, the Laputian architects design their houses using a geometry too advanced for their workmen to understand. Science gets in the way of practice, much like microscopes and telescopes get in the way of the “everyday” senses Locke says are perfectly ordered for the “business” of human life.

The Laputians are “unhandy,” which via Heidegger we might understand to mean that they experience their world as an overabundance of the present-at-hand. Nothing withdraws into the ready-to-hand—every object demands intense contemplation. This, Swift implies, is the end of “pure” science—an over-attention to the common and the everyday that effectively eradicates the progress of utility.

Instead of practical progress, this contemplative attitude only produces idle fancies. To illustrate, Gulliver observes that the Laputians live in a constant state of anxiety over astronomical disaster: specifically, they fear the consequences of Earth passing through the tail of a comet, which they imagine—incorrectly—to be “ten Thousand times more intense than that of Red-hot glowing Iron” (Ibid, 153). More accurately, however, they predict that “The Sun daily spending its Rays without any Nutriment to supply them, will at last be

wholly consumed and annihilated; which must be attended with the Destruction of this Earth, and of all the Planets that receive their Light from it” (Ibid, 153). Amusingly, today’s scientists concur that in one to three billion years, the lifecycle of the Sun will make Earth uninhabitable. The Laputians were right all along!

Gulliver, however, is not distressed, noting that these anxieties and “disturbances proceed from Causes which very little affect the rest of Mortals.” Nevertheless, it is this anxiety or “disquietude” that prompts him to make the critical comparison between rational science and fiction:

[The Laputians] are so perpetually alarmed with the Apprehensions of these and the like impending Dangers, that they can neither sleep quietly in their Beds, nor have any relish for the common Pleasures or Amusements of Life. When they meet an Acquaintance in the Morning, the first Question is about the Sun’s Health, how he looked at his Setting and Rising, and what hopes they have to avoid the stroke of the approaching Comet. This Conversation they are apt to run into with the same Temper that Boys discover, in delighting to hear terrible stories of Spirits and Hobgoblins, which they greedily listen to, and dare not go to Bed for fear (Swift 2003, 153-4).

For Swift the calamities imagined by the Laputians are comically extreme. It is one thing to fear, as some stadial theorists did, a collapse of civilization, it is another to imagine the extermination of the human species. The point for Swift, it seems, is that even the most rational society—a society which supposedly has no understanding of fiction or imagination—can nevertheless be prone to fancy and superstition. In asking after the Sun’s health, they anthropomorphize “him,” and regard him as a living body. The end of their astronomical research, it seems, has

led them back to a state of primitive credulity; the delight and terror of the supernatural tale.

The concerns of Hobbes, Locke, Cavendish, and Swift shed light on Britain's early reception of scientific practices, but more importantly they emphasize the ideological assumptions already in place during the seventeenth century. Long before Jeremy Bentham penned his famous treatises, work and utility were the prizes of English literature and philosophy. Bacon's scientific methods were designed to meld with these utilitarian values from the beginning, and as a result science, as Heidegger claims, was "always already" destined for the *telos* of work instead of presence. For much of the seventeenth century, however, science's *agons* would be reserved to elite intellectuals. It would take the passage of the *Statutes of Anne* for its methods and logics to flourish in Britain's growing national and colonial communities—the subject of my next chapter.

Chapter 2

Communities of Use

In the previous chapter, I examined the tension between work and presence incumbent to the Scientific Revolution. I argued that the new, alien mode of representing things via experimental science created anxiety for the English hegemony. As Thomas Hobbes and Margaret Cavendish feared, science's new ways of representing things might create social fissures that could lead to outright rebellions. The salve to these anxieties was the explicit integration of science and utility. By demonstrating the utility of scientific experiment, the potential danger of its novelty was ameliorated. In the early stages of this naturalization of science, utility was demonstrated via successful scientific experiment—such as Boyle's demonstrations with his air-pump—and by the institutional security provided by the Royal Society. By giving Bacon's methodologies a semi-public platform, the usefulness of scientific inquiry was, over the course of the seventeenth-century, integrated into English culture. The culmination of these efforts, as Joel Mokyr has argued, was the passing of the *Statutes of Anne* and the consequent reform of the British patent system.

The result was an expansion of Britain's "communities of use"—the main subject of this chapter. These communities were structured by a shared understanding of what things were for; or what useful things were. I plan to describe this understanding in aesthetic terms rather than in terms of say, class interest or labor practices. This aesthetic derives from the lingering tension between work and presence. While the novelty of scientific experiment had worn off, the subsequent flood of "new" inventions soon reproduced the conflict between novelty and utility, presence and work, that I described in the last chapter. By law, patents could only be granted to those who had demonstrated their invention's utility *and novelty*. This would remain the case throughout the

eighteenth-century until rulings in cases involving James Watt created the precedent that inventions which merely improved existing designs could also be patented. Until these rulings, however, the novelty clause of the *Statutes of Anne* meant that the tension between presence and work had to be navigated repeatedly.

This tension can be understood in aesthetic terms. How does one represent a thing as new and yet ready to withdraw into everyday work? I argue that this aesthetic problem was broached by two moral philosophers—and stadial theorists—during the 1750s. First, I examine Jean-Jacques Rousseau’s *Discourse on the Origin of Inequality* (1754) and then Adam Smith’s *The Theory of Moral Sentiments* (1759). These texts approach the aesthetic problem from different directions. For Rousseau, the appearance of utility developed in the state of nature and was imbricated with the development of primitive communities of use. Smith, by contrast, examines the aesthetics of utility—what he calls “useful arrangements”—in the context of a fully developed commercial society. He argues that the technological novelty is most effectively represented as that which is ready to withdraw into work.

Together, both philosophers illustrate ways by which the aesthetics of utility contributed to the formation of communities of use during the Industrial Enlightenment. In my reading, they describe a social mechanism that works alongside the Marxist concept of class but is not beholden to it. Communities of use are bound instead by an openness to a specific, utilitarian aesthetic rather than pure self-interest. Their contours are shaped not by labor practices, race, or gender, but by a shared imaginary—to use Benedict Anderson’s term—that dictates which objects signify this strange, utilitarian aesthetic: present as that which is ready to withdraw.

This is not to say that the categories of race, gender, and class do not bear on these communities of use. It is possible, as we will see in the case of Olaudah Equiano, to suffer the severest racial indignities *and still* share the same community of use as one’s oppressors. Indeed, as I will argue in the case of Equiano, it is even possible to leverage one category against the other. Class and

gender permeate communities of use as well. While women in the eighteenth-century were often satirized for their frivolity—that is, their appreciation of “form over function”—we will see that women were keen participants—and critics—of the Industrial Enlightenment.

In short, aspirational models for class, gender, and race can be traced through the politicizing of use practices, and yet these political maneuvers are only effective insofar that they affirm the legitimacy of the hegemonic community of use itself. In other words, to achieve political progress in these domains is to simultaneously affirm the logic of Enframing. The alternative—resistance to the community of use itself and the precepts of Enframing—is the subject of chapters three and four.

The Patent

These reforms led to a proliferation of inventions and, as important, advertisements for those inventions. Some were represented in print—often short pamphlets—but for many inventions the work of selling took place in the streets and markets of London itself. There is a sense that by the end of the eighteenth century, Britain was well on its way to becoming a commodity culture proper—a characterization typically attributed to the Victorian period.¹ A point which the 1776 poem titled “The Patent” satirizes:

Hail to the Patent! which enables Man
To vend a Folio---or a Warming-pan.
This makes the Windlass work with double force,
And Smoke-jacks whirl more rapid in their course;
Confers a sanction on the Doctor’s pill,
Oft’ known to cure, but oft’ ner known to kill.

¹ See for example Richards 2001.

What man would scruple to resign his breath,
Provided he could die a Patent death! (Anonymous 1776, 1-2).

Helpfully, the author annotates the inventions listed in his poem. In this stanza, for example, he annotates his reference to the smoke-jack—the contraption by which meat is rotated on a spit for roasting—by writing: “Smoke-jacks by his Majesty’s Letter Patent, advertised to be sold by Dolley and Oldham, corner of Brook-street, Holborn.” Commodities like those listed in “The Patent” arose not from a centralized institution like Bacon’s imagined School of Solomon, but from unregulated individuals working out of their homes or private places of business. In this sense, the *Statutes of Anne* re-directed Bacon’s original ambitions for a nationalized science acting on the behest of the sovereign rather than the entrepreneur. The Royal Society was the institution that came closest to Bacon’s vision of Solomon’s House, but ultimately the legacy of Baconian science—for the eighteenth century, at least—would be housed in workshops across Britain. The Royal Society by and large functioned as a kind of clearing house of ideas. Friends of the Royal Society were often driven by entrepreneurial interests, and used the Society’s official publication, *Philosophical Transactions*, as a means of spreading the ideas they hoped to—or already had—secured through patent or copyright.

But while the institutional structure of the Industrial Enlightenment may have differed from what Bacon imagined, in terms of methodology his ideas clearly inform the Industrial Enlightenment. The experimental method was treated as a matter of course in the study of invention. Consider, for example, John Allen’s *Specimina Ichnographica: Or, A Brief Narrative of Several New Inventions, and Experiments* (1730)—precisely the kind of advertising document that “The Patent” critiques, and the rough equivalent of today’s “infomercial”. Allen’s pamphlet details what his patent specifications do not: the amount of experimentation that went into his inventions. For example, he describes his invention of an engine that would propel a ship during calm seas:

The Principle of giving Motion to the Ship, in my Way, is by forcing Water or some other Fluid through the Stern or hinder part of it into the Sea by a proper Engine or Engines placed with the Ship for that Purpose... This is an Operation consentaneous to Nature, agreeable to what the Author of it has shewn us in the Swimming of Fishes, who proceed in their progressive Motion, not by any Vibration of their Fins, as Oars, but by Protrusion with their Tails. So likewise Ducks and other Water Fowls swim forward by paddling with their Feet behind their Bodies. Nor is it dissonant to some Productions of Art; witness the Sky-rockets ascending in the Air by Virtue of a Steam of fired Gun-powder forceably bursting out at the lower End of it, and the Recoiling of a Canon when it is fired off, etc. (Allen 1730, 17).

Here we see a rather explicit version of Bacon's argument that "should we be led by [nature] in invention, we should command her by action." Allen appeals to natural and mechanical things—ducks, fish, rockets, canons—to hypothesize the feasibility of internal combustion and the idea that the force which propels a vessel should exit from the object's rear. Like Newton observing the apple and inferring the force of gravity, Allen here attempts to draw utility out of his observations of nature.

He continues to describe his early experiments on the concept, leaving behind a fascinating archive of what the eighteenth-century "experiment" actually looked like:

I got a Tin Machine, or Sort of Boat, to be made 11 Inches long, 5 Inches broad, and about 6 deep. I put it in a Vessel of stagnant Water, and loaded it in such manner, that it sunk in the Water exactly 3 inches and three quarters in Depth... In this Tin-Boat was

placed a cylindrical Vessel 6 Inches high, and almost 3 Inches Diameter filled with Water, and at the Bottom of it in a horizontal Position, was a small Pipe or Tube a quarter of an Inch square, carried quite through the Stern of the Boat, about an Inch and half under the Surface of the Water in which the Boat floated... Things being thus prepared, I stopt the Aperture, at the end of the Tube, under Water with my Finger; and then, when the Boat was in a steady Position, and the Water calm, I gently drew it away, and leaving the Boat at Liberty, the Water beginning to run out at the End of the Tube, gave Motion to it as I expected; which Motion, as nearly as I could observe upon many Trials, was 3 Foot in 10 or 11 Seconds of Time, which is after the Rate of 1056 in an Hour, or one fifth of a Mile... The Motion of the Boat at the first was very slow, but increasing gradually towards the last it was more swift, and could it have been continued longer, it would doubtless have acquired still a somewhat greater Celerity. (Allen 1730, 17-8).

To paraphrase Allen's description: he built a toy boat made of tin and placed it in a tub filled with water. He then placed a vertical cylinder in the boat, and to the bottom of that cylinder fitted a thin, hollow tube with one end sticking out the back of the toy boat. He then plugged the end of the tube with his finger and filled the vertical cylinder with water. Finally, Allen released his finger from the end of the tube, allowing the water in the cylinder to run out through the tube, push against the water in the tub, and propel the boat.

Here is the scientific experiment at work. Bacon's methods are being put to practical use by Allen and inventors like him. These experiments may not have taken place in laboratories, but they were hardly unsophisticated. The basic calculations of Allen's experiments are all correct. He takes into account the surface resistance of the water, the relative pressures of the vertical cylinder and the tub, and the inertia of the boat itself, among other details.

One could argue that Allen and hundreds of inventors like him did more for the ultimate success of science than the writing of Bacon or Boyle—though it is hard to imagine the latter without the former. More importantly, inventors like Allen took up the Baconian premise of experiment, and the Lockean ethic of utility. Experiments like Allen’s may seem silly—literally child-like in the case of his toy boat—but the end of these experiments was not fanciful, as Jonathan Swift would have caricatured. Allen was trying to “solve” a real problem: the problem of propelling a ship in calm seas. Nor was he the only one attempting such a feat. Charles, Third Earl of Stanhope also had similar ideas when he patented his barge mounted with a windmill. So did John Fitch and Robert Fulton—who would finally solve the problem with the power of steam, itself exemplified in the inventions of Thomas Newcomen and James Watt.

Provincializing Perceptions of Utility

In the examples from the previous chapter, the individuals and characters displayed would agree on what a quadrant “is” or what a spinning wheel “is for.” This consensus is hardly surprising when examining the rather homogenous community of British moral philosophers—the stereotypical “dead white men” of the Occidental canon. While Bacon, Boyle, Locke, and Bentham may have lived in different times—they are divided historically and politically by the English Civil War—there is a strong continuity between what we might call their communities of use. Whatever their politics, in other words, these men would likely consent to the statements, “Chairs are for sitting” or “Watches are for telling time.”

Yet one must also be aware that there were contemporary communities for which the preceding statements may not spark such consensus. Consider, for example, a passage cited by Nicholas Thomas in his monograph, *Entangled Objects*. Thomas quotes from a Portuguese missionary’s account of a trip to India circa 1800. The missionary writes: “Though the Indians see daily before them the

furniture and cooking utensils of the Europeans, they have never yet thought proper to make use of them. The customs prevalent among them above three thousand years ago still remain unchanged” (Thomas 1991, 1). Thomas remarks, “This was, of course, a classic Orientalist statement. The nonuse of introduced articles was taken as a negative condition which had to be explained, and explanation turned upon the image of a custom-bound race resistant to innovation” (Ibid). Thomas then goes on to enumerate the many positive applications of a thing’s nonuse, or at least non-traditional use, such as political resistance. Thomas’ example illustrates that not all communities have adopted the philosophical traditions discussed in the previous chapter. Not all communities associate technological and human progress with one another, and indeed in many instances this refusal to adopt the tools of a colonizing people signifies political resistance, as has been noticed by Thomas and a host of post-colonial scholars.

To use the terminology of Dipesh Chakrabarty, I aim to “provincialize” Enframing rather universalize it (Chakrabarty 2007). The phenomenological history of Enframing in 1800 India remains to be written, and it is not my ambition to broach that history here, but the work of postcolonial studies underscores the need to establish the perimeters of such use communities. Benedict Anderson and his concept of the imagined community provide a helpful model in this regard (Anderson 2006). An imagined community can be understood in contrast to a “real” community. A “real” community is denoted by material interactions between its members—marriages, direct exchanges of goods, face-to-face conversations, and the like. An imagined community, meanwhile, exists only in so far as its members believe or “imagine” themselves to be a part of that community. The suturing element for the imagined community, therefore, is not direct interaction between members, but rather a shared sense of national discourse—literary, religious, political, and so on. It is by reading the same books, subscribing to the same religious doctrines, and obeying the same codes of law, Anderson claims, that individuals create this imaginary state.

Here, I only mean to extend the discourses of the imagined community to include “useful knowledge” as well. By knowing how to aim John Hadley’s quadrant or wind Thomas Mudge’s watch, a Briton reinforced his or her sense of belonging to an imagined community of use. That said, unlike other “national” discourses—such as fiction or religious texts—this useful knowledge was frequently confronted by materiality: it could be tested by empirical and experimental methods. Knowing how to wind a watch, in other words, is not the same as actually winding one. In these confrontations, the imagined community is put to a very real test, the material results of which reflect back upon the imagined ideal. The building of bridges, the launching of ships, the exporting of textiles, and so on: these interactions, when successful, affirm the legitimacy of the imagined community in a way that exceeds the symbolic or discursive. Unlike, say, a nationalist painting, poem, or monument, citizens directly and indirectly *depend upon* these objects and the useful knowledge they endorse. The discourse of useful knowledge, in other words, acts doubly upon the legitimacy of an imagined community. It affirms the existence of the community by functioning as a shared discourse and as a material interaction that referentially signifies the “truth” of that community’s discourse.

The critical trope of this discourse, I argue, is the representation of things as that which are ready to withdraw into work. For eighteenth-century Britain this aesthetic is most explicitly prescribed by Adam Smith in *The Theory of Moral Sentiments*, but his writing was anticipated and complicated by the Genevan philosopher Jean-Jacques Rousseau. Rousseau penned his famous treatise on the state of nature almost a century after Hobbes’ *Leviathan*, and thus the “work” of scientific discovery had been demonstrated by hundreds of successful experiments. As a result, Rousseau’s *Discourse on the Origin of Inequality* crystallizes the burgeoning utilitarian ideology of the Industrial Enlightenment and traces it explicitly to the state of nature.

In Rousseau’s state of nature, humans are indistinguishable from animals. They rely on physical strength alone to supply their most basic wants: food,

water, and shelter. As Rousseau writes, “I see an animal less strong than some, less agile than others, but all in all, the most advantageously organized of all. I see him satisfying his hunger under an oak tree, quenching his thirst at the first stream, finding his bed at the foot of the same tree that supplied his meal; and thus all his needs are satisfied” (Rousseau 1987, 40). Crucially, in this state, there is no experience of the ready-to-hand or the present-at-hand. Utility does not exist separate from instinctual existence: there is no utilitarian principle, no effort to evaluate the benefits of one action versus another. Instead, Rousseau’s primitive human operates by animal instinct. He satisfies whatever need is most pressing by whatever means are nearest to him.

This instinctive existence, Rousseau notes, effects how primitive humans perceive things. In my terms, there is no distinction between work and presence in this early state nature; or as Rousseau writes:

His imagination depicts nothing to him; his heart asks nothing of him. His modest needs are so easily found at hand, and he is so far from the degree of knowledge necessary to make him desire to acquire greater knowledge, that he can have neither foresight nor curiosity. The spectacle of nature becomes a matter of indifference to him by dint of its becoming familiar to him. It is always the same order, always the same succession of changes (Ibid, 46).

Everywhere the primitive human perceives sameness. Again, the distinguishing modes of ready-to-hand and present-at-hand do not exist because there is no concept or presence of work to begin with. Accordingly, the “spectacle of nature” is not seen as a standing reserve. There is nothing to submit and nothing to subdue. It is difficult to imagine the aesthetics of this experience; to see “nature” and yet not perceive difference, utility, or beauty. It is to see with an animal eye,

and is remarkably similar to modern “flat” ontologies which try to return to this non-human viewpoint.²

For Rousseau, the state of nature begins to erode as humans acquire useful knowledge. He wonders:

How many centuries have perhaps gone by before men were in a position to see any fire other than that from the heavens? How many different risks did they have to run before they learned the most common uses of that element? How many times did they let it go out before they had acquired the art of reproducing it? And how many times perhaps did each of these secrets die with one who had discovered it (Ibid, 47)?

This, of course, is the problem that useful knowledge means to solve. This is the work of the scientific experiment and the letters patent. This is the work of techno-logic: as I wrote in my Introduction, once Prometheus has brought the flame to the mortals, it is incumbent on them to maintain its brilliance; to keep the flame from going out. This is precisely the problem Rousseau describes here: the problem of anti-regress. In his narrative, however, the flame dies a thousand deaths before it is at last preserved because primitive humans have no structures by which to recognize it as that which must be preserved. It is just one more episode in the successive sameness of nature no *perceived* bearing on humans’ survival. But again, Rousseau states, this is as much an aesthetic problem as a functional one. Humans, he writes, needed to be “in a position to see” fire as something other than an eruption from the clouds.

Rousseau goes on to advance several possible moments where this ability to “see” fire—or any useful thing—emerges. Whatever the speculative cause,

² The term flat ontology is used by Manuel Delanda in his monograph *Intensive Science and Virtual Philosophy* (Delanda 2001).

Rousseau continues to describe an aesthetic shift in humans *after* the acquisition of useful knowledge. He writes: “Natural arms, which are tree branches and stones, were soon found ready at hand... This repeated appropriation of various beings to himself, and of some beings to others, must naturally have engendered in man’s mind the perception of certain relations (Ibid, 60; 61). It is only now that we have arrived at the state of nature imagined by Locke and Hobbes, and indeed at a state in which the term “ready-at-hand” can be appropriately applied. Though humans had long appropriated things, they did so without distinguishing between those things and themselves. Here, the situation is different: appropriation is allied with a sense of self as that which is distinct from nature, what Rousseau terms pride.

From this moment onwards, Rousseau continues, “Everything begins to take on a new appearance... People become accustomed to different objects and to make comparisons. Imperceptibly they acquire the ideas of merit and beauty which produce feelings of preference” (Ibid, 63). This “new appearance” of difference and preference is not only the origin of inequality, but the origin of utility as well. It is only in the context of difference and inequality that utilitarian calculus can be applied. Rousseau’s formulation therefore suggests that there is nothing “natural” about utilitarian thought. He advances, in other words, a state of nature in which Bentham’s principles cannot apply because they literally cannot be seen. There is neither the ready-to-hand nor the present-at-hand. Thus, Rousseau suggests, there is an aesthetic predisposition to utility that must be achieved in order for utilitarian calculus to take any kind of hold.

But Rousseau’s argument and his methods of conducting it also highlight the fact that this aesthetic of utility is not universal. He makes constant comparisons to “primitive” people encountered by Europeans. In his copious notes to the treatise, for example, Rousseau cites a variety of travel narratives describing the peoples of China, Persia, the Congo, Mexico, Peru, Chile, and the Caribbean. In each case, he emphasizes their otherness to European culture, race, and use practices. And though Rousseau’s Eurocentrism and its attendant racism

is overt in all these examples, the conclusion he comes to is this: “Except for these reports, we know nothing about the peoples of the East Indies, who have been visited exclusively by Europeans interested more in filling their purses than their heads. All of Africa and its numerous inhabitants, as unique in character as in color, are yet to be examined. The entire earth is covered with nations of which we know only the names, and we dabble in judging the human race” (Ibid, 100)!

And yet, when Europeans do encounter these other nations and cultures the interactions rarely go as expected. The “savage” peoples Rousseau describes never assimilate to European culture:

It is something extremely remarkable that, for the many years that Europeans torment themselves in order to acclimate the savages of various countries to their lifestyle, they have not yet been able to win over a single one of them... Nothing can overcome the invincible repugnance they have against appropriating our mores and living in our way. If these poor savages are as unhappy as is alleged, by what inconceivable depravity of judgment do they constantly refuse to civilize themselves in imitation of us” (Ibid, 106).

Again, leaving aside Rousseau’s Eurocentrism, we can recognize yet another crucial critique of utilitarianism. If the principle of utility were indeed universal, then why do non-Europeans resist taking the practices of European civilization? They would have to be ascetics or, as I believe Rousseau is arguing, they would have to be unable to perceive the utility of European civilization.

In this sense, Rousseau’s Eurocentrism has led us to the provincializing of communities of use. Just as Nicholas Thomas cites the European missionary who describes the unwillingness of Indians to make use of European furniture, Rousseau concludes with an anecdote from Antoine Prévost’s *Histoire des Voyages*. In this story, the Dutch Governor of the Cape of Good Hope raises a

Hottentot boy “in the practices and customs of Europe.” Clothed in the finest European garments, educated in several languages, the boy eventually returns to the Governor who educated him and states: “Please, sir, be so kind as to pay heed to the fact that I forever renounce this clothing. I also renounce the Christian religion for the rest of my life. My resolution is to live and die in the religion, ways and customs of my ancestors. The only favor I ask of you is that you let me keep the necklace and cutlass I am wearing. I will keep them for love of you” (Ibid, 108). The anecdote expresses several themes typical of encounters between colonizers and the colonized, but here I wish only to attend to the objects themselves: the cutlass and the necklace. According to the boy’s speech, the value they have acquired is non-utilitarian in nature. It seems unlikely that the boy would ever use the sword to cut or stab again—instead it signifies only as a memento of his former benefactor. What has changed? The answer, it seems, is the boy’s crossing from one community of use to the other and his consequent “seeing” of objects.

A similar story can be told from the colonizer’s perspective. Consider, for example, James Cook’s description of the people of Tierra del Fuego on his first voyage:

They are something above the Middle size of a dark copper Colour with long black hair... Their Hutts are made like a behive and open on one side where they have their fire, they are made of small Sticks and cover’d with branches of trees, long grass &c in such a manner that they are neither proff against wind, Hail, rain, or snow, a sufficient proff that these People must be a very hardy race... They have no boats that we saw, or any thing to go upon the water with... They are extreamly fond of any Red thing and seemed to set more Value on Beeds than anything we could give them: in this consists their whole pride, few either men or Women are without a necklace or string of Beeds made of small Shells or

bones about their necks... Neither have they any usefull or necessary Utentials except it be a Bagg or Basket to gather their Muscels into: in a Word they are perhaps as miserable a set of People as are this day upon Earth (Cook 2003, 27).

Cook is not always so blunt in describing his antipathy to the many communities he encounters, but in observing the people of Tierra del Fuego it is clear that he reacts viscerally to the way in which they use—or fail to use—things. Functionally, their dwellings seem to “fail” at being dwellings in that they provide no shelter from the elements. Despite being an island people, they seem to have never invented boats. The only “useful” object they appear to have knowledge of is a basket. Cook echoes Rousseau’s notion of the physically “hardy” savage who perhaps has no need of shelter whatsoever. Cook even goes so far as to invoke the word “misery,” which Rousseau had attempted to debunk: “If we understand the word *miserable* properly, it is a word which is without meaning or which signifies merely a painful privation and suffering of the body. Now I would very much like someone to explain to me what kind of misery can there be for a free being whose heart is at peace and whose body is in good health” (Rousseau 1987, 52).

In Cook’s case, Rousseau’s denotation of “misery” as a word without meaning is more than apt. For Cook, the utterance of misery signifies his inability to correlate the culture of Tierra del Fuego with his own. He is aware of his inability to “see” things as the Tierra del Fuegians do. The most striking illustration of this is Cook’s fixation on the color red. Of course, as he writes it, it is the *islanders’* fixation on the color red that is noteworthy—what anthropologists might call fetishistic. Yet it is *Cook* who seems particularly bothered by this color. At best, he hypothesizes that it is a symbol of “pride,” but he offers no evidence of this. For Cook, red is misery, it is without meaning, and most of all it is without utility. The English could offer these people guns, iron, tools—which other islanders, like the Tahitians, accept eagerly—but the Tierra del Fuegians want only a color: misery.

Cook and Rousseau's Eurocentrism highlights the boundaries of communities of use. It effectively circumscribes many of the claims I make in this dissertation as pertaining to specific communities within Britain during the eighteenth century. It is not my intent to perform a comparative analysis of use communities, but it is important to brush up, as it were, against the limits of *this* story of Enframing as it appeared in eighteenth-century Britain. Furthermore, I acknowledge as well that these boundaries are porous, as Nicholas Thomas has shown for encounters in the South Seas and a host of post-colonial scholars have shown for other regions of British contact and empire elsewhere around the globe. Rather than continuing to push "outwards" from Britain to these other cultures—a perfectly reasonable approach—I wish instead to move inwards; to further describe how Britain's use community "perceives" useful objects, and ultimately, to examine instances where colonial "others" describe their experiences of adapting these use practices and perceptions.

Useful Arrangements

I find one of the most descriptions of Briton's *perception* of utility not in the writings of Bentham, but his frequent correspondent (and sometime nemesis), Adam Smith. I turn to Smith's *The Theory of Moral Sentiments* and a short chapter contained therein titled, "Of the Beauty which the Appearance of Utility Bestows upon all the Productions of Art, and of the extensive influence of this species of beauty." There, Smith asserts that "the fitness of any system or machine to produce the end for which it was intended, bestows a certain propriety and beauty upon the whole, and renders the very thought and contemplation of it agreeable." (Smith 2004, 211). We appreciate objects that work well, that achieve our desired ends in a manner one might call "elegant" or "sleek". Importantly, this appreciation—or pleasure, to use Smith's word—does not come from a thing's actual use, but from the "arrangement" of a thing or things that appears *conducive* to use. As Smith puts it: "The utility of any object... pleases the master by

perpetually suggesting to him the pleasure or conveniency which it is fitted to promote. Every time he looks at it, he is put in mind of this pleasure; and the object in this manner becomes a source of perpetual satisfaction and enjoyment” (Ibid, 211). The enjoyment from the object is perpetual because Smith’s aesthetic never requires an object to actually be used. It may remain in the counterfactual realm of the subjunctive: “It would be incredibly useful if...”

Smith gives multiple examples to illustrate why the arrangement of useful things produces the effects of pleasure or pain regardless of their actual use. He writes:

When a person comes into his chamber and finds the chairs all standing in the middle of the room, he is angry with his servant, and rather than see them continue in that disorder, perhaps takes the trouble himself to set them all in their places with their backs to the wall. The whole propriety of this new situation arises from its superior conveniency in leaving the floor free and disengaged. To attain this conveniency he voluntarily puts himself to more trouble than all he could have suffered from the want of it; since nothing was more easy than to have set himself down upon one of them, which is probably what he does when his labour is over. What he wanted, therefore, it seems, was not so much this conveniency, as that arrangement of things which promotes it. Yet it is this conveniency which ultimately recommends that arrangement, and bestows upon it the whole of its propriety and beauty (Ibid, 212).

In his last sentence, Smith is careful not to claim that the aesthetic of utility is completely divorced from use itself. Potential use, he says, lends beauty to the useful arrangement, even if that arrangement is never put to use in the last place. Yet the arrangement exacts a power of its own over the would-be user. Though Smith claims that the person “voluntarily” rearranges his chairs, it is just as

reasonable to claim that his idea of what the arrangement should be compels him into this work. Smith's aestheticizing of utility serves, in other words, to predispose one's opinion of a thing's ability to withdraw into the ready-to-hand—into work.

Smith observes that this can lead to ironic behavior. The conflict of the chair vignette operates at the level of appearance: the room *appears* disheveled; appears less conducive to sitting. This appearance is so jarring, so circumspect to use a Heideggerian term, that the person feels compelled to re-arrange the chairs rather than to simply sit down in one of them. To put the point another way: the person literally *cannot* sit down until the chairs in the room are arranged in such a way as to prepare themselves to withdraw into the act of sitting. Again, the issue is not whether the chairs are *functionally* unfit for the task of sitting, but that their arrangement *aesthetically* resists withdrawing into the act of sitting. Literally, presence itself gets in the way of work.

In Smith's aesthetic one can hear the speech of Enframing, for this aesthetic arrangement dictates the material ordering of things as standing reserve. To illustrate, we might return to another excerpt from Defoe's *Robinson Crusoe*:

I made me a Table and a Chair, as I observ'd above, in the first Place, and this I did out of the short Pieces of Boards that I brought on my Raft from the Ship: But when I had wrought out some Boards, as above I made large Shelves of the Breadth of a Foot and a Half one over another, all along one Side of my Cave, to lay all my Tools, Nails, and Iron-work, and in a Word, to separate every thing at large in their Places, that I must come easily at them; I knocked Pieces into the Wall of the Rock to hang my Guns and all things that would hang up... So that had my Cave been to be seen, it look'd like a general Magazine of all Necessary things, and I had every thing so ready at my Hand, that it was a great Pleasure to me

to see all my Goods in such Order, and especially to find my Stock of all Necessaries so great (Defoe 1994, 51).

Previously, I argued that Crusoe's central project on the island was to convert his new, present-at-hand world "back" into the ready-to-hand via labor. We can also observe, that this conversion is ordered by the aesthetics of Smith's useful arrangement (or *vice versa*, chronologically speaking). What, for example, orders the design of Crusoe's room when he "separate[s] every thing at large in their Places?" The answer seems to be readiness-to-hand—Defoe writes almost the exact phrase. But just as importantly, Crusoe remarks that this organization gives him "great Pleasure." This pleasure could be read as simple optimism at his chances of survival, but it is also suggestive of the pleasure Smith describes—in the negative—of the man coming to rearrange his chairs.

This aesthetic pleasure, I argue, reinforces the legitimacy of Crusoe's English community of use and his belonging to it. Throughout the novel, Crusoe linguistically transforms exotic objects into English referents. Here, the cave is transformed into a magazine. Elsewhere Crusoe explains:

I built me a little kind of a Bower, and surrounded it at a Distance with a strong Fence, being a double Hedge, as high as I could reach, well stak'd, and fill'd between with *Brushwood*; and here I lay very secure, sometimes two or three Nights, together, always going over it with a Ladder, as before; so that I fancy'd now I had my Country-House, and my Sea-Coast-House (Ibid, 75).

For Defoe, perhaps, these transformations are allegorical, but for the character of Crusoe they should be read literally. The material transformation of present-at-hand things into ready-to-hand "tools" or useful objects is also an aesthetic transformation identical to Smith's useful arrangement. Furthermore, it is through

this transformation of things' arrangement that Crusoe recreates his sense of belong to an explicitly "English" community of use.

The same occurs in Swift's *Gulliver's Travels*, a text which is typically read in opposition to *Robinson Crusoe*, in part due to the political differences of their authors. Despite Swift's skepticism towards institutional science not to mention Defoe's Whig politics, there are aesthetic parallels between the two texts. In comparison to Crusoe's arrangement of his cave-magazine, consider this passage from Gulliver's adventures in Brobdingnag, the land of giants:

A wooden Chamber of sixteen Foot square, and twelve high, with Sash Windows, a Door, and two Closets, like a *London* Bed-chamber... A Nice Workman, who was famous for little Curiosities, undertook to make me two Chairs, with Backs and Frames, of a Substance not unlike Ivory, and two Tables, with a Cabinet to put my Things in (Swift 2003, 99).

Gulliver's "chamber" is little more than a small box—a kind of doll's house—when scaled to the giants who built it, but to Gulliver it bears the same qualities as "London" bedroom. For Gulliver as for Crusoe, the arrangement of things is conducive to utility and it invites an imaginary correspondence to one's sense of national community. It creates a sense of home and homeland in an otherwise alien environment.

Of course, the cohesiveness of this "national" or hegemonic community is fractured by categories such as class, gender, and race. Despite their political differences, both Defoe and Swift represent a fairly homogenous subgroup of Britons. In the next section, I examine the relationship of class and gender to Britain's use community by concentrating on the innovations in textile manufacturing—the industry that inaugurated the Industrial Revolution proper.

Textiles, Labor, and the Aesthetics of Use

In the following sections I mean to show how the aesthetics of Smith's useful arrangement compliment traditional interpretations of class, gender, and race in eighteenth-century Britain. As a kind of "control," I examine these three categories in the context of the industrialization of textile manufacture—the industry most historians agree inaugurated the Industrial Revolution. Textile manufacturing patents were some of the most numerous during the eighteenth-century, in part because they relied on relatively basic mechanical physics (unlike pneumatics or smelting). The inventors who left the greatest legacies in textiles were James Hargreaves, Samuel Crompton, and of course Richard Arkwright. Their inventions—the spinning jenny, spinning mule, and water frame respectively—would fundamentally change the conditions of labor for thousands of rural Britons. Thus before engaging class, gender, and race directly, I wish to show how these inventions participated in the aesthetics of the useful arrangement described above.

The legal requirements of letters patent presented something of a dilemma for Smith's trope of the useful arrangement. On the one hand, the invention had to demonstrate its novelty. To do so, of course, the object would have to be represented in the mode of the present-at-hand; it must "stick out" from the inventions that came before. On the other, the invention must also demonstrate its utility. Thus, it must, as Smith prescribes, be present as that which is ready to withdraw into the ready-to-hand. One can see the aesthetic tension between these two requirements in the language of the patent specifications themselves. Consider for example the language of James Hargreaves' invention of the spinning jenny, which he describes as:

A method of making a wheel or engine of an entire new construction (and never before made use of), in order for spinning, drawing, and twisting of cotton, and to be managed by one person only, and that the wheel or engine will spin, draw, and twist

sixteen or more threads at one time by a turn or motion of one hand
a draw of the other (Hargreaves 1770 no. 962).

Hargreaves must here mediate between the novelty of his invention—an “entirely new construction”—and its potential to withdraw into the daily work of textile manufacturing (“a turn or motion of one hand”). The promise of this work is immense. Hargreaves machine was sixteen times more efficient than the traditional spinning wheel. His invention would single-handedly, if the phrase may be used, revolutionize textile manufacture and decimate the working classes of whose livelihood depended on the manual labor needed to transform cotton into thread.

This rhetorical challenge was faced by other inventors as well. In his 1779 patent, Richard March describes his “engine or machine for regulation and spinning wool, silk, cotton, flax, hemp &c., a thing never before put in practice, and would be of great utility to the publick, both in the improvement and reduction of prices of all kinds of spinning” (March 1779 no. 1236). Seven years later, Paul Higton wrote similarly: “An entire new machine or machines for cloth, or any and every other purpose wherein woolen yarn is used, in a much cheaper and more expeditious manner than any hither to used, and which may be worked by water, horse, hand, or any other thing that is capable of giving motion to the same” (Higton 1786 no. 1532). In terms of material history, the differences between these inventions are important. March claimed, rather ambitiously, that his machine could handle a variety of materials—wool, silk, cotton, flax, hemp, and more—whereas Hargreaves “jenny” was designed for cotton only, and likewise Higton’s solely for wool. March and Higton also place explicit emphasis on the economic impact of their machines—illustrating, perhaps, the impact Hargreaves invention already had on textile manufacture. Their inventions, like Hargreaves’, were intended to drive down production costs—benefiting textile merchants and consumers, but drastically reducing the demand for rural labor.

These economic transformations bring with them—and some times are brought about by—aesthetic shifts. This aesthetic dimension compliments materialist or Marxist readings of British labor. Since E. P. Thompson’s influential *The Making of the English Working Class*, Marxist analyses of the early industrial revolution have dominated historiographical approaches. In support of his efforts to “rescue the poor stockinger, the Luddite cropper, [and] the ‘obsolete hand-loom weaver,’” Thompson writes:

Class happens when some men, as a result of common experiences (inherited or shared), feel and articulate the identity of their interests as between themselves, and as against other men whose interests are different from (and usually opposed to) theirs. The class experience is largely determined by the productive relations into which men are born—or enter involuntarily. Class-consciousness is the way in which these experiences are handled in cultural terms; embodied in traditions, value-systems, ideas, and institutional forms. (Thompson 2006, 42).

The critical tenet of this claim is that cultural representations—traditions, value-systems, ideas, and so on—are derivative of class interest. Capitalist representations of the Industrial Revolution reflect capitalist ideology; proletariat representations might reflect socialist or communitarian attitudes.

Without denying that such representations exist, I would argue that Thompson is missing the crucial category of things themselves and the representations *they* engender. This, of course, is the phenomenological rather than the social question. It is the question that structures communities of use as distinct from communities of class. We are best equipped to answer it, I argue, by staying our analysis of the “human” interests, and instead focusing on the discursive confrontation with the thing itself that Smith’s aesthetic trope describes. It is the same problem that confronted Boyle and the scientific

experiment in the seventeenth century, when, I might add, the labors of the stockings and weavers were still secure. We might look to the language of patent specifications to see this problem unfold discursively.

Not surprisingly, several tracts were written on behalf of the unemployed rural laborer—or at least on behalf of the tax paying landholders who were required by Settlement Law to support the unemployed. The situation, as a result, was that merchants and manufacturers—“clothiers” as they were sometimes called—reaped immense profits while simultaneously creating an unemployment crisis for which the landholders were primarily responsible. In a tract titled, “A Letter to the Landholders of the County of Wilts, on the Alarming State of the Poor” (1793), the author argues that the major landholders of Wilts County should unite to create their own textile mill to compete with those run by “clothiers” and others. The letter diagnoses the problem effectively:

The abridgement of labour will be urged, besides, on all hands, as a beneficial scheme; and in many cases it undoubtedly is, where the labourers thrown out of one employment, can apply themselves to another. But where, as in the present instance, the work of twenty is performed by one, and the remaining nineteen are incapable of any other labour, and must be supported out of the general stock: I must confess, it surpasses my abilities to comprehend, how the public can derive any benefit from such a measure. But a discussion of this nature is foreign to my purposes, I only wish to shew, that it is very improbable government will contribute to the relief of the landed interest, by any interference in opposition to the mercantile (Anonymous 1793, 7).

Here we see class interest at work as E. P. Thompson describes. The interests of the merchants, landlords, rural poor, and government are in conflict, and the

author suggests that the best solution is for the landholders to unite in their interests and compete with the private clothiers. At the same time, the letter explicitly invokes Bentham's principle of utility by asking what public benefit is actually found in the efficiency of Hargreaves' spinning jennies. Strikingly, the author responds to the problem with more technology—more mills. In a proto-Marxist fashion, the struggle is not over the ethical *telos* of technology itself, but who controls it and reaps the capital benefits of it.

But, for all the debate of origins, it seems to me that Marxist paradigms' most worrying aspect is one of *telos*. Unlike the Luddite, Marx recommends not the annihilation of modern modes of production, but the seizing of them. The fundamental issue, for Marx, is not how things are put to use, but who controls and organizes that using. This necessarily implies an understanding of utility that crosses class boundaries. No one but the Luddite denies that the spinning jenny is useful or that it makes the production of textiles more efficient (and even they might concede to that). The issue is not the modes of production, but the ends. In short, it is the same ethical question that we identified in chapter one: what is the ethical *telos* of the relationship between science and technology; humans and things? The answer to this question, for Marx, is no different than Locke or Smith.

Indeed, it is only by recognizing the pre-existence of communities of use that we can compare the Luddite with, for example, Margaret Cavendish. The class distinction between the two is extreme, and yet their responses to the Industrial Enlightenment were identical: break the tools. Where the Luddite sabotages power looms, Cavendish calls for the destruction of the experimental philosophers' scientific instruments. There *is* class interest involved in both scenarios, but I contend that this interest is derivative rather than causative. Cavendish "sees" the instruments as a threat to the political structure that has secured her title. The Luddites "see" the mills as the means by which they have been economically oppressed. But in both cases, this direction of revolt towards things themselves ultimately underscores those things' ubiquity.

Gender

Cavendish also provides an important, but exceptional perspective on the role gender plays in use communities. Her wealth, social position, and literacy enabled her to participate in discourses most British women could not access. Eighteenth-century science and industry were almost entirely masculine practices. The reasons for this were twofold: the disparity in education between men and women in the period and the gendered legislation regarding property rights. The latter, especially, has resulted in a near-total absence of women inventors in the archive of eighteenth-century British patents. The most notable exception is Sybilla Masters, an American who patented a corn mill in 1715. Other women almost certainly were involved in eighteenth-century innovation, but much of their involvement remains apocryphal.³

The few domains of useful knowledge “reserved” for women focused on the female body, domestic activity, and the education of young children. Jane Sharp’s immensely influential tome, *The Midwives Book: Or the Whole Art of Midwifery Discovered* (1671) is one of the most notable examples of the former. Women also published a variety of books on the art of cookery and other domestic practices. These texts reflect the developing notion of “separate spheres” that would be exacerbated by the Industrial Revolution proper. That said, in terms of genre these texts are similar to male-authored texts such as Francis Clatter’s *Everyman His Own Farrier* or Samuel Child’s *Everyman His Own Brewer*. Thus while their spheres of study were different, women were writing in the same genre of useful knowledge as their male counterparts.

Even so, women’s “spheres” of useful knowledge—especially knowledge of the female body—were frequently satirized as extraneous to the “real” work of

³ A notable example is Catherine Littlefield Greene, who some have suggested helped Eli Whitney design his famous cotton gin.

British civilization. Francis Bacon, in *The Wisdom of the Ancients*, puts his own spin on the Pandora myth, writing: “It is the common interpretation, and yet the true one, that by Pandora are signified pleasure and desires, which, after the arts, and cultivation, and luxury of civilized life (as after the gift of fire), also existed... From pleasure infinite evils, together with late repentance, have flowed into the minds, bodies, and fortunes of men, and not only into the conditions of individuals, but into kingdoms and commonwealths also” (Bacon 1840, 318). For Bacon, mythological femininity signifies luxury—what might be called an “excess” of utility. After Prometheus’ torch brought surplus and a Golden Age to mankind, Pandora and jar/box misused that surplus to frivolous ends.

Smith also comments on luxury and frivolous utility in *The Theory of Moral Sentiments*. “Wealth and greatness,” he writes, “are mere trinkets of frivolous utility, no more adapted for procuring ease of body or tranquility of mind, than the tweezer cases of the lover of toys; and like them, too, more troublesome to the person who carries them about with him than all advantages they can afford him are commodious” (Smith 2004, 214). Smith, to his credit, clearly indicates that men are as susceptible to frivolous utility as women. Indeed, Smith goes so far as to suggest that there is a very narrow window in which utility is *not* frivolous. As soon as one begins acquiring products *purely* for their appearance of useful arrangement, one has crossed over into that frivolous realm.

The gendering of frivolous utility is left to poem’s like Jonathan Swift’s “The Lady’s Dressing Room,” which simultaneously worked to characterize women’s already narrow useful sphere as alien to male inquiry and, more importantly, unworthy of it. The poem’s protagonist, Strephon, gives an inventory of equipment used by his lover Celia to maintain her outward appearance: combs, smocks, powder, lead, oils, washes, pastes, ointments, tweezers, and of course the infamous chamber pot. This inventory is matched by an inventory of Celia’s body—a present absence throughout the poem—and its scabs, dirt, sweat, dandruff, slime, and excrement. Swift’s extended analogy to the opening of

Pandora's box throughout the poem simultaneously reinforces this misogyny and harken back to the "common interpretation" of the myth that Bacon refers to:

As from within Pandora's Box,
When Epimetheus op'd the Locks,
A sudden universal Crew
Of humane Evils upwards flew;
He still was comforted to find
That Hope at last remain'd behind (Swift 2005).

For Bacon as for Swift, there is a critique of knowledge latent in these poems. The fault lies not only with Pandora, but with Epimetheus—"after thought"—who fails to recognize the trap that his forethinking brother anticipates. In this context, even "The Lady's Dressing Room" can be read as part of Swift's overall critique of scientific methods. Much like the Laputian astronomers' nervous eyeing of the sun, there is no *useful* reason for Strephon's compulsion to explore Celia's chamber, and his consequent anxieties, like the Laputians', "proceed from Causes which very little affect the rest of Mortals," (male mortals in particular).

To an extent, however, the content of Swift's poem belies its thesis. The products inventoried by Strephon do partake in the larger discourses of useful knowledge I have examined so far. Consider, for example, this advertisement for "cephalic water":

THE CEPHALIC WATER for the Ladies Toilet,

Composed by the Famous Messrs. Rouelle, Chymists to the King
of France, and Demonstrateurs in his Majesty's Botanic Garden at
Paris.

The Efficacy of this Water is greatly superior to any Thing ever yet discovered; for it removes all Disorders of the Skin, by correcting those Humours which occasion Pimples, Blotches, &c. It also corrects the Offensiveness of Perspiration, and at the same Time gives a most delicate Softness and Whiteness to the Skin.

The use of this Water will prove extremely beneficial to those who are affected with an offensive Breath, and render it sweet and agreeable.—Taken internally, it expells Wind from the Stomach; and affords immediate Relief in the Head-Ache, Vapours, Cholic, and Indigestion.

*** Sold in Bottles at 5s. each, by Sieur Du Bison, No. 3 Queen Street, Golden Square (where several Certificates, made before a Magistrate, of cures performed, may be seen); and by Mr. Newbery, the Corner of St. Paul's Churchyard; with proper Directions for using.⁴

The language in this advertisement follows the same aesthetic principles as James Hargreave's patent design. The water is novel, and its novelty must be justified via the work it is promised to perform on the body, returning us again to Smith's aesthetic of the useful arrangement. Like John Allen's propulsion system, the water is aligned with scientific or at least medical authority. These are the King's chemists after all—even if he is a French king. If skeptical, one might even visit Golden Square on Queen Street or the corner of St. Paul's churchyard to see demonstrations of the water's efficacy—a scene which, in principle, is identical to a public experiment with an air-pump or other scientific apparatus. Likewise, in the case of Swift's poem, the arrangement of objects in Celia's dressing room is

⁴ This advertisement was found in a collection of ephemera at the British Library under the catalogue number 62. CUP 21.g.36/62.

structurally no different than the arrangement of equipment in Crusoe's cave-magazine or Gulliver's box-bedchamber.

Of course, for most women in eighteenth-century these critiques of frivolous utility would land quite wide of the mark. Working, rural women, already an impoverished group, were hit especially hard by the industrialization of textile manufacture. For centuries, the production of textiles in England was a domestic affair. Its emblematic machine was the spinning wheel and its primary operators were women. Indeed, the spinning wheel was something of a cultural icon of rural femininity.

The nature of that femininity, however, could vary. Popular songs eroticized the act of spinning itself. For instance:

To ease his Heart and own his Flame
Young Jockey to my Cottage came
But 'tho I lik'd him passing well,
I careless turn'd my spinning wheel.

My milk white hand he did extal,
And prais'd my fingers long and small,
Unusual Joy my Heart did feel,
But still I turn'd my Spinning Wheel (Anon. 1826).

The song continues a few more stanzas before, at last, the woman abandons her wheel for this new lover. A similar version of the song is cited by Carolyn Steedman in *Master and Servant: Love and Labor in the English Industrial Age*. Steedman draws special attention to the "milk white hand" of the spinster and attributes its quality to the oils applied to the wool before spinning. Expanding on this point, Steedman imagines the mechanical motions of women's bodies as they spun; motions "involving... a particularly graceful series of gestures to observe (though tiring to perform) that displayed a well-toned arm, and moved a bosom,

perhaps alluringly so” (Steedman 2007, 45). Steedman’s description suggests a hybrid erotics of the female body and the machine.

Paradoxically, the wheel could also signify feminine virtue. In Samuel Richardson’s *Pamela*, after Squire B— has made repeated sexual advances towards the titular domestic, Pamela writes to her parents informing them of her intent to return home. Such an action would entail a major economic burden for the family. Her father replies, “And though we cannot do for you as we would, yet fear not we shall live happily together; and what with my diligent labour, and your poor mother’s spinning, and your needle-work, I make no doubt that we shall do better and better” (Richardson 1985, 69). Textiles in general are an important trope of *Pamela*. Ostensibly preventing her from leaving is the task of flowering Squire B’s waistcoat. Her delay leads to her eventual imprisonment, but even in such a state her skills with the needle find covert uses: Pamela stitches letters to the inside of her garments so as to avoid the detection of her overseers. Indeed, while Pamela is marked as an object of sexual desire in the novel, her knowledge of clothing, fabric, and textiles impacts her narrative second only to her knowledge of writing.

Poem’s lauding the virtue of the spinning wheel and the act of spinning itself were also popular. In the 1731 occasional poem, “Mrs. Roberts on Her Spinning,” written for the spinster’s birthday, the poet concludes:

Let no proud Dame the Spinning Art despise,
Which from Minerva took its Rise;
And which Aliza for Amusement chose,
To lighten Absence and to soften Woes (Brereton 1744).

Similarly, in the poem “The Good Housewife’s Coat of Arms; Or The Spinning Wheel’s Glory,” the spinning wheel—the anchor of the domestic household—is rivaled by a new tea table. In this poem the wheel signifies industriousness and the tea table idleness and consumerism:

The Wheel, being Plaintiff, her Witnesses did call;
Then Truth spoke up, and so did they all,
That since the Tea Table had been in such Fashion,
Her Fav'rites had ruin'd great Part of the Nation;
For Farmers and Tradesmen they never can thrive,
So long as they got your Tea Table Wives:
And indeed, Sir, said Truth, for this damnable Tea,
We spend all our Money away over Sea (Anon. 1760).

Here, "Truth," speaking on behalf of the spinning wheel, underscores the importance of the wheel to the rural domestic economy. These idle, "tea table wives," fail to contribute to the economics of the household, but prefer to wile away the day at breakfast. Again, the association of the feminine with luxury and frivolity over utility is dominant here, but "The Spinning Wheel's Glory" seems to suggest that the thing itself, the wheel, is not only a tool for the production of thread, but a tool to correct the "natural" tendencies of women as well.

The spinning wheel, in short, was not only a "traditional" machine, it signified the values of utility, diligence, and virtue that moralists like Richardson admired. It was, furthermore, a critical component of the household economy for the rural poor. The shift to textile machinery ultimately destroyed these domestic economies, and employment was difficult to find elsewhere. Hargreaves' machinery reduced the number of laborers needed to produce thread—a problem in and of itself—but the overall structure of the modern textile mill meant that what jobs were to be had would just as frequently go to men or children.⁵ And yet, while the industrialization of textile manufacture eroded some traditional forms of labor (and their corresponding signs) it rewarded other individuals who

⁵ The latter, especially, were desirable laborers. Their small size allowed them to climb between the still moving parts of the mill's machines for the purposes of cleaning.

demonstrated their ability to adapt the aesthetics of the useful arrangement to their own ends.

Race

I wish to conclude this chapter by examining the story of Olaudah Equiano (a.k.a. Gustavus Vassa) who “comes into” Britain’s community of use. Equiano’s *Interesting Narrative* has, in recent years, become something of a contested genre. Its historical veracity has been challenged since Vincent Carretta published a series of articles and ultimately a book-length biography skeptical of Equiano’s proclaimed origins (Carretta 2007). Specifically, Carretta finds dubious Equiano’s claims to have been born in Guinea (modern day Nigeria), the son of a village elder. Carretta’s argument prompted a backlash amongst some scholars, who offered a range of defenses of Equiano’s narrative—many focused on deconstructing the relationships between identity, place, and authenticity.⁶

It is not necessary to commit oneself to one side of this debate or the other to argue that Equiano’s accounts of his native country, Eboe, are “translated” into a language readily understandable to its English audience. He describes village

⁶ As Peter Jaros writes, “This essay suggests that Carretta’s provocative question—“Olaudah Equiano or Gustavus Vassa?”—cannot be answered by ascertaining Equiano/Vassa’s point of origin. For to treat Equiano/Vassa’s identity as a historical question to be settled prior to literary interpretation is to forget that the double name ‘Olaudah Equiano or Gustavus Vassa’ itself constitutes identity through a complex literary gesture. Rather than provide a binary choice—Was he really Equiano or Vassa? Was he born in South Carolina or West Africa?—the ‘or’ opens a series of further questions. Why did this writer employ two names for his most important publication? Why did he do so even as he grounded his public reputation and his private legal and business affairs in the single name Gustavus Vassa? Why, that is, despite his participation in a legal and economic (and, to a certain extent, literary) culture predicated upon possessive individuals, did he risk undermining his established identity by insisting upon the simultaneity and the join validity of two names?” (Jaros 2013).

elders as judges and senators; marriage partners as bride and bridegroom. He frequently refers to his country as a “nation;” in one instance as a nation of “dancers, musicians, and poets.” He compares his people’s dress to the plaid of Scottish Highlanders, noting also that their primary textile is calico, which the British reader would have also associated with India. Habits of cleanliness—including circumcision—he compares to Jews.

In short, Equiano’s descriptions of Eboe, I argue, attempt to bring Africa into more familiar realms of the British Empire. These early descriptions also begin to represent Africa in the language of Enframing—a task which Equiano completes in the concluding chapter of his autobiography. There, he describes the continent in the unmistakable terms of standing reserve: “The bowels and surface of Africa, abound in valuable and useful returns; the hidden treasures of centuries will be brought to light and into circulation” (Ibid, 234). Equiano’s phrasing of “hidden treasures” resonates with the Francis Bacon’s quotation, “The sovereignty of man lieth hid in knowledge; wherein many things are reserved, which kings with their treasure cannot buy, nor with their force command.” If only Britain’s “useful knowledge” incorporated Africa as well, Equiano implies, it too would appear as a resource more valuable than an enslaved population.

Perhaps this is why Equiano’s opening descriptions of Eboe read more like a geological and anthropological survey than a personal narrative. He writes for example:

Our land is uncommonly rich and fruitful, and produces all kinds of vegetables in great abundance. We have plenty of Indian corn, and vast quantities of cotton and tobacco. Our pine apples grow without culture; they are about the size of the largest sugar loaf, and finely flavoured. We have also spices of different kinds, particularly pepper; and a variety of delicious fruits which I have never seen in Europe; together with gums of various kinds, and honey in abundance (Ibid, 37).

Here, Equiano describes not only natural resources, but potential commodities for British commerce. As above, his reference to “cotton and tobacco” invokes the key exports of Britain’s North American colonies—which had been lost to the nascent United States of America just six years earlier. Here, Smith’s useful arrangement is used to describe an entire continent. Equiano aims to give Africa the same appearance of utility as the chair’s in Smith’s living room.

The arrangement’s tropes are readily apparent. These are the opening phrases of four successive paragraphs: “As our manners are simple, our luxuries are few... Our manner of living is entirely plain... In our buildings we study convenience rather than ornament... As we live in a country where nature is prodigal of her favours, our wants are few and easily supplied” (Ibid, 34-37). Simplicity over luxury, convenience over ornament—these aesthetic qualities seem to placate the temptations of “frivolous utility” we have seen associated with “female spheres” of useful knowledge. By marrying these aesthetic qualities to the potential wealth of Africa’s standing reserve, Equiano depicts Africa as the useful arrangement he believes would appeal to British interests.

Specifically, Equiano aims to encourage the interests of Britain’s manufacturing class. There is a savvy political strategy behind this: the landed and manufacturing classes of Britain were in something of a heated battle at the time—especially in regards to textiles. Thanks to improvements in textile manufacture, entrepreneurs like Richard Arkwright could produce cloth faster than British landowners could provide wool. In order to remain competitive in the European market—where other nations were catching on to Britain’s technological improvements—British manufacturers looked elsewhere for the raw materials needed to process fabrics. Calico was a favorite alternative as it was provided in large quantities and at low prices thanks to the commercial practices of the East India Company. This economic scenario produced a schism between manufacturers and landowners that was played out in legislative actions taken by Parliament. British landed interests, especially wool producers, attempted to pass

legislation to curtail the importation of Indian calico. They foresaw—correctly—that Britain’s wool economy was on the brink of collapse, and that the majority of economic and political power was soon to be left entirely in the hands of manufacturers like Arkwright. Equiano saw this, too, and smartly cast his lot with interests of the ascendant manufacturers. Thus, His references to Eboe’s production of calico and cotton would be as appealing to British manufacturers as they would be distressing to British landholders—the same landholders who would have been the most likely slave owners.

More importantly, however, Equiano claims that Africa will open up a new *consumer* market for British textiles. He writes:

I doubt not, if a system of commerce was established in Africa, the demand for manufactures would most rapidly augment, as the native inhabitants would insensibly adopt the British fashions, manners, customs, &c. In proportion to the civilization, so will be the consumption of British manufactures (Ibid, 233).

And adds:

Europe contains one hundred and twenty millions of inhabitants. Query.—How many millions doth Africa contain? Supposing the Africans, collectively and individually, to expend 5£ a head in raiment and furniture yearly when civilized, &c. an immensity beyond the reach of imagination! ... If the blacks were permitted to remain in their own country, they would double themselves every fifteen years. In proportion to such increase will be the demand for manufactures (Ibid, 235).

Again, these passages reflect not only an economic argument, but an explicit appeal to British Enframing, which literally presences itself in the “fashions, manners, customs, &c.” of a nation; that is, its discourses of useful knowledge.

Granted, Equiano’s argument depends on a claim that may have met resistance from the British population, for he suggests that individuals born in Africa *as well as* England can learn to respond to the appeal of British Enframing. Contra Rousseau, they can perceive the same useful arrangements. In making this argument, Equiano faces the kind of Eurocentric prejudice expressed by Rousseau and Cook, which doubted the capacity of non-European communities to become “civilized”—that is, to perceive “useful arrangements” as a European would. To this end Equiano submits his own autobiography as evidence of an African’s ability to become a member of a British community of use. Thus in addition to its generic classification as spiritual autobiography, *The Interesting Narrative* can be called a usual autobiography, for between the magisterial opening and concluding chapters, Equiano tells the story of his own entry into the British imagined community by way of his personal acquisition of useful knowledge.⁷

The genre of autobiography, like the early novel, appeals to realism. Indeed, there are several parallels between Equiano’s autobiography and Defoe’s *Robinson Crusoe*. They are both written in the first person. Their heroes are both men of the sea. Both suffer shipwreck and hardship. Both, ultimately, expound the useful knowledge of Britain’s imaginary community. In short, both books endorse the theses of stadial narratives: things are of value only insofar as they work. The “progress” of Equiano and Crusoe’s narrative is in principle the same: to order things as useful arrangement. For Crusoe, this ordering is an external act. For

⁷ Nor was it the only of its kind. The biographies of Dean Mahomet and Ignatius Sancho offer interesting parallels. See for examples *The Travels of Dean Mahomet* (Mahomet 1997) and *The Letters of the Late Ignatius Sancho* (Sancho 1998).

Equiano, it is an internal one. He must learn to perceive alien, European things as useful arrangements; as things that work.

Equiano's narrative and Defoe's novel share common perspectives on race as well. In Defoe's novel, Crusoe takes on two major characters as slaves: Xury, a young boy Crusoe meets while held captive himself by Barbary pirates, and Friday—the cannibal “savage” Crusoe encounters towards the end of his ordeals on the island. While Crusoe's relationship with Friday is perhaps the better known, his interactions with Xury precipitate his later master-slave relationship. Crusoe describes his own slavery in terms of “usage,” which he finds to be not nearly as dreadful as he anticipated. Nevertheless, he effects his escape with the help of Xury, who Crusoe cajoles into joining him by saying: “Xury, if you will be faithful to me I will make you a great Man, but if you will not stroak your Face to be true to me, that is, swear by Mahomet and his Father's Beard, I must throw you into the Sea too” (Defoe 1994, 19). Xury accepts Crusoe's offer and sails with him down the African coast. After being rescued by a European ship, however, Crusoe hardly hesitates in terminating his relationship with Xury. Though Crusoe was “loath” to sell the boy into outright slavery, he consents to selling Xury into a ten-year indentured servitude instead: a path to greatness indeed. Xury would not bear again on Crusoe's thoughts until the latter is at last stranded, at which point Crusoe laments his lack of human company, and wishes Xury were still with him. In sum, his relationship to Xury is no different than his relationship to the various tools he lacks on his island.⁸

The racial implications of Crusoe's treatment of Xury and Friday are unmistakable. It is the colonial trope of racial other as tool, instrument, object—anything, but person. And yet, important as this critical narrative is to our understanding of slave cultures, British and American, it is important to recognize that Crusoe treats *all* of his social relationships in terms of their utility or lack

⁸ Friday fairs little better. He is, for Crusoe, only a servant—an ally useful only insofar as he carries out Crusoe's commands.

thereof. When he leaves the island, Crusoe abandons shipwrecked Spaniards as easily as he abandons Xury to indentured servitude. Crusoe's ethics are less motivated by racism than megalomaniacal utilitarianism: individual benefit—rather than the Bentham's notion of the greater good—is the fitting end of all Crusoe's actions, almost to the point of satire.

Nevertheless, I argue that Equiano sees in the Crusoe-ideal a potential model for his own personal betterment and, by extension, the improvement of the conditions of his fellow enslaved Africans. For all intents and purposes, this acquisition begins with a quadrant. Equiano, abducted by African slavers and brought to the Atlantic coast, sees the ocean and the vessels which sail upon it for the first time. He believes, as do many of his fellow captives, that he has been brought into a world of magic and spirits. Once the ship that will carry him to the New World is underway, Equiano is allowed up on deck and there discovers the quadrant. He writes:

I also now first saw the use of the quadrant. I had often with astonishment seen the mariners make observations with it, and I could not think what it meant. They at last took notice of my surprise; and one of them, willing to increase it, as well as to gratify my curiosity, made me one day look through it. The clouds appeared to me to be land, which disappeared as they passed along. This heightened my wonder: and I was now more persuaded than ever that I was in another world, and that every thing about me was magic (Ibid, 59).

Astonished, spell-struck—this passage is one of the most significant of Equiano's narrative. His experience with the quadrant will be duplicated with other European objects—clocks that he believes are spying on him or books that he believes can speak—but in terms of Equiano's personal narrative the quadrant is the most crucial.

Equiano is to become a man of the sea. It is over the course of many voyages that he eventually purchases his manumission from his European masters. Years after his first encounter with the quadrant, Equiano pays twenty-four dollars to learn the art of navigation. His progress in that art is not observed without reticence: “Some of our passengers, and others, seeing this, found much fault with him for it, saying, it was a very dangerous thing to let a negro know navigation” (Ibid, 123). Nevertheless, it would come to save his life and the life of his crew members on more than one occasion.

Early in his education, for example, when the captain of his ship and most of his crew fall deathly ill, it is left to Equiano to safely pilot the ship to harbor:

The whole care of the vessel rested therefore upon me; and I was obliged to direct her by mere dint of reason, not being able to work a traverse. The Captain was now very sorry he had not taught me navigation, and protested, if ever he should get well again, he would not fail to do so (Ibid, 142).

Here, Equiano’s lack of useful knowledge is cited in regards to a specific tool, the traverse, defined in William Falconer’s *Universal Dictionary of the Marine* (1784) as “a thin piece of board, marked with all the points of the compass, and having eight holes bored in each, and eight small pegs hanging from the center of the board. It is used to determine the different courses run by a ship during the period of the watch; and to ascertain the distance of each course.”⁹ Unlike the quadrant, the traverse does not present itself to Equiano as a magical object. Rather, it presents itself as broken tool. The only cause of its mention in Equiano’s narrative is to underline its current uselessness. The poetic language of Equiano’s encounter with the quadrant is entirely absent here, and while the

⁹ This quotation from Falconer is helpfully provided in the end notes to Vincent Carretta’s edition of *The Interesting Narrative*.

traverse signifies the incompleteness of Equiano's useful knowledge, its representation as broken tool—and not alien thing—*does* indicate the completeness of his Enframing.

Equiano safely brings the ship to port—though not before the death of its captain. This accomplishment did not go unnoticed, “Many were surprised when they heard of my conducting the sloop into port, and I now obtained a new appellation, and was called captain” (Ibid, 144). Though his narrative is far from over, this appellation signifies his integration with Britain's hegemonic community of use—if not its community of race.

Here, I leave off Equiano's saga—but rather than linger on the problem of Equiano's national or racial identity, I wish to take up the figure of the traverse. This “broken tool” as I have called it. In this chapter, I have treated the community of use in terms of social, human terms. The categories of gender, race, and class are the social attributions to *human* conditions. Yet there is another category of participants in this community: things themselves. As we will see in the next chapter, these things also bear on the political and social structures of the Industrial Enlightenment.

Chapter 3

The Presence of Work

In my Introduction, I enumerated several ways by which things become “present-at-hand” and noted that there were far more discrete instances of present-at-hand experiences than ready-to-hand. In this chapter, however, it becomes important to firmly distinguish the term present-at-hand from what I will call the presencing of things. To illustrate: one might say that a carpenter *experiences* a hammer as present-at-hand when planning to purchase a new one. This present-at-hand experience of the hammer is also a circumscription of the hammer’s presence, since its contemplation by the carpenter is restricted to its potential ability to perform the work of hammering. In other words, the hammer is “present” only as that which can ultimately withdraw into the work of hammering (i.e. Adam Smith’s notion of the useful arrangement). Even when the hammer is broken or missing and thus fails to qualify for Smith’s aesthetic principle of that which is ready to withdraw into work, the hammer is nevertheless circumscribed by the work it *would* perform, *had* performed, or *might yet* perform. Thus, the present-at-hand directs our attention towards the *work* of hammering, not the presence of the hammer. The present-at-hand does not signify the presencing of things; it signifies the presencing of work.

In this chapter I take up the present-at-hand itself and its effect on such communities. I will examine a variety of scenarios in which the thing itself disrupts the useful imaginary of a community by “refusing” to withdraw into work. In the Heideggerian context, this refusal to withdraw is associated with the “broken tool,” but here I want to expand on that traditional definition by continuing to acknowledge that it is possible for a thing to appear present-at-hand without actually being dysfunctional. All that a thing need do to appear “broken”

is to resist this withdrawal into work. Here, of course, subjectivity and imagination come into play, much as they did for Equiano. The inability of a thing to withdraw is as much dependent on the observer's idea of what the thing's utility or work *should* look like. As we have seen, this prescriptive imaginary is a cultural construction; an effect of an individual's belonging to a community of use. It is what distinguishes Equiano's experience of the quadrant from the traverse. Therefore, we must once again "provincialize" the content of this chapter, and recognize that a precondition of the phenomena I will be discussing is a belonging to a particular use community—in this case, again, the community of use prevalent during the British Industrial Enlightenment.

As usual, we can look to Robinson Crusoe as a literary index of this aspect of Enframing. When he arrives on his island, things seem to shout their uselessness to him; all is present-at-hand:

For I was wet, had no Clothes to shift me, nor any thing to eat or drink to comfort me, neither did I see any Prospect before me, but that of perishing with Hunger, or being devour'd by wild Beasts; and that which was particularly afflicting to me, was that I had no Weapon either to hunt and kill and Creature for my Sustenance, or to defend my self against any other Creature that might desire to kill me for theirs: In a Word, I had nothing about me but a Knife, a Tobacco-pipe, and a little Tobacco in a Box, this was all my Provision, and this threw me into terrible Agonies of Mind, that for a while I run about like a Mad-man (Defoe 1994, 36).

Things are present-at-hand in their absence—no shelter, no food, no weapons to speak of. Consequently, the "work" of survival—feeding, sheltering, defending—bears down on Crusoe. His labor, his subdual of the island, is motivated by an aversion to the presence of this work. Indeed, in the very next paragraph Crusoe remedies all that ails him, at least temporarily:

I walk'd about a Furlong from the Shore, to see if I could find and fresh Water to a Furlong from the Shore, to see if I could find any fresh Water to drink, which I did, to my great Joy; and having drank and put a little Tobacco in my mouth to prevent Hunger, I went to the Tree, and getting up into it, endeavour'd to place my self so, as that if I should sleep I might not fall; and having cut me a short Stick, like a Truncheon, for my Defence, I took up my Lodging, and having been excessively fatigu'd, fell fast asleep, and slept as comfortably as, I believe, few could have done in my Condition, and found my self the most refresh'd with it, that I think I ever was on such an Occasion (Ibid, 36).

Here, Crusoe has withdrawn the work of survival into things. Water for thirst, tobacco for hunger, tree for shelter, stick for defense. These things “are for” in a literal sense: they stand in for the work of drinking, eating, sleeping, and protecting even as they aid in those works. The passage also reflects the language of prevention that was noted for Cooke’s patents: the tobacco “prevents” his hunger, he arranges himself in the tree so that he “might not” fall. In this sense, Crusoe’s efforts are directed not just towards utility, but “repairing” his island; to the withdrawing of work itself.

But there is a second “turn” tucked into this logic of repair. In the example from *Crusoe*, the broken or missing thing itself, as Heidegger says, becomes circumspect or obtrusive as that which refuses to withdraw into work. More importantly, however, this non-withdrawal turns Crusoe’s attention (and ours) to the work itself. It makes work present. In scenarios where the *presence* of work interrupts the *work* of work, I identify a paradox in which work itself is present-at-hand. The work becomes the “object” or idea of concern. Its equipment, practices, and personnel are subsequently presented along with it as second order

epiphenomena, all with the overriding affective qualities of disrepair, obtrusion, circumspection, and obstinacy.

The liability of the “broken tool,” therefore, is not the unexpected emergence of things themselves, but the emergence and potential contemplation of work. I call it a liability because in the presence of work Enframing speaks loudest. It is not withdrawn behind a screen of useful objects or discourses—the same objects and discourses which it structures—but is exposed in its own right as its own entity *apart from* the networks of actors and objects which put it to material practice. This holding apart, I argue, leads to politically engaged questions. For example, might these moments of presence lead to a reconsideration of Enframing itself?

We might call the insuring of these liabilities the “essential” motivation behind the anti-regressive nature of technology. As I argued in my Introduction, there is no such thing as technological progress. Rather, techno-logic can only “shore up” a thing’s ability to withdraw into work, and consequently retreats from the present-at-hand and, consequentially, the presencing of work itself. Thus, anti-regress is not merely a preservation of *human* intentions against the entropic nature of things, it is a preservation of the ordering work of Enframing itself.

To thwart these possibilities Enframing turns its subjects to the logic of repair: the re-withdrawing of things and work to the ready-to-hand. Not surprisingly, there are myriad examples of material repair in the literature of the eighteenth century. Discourses of useful knowledge as well as literary texts are ripe with such instances. That said, I wish to push the logic of anti-regress, repair, and the presencing of work into the political realm as well. I argue that the same logic of repair holds for human communities as it does for things. In service of this claim, I examine literature that aimed to “repair” the relationship between England and its nearest colony, Ireland—specifically Sidney Owenson’s *The Wild Irish Girl* and Maria Edgeworth’s *The Absentee*. Developing the implications of my reading of Equiano, I claim here that the logic of repair was used to maintain Britain’s colonial order as much as its material or economic order.

Cultural Materialism

In the previous chapter, I described passages from Adam Smith's *Theory of Moral Sentiments* as describing a special, aesthetic quality of useful things. This aesthetic—the useful arrangement—hinged on the ability to represent a novel object as that which is ready to withdraw into work. As such, the useful arrangement necessarily describes a thing which is being experienced present-at-hand. Like the carpenter contemplating the purchase of a hammer, the aesthetic appeal of the useful arrangement is its potential to lose its aesthetic qualities altogether, to recede from the realm of representation.

In this chapter, however, I mean to linger on the “quasi” state of the present-at-hand thing so as to dwell on the affective discomfort associated with it—which is to say, the affective discomfort of the work it presents. My above examples with carpenters and hammers are typical Heideggerian examples. Several of his thought experiments focus on the acts of building, crafting, and manual labor—the labor of the hands. Despite the relative uniformity of his examples, however, the basic conceit of Heidegger's thinking is worth mentioning in the context of the eighteenth-century examples I will discuss below. For Heidegger it seems that activity itself—work being one “mode” of activity—is disavowed in modern thought. It is for this reason that his later essays constantly call attention to gerunds: building, dwelling, thinking, thinging, Enframing, and so on. These activities or processes go un-thought precisely because they are enshrined by materiality. Things themselves gird or shore up these activities and ultimately conceal them. Thus Heidegger opens essays such as “Building Dwelling Thinking” with statements like these:

We attain to dwelling, so it seems, only by means of building. The latter, building, has the former, dwelling, as its goal. Still, not every building is a dwelling. Bridges and hangars, stadiums and

power stations are buildings but not dwellings; railway stations and highways, dams and market halls are built, but they are not dwelling places. Even so, these buildings are in the domain of our dwelling. That domain extends over these buildings and yet is not limited to the dwelling place. The truck driver is at home on the highway, but he does not have his shelter there; the working woman is at home in the spinning mill, but does not have her dwelling place there; the chief engineer is at home in the power station, but he does not dwell there (Heidegger 2001, 143-4).

Leaving aside for now Heidegger's affirmation of what dwelling in fact is, we can see in this passage that building-things (dams, spinning mills, highways, bridges) are, for Heidegger, the first points of confusion as to what dwelling and building—the activities—are. These objects interfere with our ability to discern what the work of building/dwelling actually is.

By methodological contrast, these activities and objects are equally vital components of actor-network theory, which would posit that the interconnectivity between building-objects and building-activities *is* the definition of or grounds for dwelling. This is a descriptive approach; an anthropological method as Bruno Latour would call it (Latour 2013). This anthropological attitude can also be seen in cultural materialist approaches. Rather than placing an object in a network, however, the cultural materialist might trace the object's history linearly—pulling on a single thread, as it were, of the larger web in which an object finds itself.

This is how literary scholar Elaine Freedgood confronts objects in *The Ideas in Things: Fugitive Meaning in the Victorian Novel* (2006). Taking an object such as a mahogany cabinet, Freedgood traces that object “back” to its material origins (e.g., the felling of a mahogany tree). In so doing, she highlights the political and ideological forces (such as imperialism) that helped the mahogany cabinet arrive, so to speak, in a novel such as *Jane Eyre*, and goes so far as to claim that the cabinet serves as a literal archive of the larger historical

forces that helped shape the novel. Freedgood's approach emerges from a tradition of "cultural materialism" that can be traced to anthropologist Arjun Appadurai's concept of a thing's "social life" (Appadurai 1988). Drawing on anthropological precedents and Marxist theories of value, Appadurai argues that every thing has a "biography" that is written as it passes from one social environment to another. The value of a tobacco pipe can change dramatically, in various contexts, as it is treated as an object, a commodity, a gift, a fetish, a totem, and so on. Thus the work of the cultural materialist is to trace a thing's material and social lives and to then present that biography in the context of a thing's appearance in historical or literary works.

Heidegger, in my reading, does not reject the interconnectivity of things and activities, but as a method of thinking he consistently attempts to hold them apart—temporarily—before allowing them to suture together again. Hence his famous ambition to separate "Being" from "beings." The traditional capitalization of the former, Being, has long implied an ontological if not metaphysical quest behind Heidegger's work. It has suggested that capital-B Being is the "privileged" pursuit of philosophical inquiry. For my part, I would temper this bias, and instead suggest that rather than privileging Being (or Dwelling or Building or Thinking) as an ontological category, to see it instead as one half of the dualism between work and presence, doing and being, or as Barbara Johnson surmises in semantic terms: the relationship between verb and noun (Johnson 2010, 62-63).

However one wishes to characterize these basic categories—work and presence being my preferred terms—their dis-integration happens most strikingly in scenarios of disrepair. To illustrate, we might again summon Jonathan Swift's poem, "The Lady's Dressing Room" and the advertisement for "cephalic water," and attempt to read the "biography" of the water across both texts.

In the water's advertisement—which we might imagine to be its first presencing to Celia—it is carefully represented as that which is ready to withdraw into work. Once purchased, the water—assuming it is indeed effectual—withdraws into the work of preparing Celia's body for display. It joins a host of

other objects in this work, all ordered by the lady's dressing room itself. Indeed, the room's order is essentially no different than Crusoe's cave-magazine, Gulliver's box-chamber, or Smith's sitting room. Its objects—or equipment to use the Heideggerian term—are ordered by their readiness-to-hand. And yet, when seen through Strephon's eyes this equipment—and, via extrapolation, the cephalic water itself—emerges into presence once again. But we must be careful to qualify this presence. For the cephalic water does not appear to Strephon as itself—thing *qua* thing. Instead it is already implicated in a kind of work; indeed, the *same* kind of work as defined in the previous paragraph: the cleansing of Celia's body. And it is this *work*, I argue, to which Strephon so viscerally reacts. The residue of the cleansing of Celia's body tells the story of what takes place there with regularity. It is what these things *do*—what these things “are for”—that alarms Strephon.

At stake, therefore, are not the ontological status of the cephalic water or the dressing room itself—stakes typically associated with cultural materialism and its questions of what a thing “is” in different social contexts. The water is not, like Equiano's quadrant, undergoing any kind of transformation for Strephon. It is not a magical object or curiosity or fetish. The water is, in its obtrusive presence, a signifier of the work that it performs. Thus, if we are to conduct material histories of things in the spirit of Freedgood or Appadurai, we must not limit ourselves to ontological category (gift, commodity, etc.). Rather, we must recognize objects as full phenomena. Things which are are things which do.

With this revision in mind, I propose that one can take into view a historical object and attempt to discover the same oscillations between work and presence as we found with the somewhat more contrived example of the cephalic water. Consider, for example, the history of “Old” London Bridge. Its construction was ordered by Henry II and was completed in 1209. It stood an astounding six centuries before its replacement was completed in 1831. Like a tobacco pipe or St. Paul's Cathedral it signifies a national community: London, or England more generally. It is also a useful object, and therefore not only symbolizes Britain's remarkable history, but also its archives of useful

knowledge. Finally, as useful object, Britons depend upon it and the useful knowledge it girds in the everyday sense—literally the knowledge and act of crossing.

But the bridge also has an exceptional feature: during the first half of the eighteenth century, there was no consensus even among Londoners as to what bridges—or, at least, this bridge—were for. Over the centuries, houses and shops had sprung up on London Bridge to the point that crossing became a crowded and dangerous affair. In 1722, traffic on the bridge was so congested that London’s Lord Mayor issued an ordinance requiring all northbound traffic to keep to the west side of the bridge, and all southbound traffic to the east. Finally, by 1740, the situation was deemed so extreme that Parliament began ordering the demolition of all buildings, as indicated by the following Act:

Whereas the Passage over and through London Bridge is very dangerous and incommodious, and it is absolutely necessary immediately to widen and enlarge the same; and that the Widening and Enlarging of the said Bridge, and One or more of the Arches thereof, will be of publick Utility, of great Benefit to Trade and Commerce, make the Navigation upon the *[said]* River [*Thames*] more safe and secure, and greatly tend to the Preservation of the Lives of his Majesty’s Subjects passing over and through said Bridge; [*and whereas, in order to the same, it is necessary, that the Houses, Edifices and Buildings, on the said Bridge, and some Houses and Edifices contiguous thereto, should be taken down and removed*]. (“Act of Parliament” 1740, 1-2)

Tellingly, it is the idea of what a bridge *should be* (that which facilitates “passing” or crossing) that ultimately annihilates the bridge’s being something else. We can look to economic history to help explain how this situation came to pass. For example, we might hypothesize that the reason for this change was the material

culmination of England's commercialism. Goods need to traverse the Thames somehow, after all, and bridges are the most efficient means to that end. Cultural materialism after the fashion of Appadurai and Freedgood might also open us to a fascinating history of the bridge itself, from the mining of its stones to the driving of its piers, forward to its ultimate demolition in 1831. Yet, as with Ceilia's cephalic water, the history of *crossing* London Bridge is not the same as the history of its stones, and though these histories do become imbricated, I wish to hold them apart long enough to appreciate them as distinct phenomena before collapsing them back into a network or dialectic. In so doing one can recognize the work of crossing itself as present-at-hand.

Consider, for example, a short pamphlet written by noted architect Nicholas Hawksmoor, who—perhaps resigned to the permanent inhabitation of London Bridge—proposed the erection of a new bridge to span the Thames at Westminster.¹ In the first section of the pamphlet, Hawksmoor cites the inherent issues of safety and incommode that the bridge poses: “To erect a Bridge for a safe and open Passage, and afterwards to streighten and incommode that Passage with Houses, so as to make it difficult for two Carriages to pass by one another, without endangering the Lives of Foot-passengers, or driving them into those very Houses for their Security, must be very absurd, in that it perverts and destroys the principal Benefits that can accrue from a Bridge” (Hawksmoor 1736, 11). In this passage, Hawksmoor appeals directly to the language of Enframing: safety and security seem to be his primary concerns, never mind the fact that the bridge, so constructed, defeats its own purpose—its intended being-doing.

One might think this argument would suffice—after all, it is precisely this kind of logic that the Act of Parliament reflects when it finally calls for the demolition of the dwellings—but Hawksmoor does not stop there. Instead, the second half of his pamphlet is devoted to describing the great bridges of Europe in

¹ London Bridge was erected much further east, crossing the Thames just a few blocks from St. Paul's Cathedral.

a direct appeal to King George II's appreciation of architectural beauty. Hawksmoor lists dozens of bridges, beginning with those described by Palladio, which Hawksmoor calls "beautiful." He goes on to the Rialto at Venice, which he describes as "that Master-piece of Art, allowed to be built by *Michael Angelo*, Anno 1591, over the great Canal of that City" (Ibid, 33). The objective of Hawksmoor's descriptions is plain: to embarrass the King and Parliament into action by comparing these architectural achievements to the "absurdity" that was London Bridge.

More generally, however, Hawksmoor is appealing to the aesthetic of the useful arrangement; the concert of beauty and utility as a means of designing London's next bridge. This appeal to the useful arrangement, as we have seen, is as much an appeal to a hegemonic use community as it is an appeal to a standard of architectural taste. Conversely, for Hawksmoor London Bridge's "broken" state has as much to do with its appearance as it does its functionality. As a symbol of Britain's community of use it comes to close to the non-functional, aesthetic "misery" figures like James Cook ascribed to non-European cultures.

As with the example of Cook and the people of Tierra del Fuego, these examples of the present-at-hand or the "broken tool" rely on the predisposition of an individual's ability to "see" utility. In other words, these phenomena are derivatives of the aesthetic structures of a community use, its "useful arrangements," and are therefore manifestations of the ordering work of Enframing. The question, then, for hegemonic communities of use, is how to return these aesthetic and functional arrangements of things "back" to arrangements of utility. I describe this returning as the logic of repair.

Repair and National Communities of Use

Repair, traditionally understood, is a reactionary phenomenon. A thing must break, after all, before one is to repair it. If, however, repair is understood as a function of anti-regressive techno-logic, then it can also be characterized as an

anticipatory or prophylactic phenomenon: to repair is to pre-prepare. The two words, in English, derive from the same etymology and apply to the same problem: the presencing of work. To repair is to waylay this presencing, preferably in advance by marshalling materials to reduce the possibility of work's presencing, thus maintaining the illusion that work and thing are singular.

Understood in this way, we can see the logic of repair in the archives of useful knowledge examined so far. Consider, for example, the patent for James Cooke's "drill-machine," dated to 1786.² The machine, pulled by a horse in front and operated by a human in back, deploys a clever gear ratio in order to puncture holes in the soil. It then drops a small quantity of seed into each hole all while the machine continues moving forward. From the perspective of the farmer, this is progress: the machine saves time and energy, making one small part of the work of farming that much more efficient. That said, one can see in the language of Cooke's patent that the design of the machine is motivated as much by the logic of anti-regress as anything else. Consider in the following excerpts the repeated use of the word "prevent":

to prevent the grain or seed being scattered upon the ground...

to prevent the grain or seed from being crushed...

to prevent the grain or seeds being blown back into the boxes...

(Cooke 1786).

This list emphasizes that much of the ingenuity of Cooke's machine is directed not to the work of sowing, but to the preservation of the seeds. That is, the material delicacy of the seeds themselves motivates significant amounts of Cooke's design.

Yet the delicacy of the seeds also indicates that the work of sowing is itself "opposed" by other forces: gravity, wind, inertia. In chapter one, I described

² Not to be confused with the Captain, James Cook.

these nemeses as Bacon's laws of nature or Locke's tendency of things towards waste. They are that to which humans must submit and subsequently subdue. The machine's preventing makes way for the work of sowing just as the artificial atmosphere of the rocket ship makes way for the work of landing on the moon. This is anti-regress in action: with each turn of the machine's gears, each gust of wind, and each wayward stone, the machine prevents, preserves, and repairs the work of farming.

What holds for Cooke's drilling machine holds for more spectacular endeavors as well. Perhaps the most famous eighteenth-century example of the logics of repair and anti-regress centers on the quest to discover a ship's longitude at sea. Longitude denotes a ship's position east or west of the Prime Meridian—an imaginary and arbitrary line drawn in a north-south direction around the globe. The problem of measuring longitude, however, was that a ship's east-west position cannot be measured in relationship to other naturally occurring phenomena without extensive study of star charts. Latitude, by contrast, can be deduced by taking the altitude of the sun and comparing it to our understanding of the "tilt" of the Earth's axis. Put simply, the sun will appear higher or lower in the sky depending on the time of day and one's north-south position on the globe. Longitude has no such corresponding phenomenon, since one's east-west position has no bearing on the apparent altitude of the sun. The sun will appear to be at the same height in Philadelphia as it will in Beijing (cities which both rest at on the thirty-ninth parallel).

For much of the eighteenth-century, there were few practical means of measuring one's east-west position. A common method was as follows: tie a piece of wood to a rope, the rope having knots tied into it at regular intervals. Toss the wood over the stern of the boat and simultaneously start a timer. Count the number of knots that slip off the stern until the timer runs down. Divide the number of knots by the duration of the timer and you have now derived your velocity (e.g., knots per minute). Simply maintain a consistent log of this velocity

from the moment of your ship's departure from port and *voilà*: you will know your longitude.

Needless to say, this method was not terribly accurate. Its shortcomings were demonstrated most brutally and publically in 1707 when four of Her Majesty's Ships wrecked on the rocks of the Isles of Scilly—an island chain off England's southwest coast. Approximately nine hundred sailors died including Admiral Cloudesley Shovell—a naval hero who had recently distinguished himself in battle against the French in Gibraltar. His ship, the *Association*, was the first to sink and did so, by all reports, in a matter of minutes. Shovell's body would ultimately be washed ashore and stripped of all its belongings before finally being recovered by the British government for a state burial.³

The scale of the catastrophe made for a demonstrably public event. Swift parodied the wreck in under the guise of Isaac Bickerstaff in "Predictions for the Year 1708," writing: "I exactly foretold... the loss of Admiral Shovel, though I was mistaken as to the day, placing that accident about thirty-six hours sooner than it happened" (Swift 1707). He would reference longitude yet again in *Gulliver's Travels*, when Gulliver, contemplating immortality, imagines witnessing the future "discovery of the longitude, the perpetual motion, the universal medicine, and many other great inventions brought to the utmost perfection" (Swift 2003). On both counts, Swift is satirizing the futility of such efforts, and in that sense correctly diagnoses the problem of anti-regress. Just as there will never be a "perfect torch" there can never be a perfect invention of any kind—only a warding off of things that disrupt human intention.

Swift's reference to "thirty-six hours" is a rather subtle—and dark—allusion to the problem of longitude considering that time—or the poor accounting of it—was instrumental in Shovell's death. There was an ideal alternative to the log method of deriving one's longitude. All one needed were

³ By other, more lurid accounts, Shovell washed ashore alive only to be murdered for his belongings. See Sobel 2003, 17.

two pieces of information: the time of day at the prime meridian and the time of day aboard the vessel. For every hour's difference between the two, one simply had to add fifteen degrees of longitude to the ship's current position. In other words, if it were noon at the prime meridian and one o'clock onboard the ship, then the ship's longitude would be fifteen degrees west or east.⁴

Swift's joke about being off by thirty-six hours mocks not only the supposed seer's accuracy; it mocks the accuracy of Shovell's navigational skills as well. To be "off" by thirty-six hours would put a ship's longitude once and a half times around the globe. Swift was exaggerating a very real problem: no one had managed to invent a clock that could accurately keep time over course of a voyage, and thus it was impossible to accurately ascertain the time of day at the Prime Meridian, rendering all further computation moot. Volent motions and severe changes in temperature over the course of a long sea voyage prevented clocks from performing their essential function: maintaining a steady "beat" via the swinging of a pendulum or pivoting of a balance wheel. The slightest error in time could be the matter of several nautical miles and indeed the matter of life and death for Shovell and his compatriots.

In 1714 Parliament convened a special body to solve the problem of longitude and to prevent any future disasters of the magnitude experienced at Scilly. This "Board of Longitude" offered a cash prize to the first person to invent a means of keeping a ship's longitude accurate to one degree. The prize would be awarded in lieu of the fourteen-year patent.⁵ Numerous individuals attempted the feat, but only John Harrison would prove successful (and this only after a great deal of legal battles with the British government). His invention was the ocean

⁴ The math is straightforward enough: divide the circumference of the Earth (in degrees) by the number of hours in the day. Three hundred sixty divide by twenty-four yields fifteen. Further divisions of time can then be made as necessary.

⁵ The reader may recall that the *Statutes of Anne* were still works in progress in 1714.

chronometer: the first clock able to withstand the ardors of sea travel and keep accurate time.

Harrison's achievement has popularly been framed as a contest between the mechanical and the principle. His antagonist, in Dava Sobel's characterization, was an astronomer named Neville Maskelyne. Maskelyne refused to believe that a machine could solve a problem that a refined understanding of astronomy could not. And indeed, Maskelyne and other astronomers did develop a means of establishing longitude via a complex series of star charts and mathematical formulae. Thus while the division—and antagonism—between the mechanical and the theoretical certainly existed, it is important to not use Harrison's saga as a means of driving a wedge between the scientific and industrial communities. For though their respective theoretical dispositions may have differed, their methodologies did not: both conducted their experiments with a specific, useful *telos* in mind. Both depended on things as well. Chamberlain put his faith in the stars while Harrison put his in minerals and metals. Finally, it must be remembered, both methods worked.

In terms of phenomenological history, the critical division was not between the theoretical and the mechanical, but between work and thing. That is to say, the problem with the ocean chronometer prior to Harrison's success was that the work of keeping time could not withdraw into a useful arrangement. As it happens, Smith has a passage on a watch in *The Theory of Moral Sentiments* that bears on Harrison's achievement. Smith writes:

A watch... that falls behind above two minutes in a day, is despised by one curious in watches. He sells it perhaps for a couple of guineas, and purchases another at fifty, which will not lose above a minute in a fortnight. The sole use of watches, however, is to tell us what o'clock it is, and to hinder us from breaking any engagement, or suffering any other inconveniency by our ignorance in that particular point. But the person so nice with

regard to this machine will not always be found either more scrupulously punctual than other men, or more anxiously concerned upon any other account to know precisely what time of day it is. What interests him is not so much the attainment of this piece of knowledge, as the perfection of the machine which serves to attain it (Smith 2004, 213).

The second watch bears the aesthetic quality of the useful arrangement—it is present-at-hand only as that which is ready to withdraw into work. One might argue that those invested in Harrison’s timepiece were far removed from Smith’s watch-lover who, despite owning a superior watch, seems hardly interested in keeping time. Cloudesley Shovell, by contrast, would have been *very* interested in the “attainment of this piece of knowledge.” And yet, in reading the treatises of Harrison and clockmakers like him, it is clear that the work of “keeping time” was the least captivating element of their designs.

In large part, this was because the principle of keeping time (and the application of that principle to finding longitude) was straightforward. Thomas Mudge, another horologist who also tried his hand at the longitude problem, explained the gap between the ideal principle of timekeeping and its actual practice:

The simple principles of all watches are, I apprehend, the same, and perfect: the errors found in them are, therefore, not errors arising from the principles, but from the modification of those principles, and from imperfections inseparable from all mechanical operations. These simple principles I suppose to be nothing more than that the same force will always produce the same quantity of motion; and quantity of motion being compounded of quantity of matter and velocity, the quantity of matter remaining the same, the

velocity will be the same: therefore, a given force will always produce the same velocity in the same time...

... This was the manner in which watches were first made; but they were made in a very rude manner, and, though very valuable and useful machines, were found not to measure time by any means so accurately as might be expected from perfect principles. The communicating [of] this force through a train of wheels, was the rock they split on; it necessarily introduced a great many errors arising from the imperfections of the mechanism, and the friction that is unavoidable, though executed in the most perfect manner; all which put together, produced a very *unequal* and *irregular*, instead of the supposed *equal* force (Mudge 1799, 6).

Mudge makes special reference to the fact that *in principle* the problem of using time to find one's longitude is a very simple one. One needs no special instruments to inductively reason the relationship between longitude and time. It is the clock itself—the gears, the trains, and the wheels—that interrupts this work. Appropriately, the thing is the rock upon which the principle splits, as Mudge writes, evoking both the memory of Shovell's disaster and the problem of materiality itself as that which prevents the withdrawal of work.

The challenge for Mudge and Harrison was not keeping time, it was *withdrawing* the keeping of time into a thing: the ocean chronometer. It was making the keeping of time invisible, functional, or ready-to-hand. One can see this attitude in Harrison's writings on the subject. In describing the fourth—and most successful—iteration of his chronometer (H4), Harrison writes:

In this Time-keeper there is the greatest Care taken to avoid Friction as much as can be, by the Wheels moving on small Pivots, and in Ruby-holes, and high Numbers in the Wheels and Pinions...

The Part which measures Time goes but the eight Part of a Minute without winding up; so that Part is very simple, as this Winding-up is performed at the Wheel next to the Balance-wheel; by which Means, there is always an equal Force acting at that Wheel, and all the rest of the Work has no more to do in measuring Time, than the Person that winds them up once a Day (Harrison 1767, 19).

The keeping of time is the least genius part of his invention. Rather, it is the rest of the watch's apparatus—its *work*, as Harrison calls it—that deserves celebration. Where Cooke used the language of “prevention” to describe the intricacies of his machine, Harrison uses the language of avoidance. The clock's movement is designed in such a way as to avoid friction—a force which is incumbent to matter itself as it touches, interlocks, and pivots. Rubies, for example, were used not for their aesthetic appearance (coincidentally, red) but for their relatively low friction. More generally, however, Harrison emphasizes that the vast amount of the watch's movement has nothing at all to do with measuring time itself, it has to do with “avoiding” the interference of materiality with the work of timing.

It follows that the work of timing withdraws into the materiality of the watch. Only the balance wheel—the equivalent of a pendulum—does the work of keeping time by pulsing steadily. Even its appearance is diminutive. For those unfamiliar with the appearances of watch movements, the balance wheel is concealed within a seemingly hermetic system of tubes, gears, and coils. It is little more than a thin disc that pivots back and forth using the potential energy stored in the watch's mainspring. It is the watch's beating heart, but it is far removed from typical discourses of representation: for that, the clock's face takes pride of place. When Harrison had his portrait done it featured him holding his famous time-keeper in hand, but the watch was sealed, exposing only its face. The *work* of the watch—and Harrison's true artistry—remain concealed.

But the apparatus and the useful knowledge it signifies cannot be partitioned from one another. The watch's perfection, its efficiency, its running "true" conceals the presence of its functional work: timing. The more seamlessly the watch can collapse the kinetic energies of stars, waves, and winds into quantifiable hours, minutes, and seconds, the more quickly the work of sailing itself withdraws into the ready-to-hand; becomes routine, everyday, and ordinary. Repair, therefore, like utility itself, is as much beholden to an aesthetic principle as a functional one. Its goal is not just to work, but to withdraw its working into things.

In Harrison's chronometer, I argue, one can hear the speech of Enframing as I have described it so far: anti-regress, repair, submission and subdual, and useful arrangement. As always, all of these qualities must be provincialized to Britain's community of use. The catastrophe at the Isles of Scilly brought the work of navigation—and its errancy—to the forefront of British consciousness. It was as humiliating as it was gruesome: these were no amateur sailors, they were top naval men with years of experience under them. The ships they commanded were military class—descendants, as it were, of the same fleet that sunk the Spanish Armada over a century earlier. Yet all of this was destroyed by time, wind, and rock; destroyed by the laws of buoyancy; destroyed by the ancient necessity of air for humans to breathe. Stripped of its materiality, the work of navigating the globe—itsself a metonym for the British Empire—was exposed as fundamentally beyond the grasp of Britain's hegemonic discourses of useful knowledge.

Fictions of Colonial Repair

One means of sustaining this hegemony is by using works of fiction themselves as instruments of repair. With examples like *Robinson Crusoe* I have argued that fiction attempts to shore up the "imaginary" component of the community of use, to again reference Benedict Anderson's guiding terminology.

This repair, however, need not refer to material things (caves, ships, etc.) only. To illustrate, I examine novels that concern the political strife between England and its nearest colony, Ireland. These novels—Sidney Owenson’s *The Wild Irish Girl*, and Maria Edgeworth’s *The Absentee*—attempt to “repair” the relationship between England and its colonial neighbor, which is to say: they attempt to make the work of imperial nation building withdraw into the ready-to-hand.

In brief, the colonization proper of Ireland began in the sixteenth-century after Henry VIII’s break from the Catholic Church. The subsequent English Reformation failed to convert the Irish population, and instead England instituted a policy of “plantation” wherein English and Scottish Protestants were encouraged to settle in Ireland—consequently displacing native Catholic landholders. By the early seventeenth-century, Irish Catholics were banned from serving in the Irish Parliament, effectively disenfranchising the Catholic majority. The passage of the so-called “Penal Laws” further oppressed Catholics and dissenting Protestants with economic penalties. In 1801, the Irish Parliament was dissolved altogether under the Acts of Union, and Ireland officially became part of the United Kingdom.⁶ For Ireland, therefore, there was less the theme of material repair in the spirit of Crusoe’s island or the Virginia Colony, and more the problem of political, religious, and social conversion of *people* rather than things.

Nevertheless, in literary representations of this conflict, the political and the material serve as allegories for one another. Perhaps the first major example of this technique is Sidney Owenson’s *The Wild Irish Girl*, published five years after the Acts of Union. Owenson’s novel introduces the trope of the “Glorvina solution,” which I read here as an allegorical form of colonial repair.⁷ The phrase comes from the plot of Owenson’s epistolary novel in which a wealthy Englishman, the Earl of M--- attempts to marry Glorvina, the daughter of the Irish

⁶ For a recent comparison of Irish history and Britain’s other colonial efforts, see Horning 2013.

⁷ The term was coined by Robert Tracy (Tracy 1985).

Prince of Inismore. The “twist” is that the Earl’s family once conquered (or stole) the native lands of the Inismore, and ever since the prince has held a hatred towards the Earl’s family. Thus, in disguise, the Earl attempts to marry the prince’s daughter not out of spite, but rather out of a somewhat misguided plan to bring Glorvina the wealth and dignity she deserves.

Owenson makes no pretense that the marriage of Glorvina is an allegory for the restoration of English-Irish relations. The novel’s closing epistle, written by the Earl to his son (who has now married Glorvina in his father’s place) reads in part:

In this the dearest, the most sacred, and most lasting of all human ties, let the names of Inismore and M--- be inseparably blended, and the distinctions of English and Irish, protestant and catholic, for ever buried. And, while you look forward with hope to this family alliance being prophetically typical of a national unity of interests and affections between those who may be factiously sever, but who are naturally allied, lend your *own individual efforts* towards the consummation of an event so devoutly to be wished by ever liberal mind, by every benevolent heart (Owenson 2008, 250).

The Glorvina solution harkens back to ancient traditions of European “repair” between states. The marriage of one nation’s monarch to another’s was a common means of creating “alliances” between competing countries. Here, however, the notion of “alliance” is complicated by the fact that Ireland was far more a colony of England than it was an independent and rival state. The Glorvina Solution is paternalistic in the fullest sense—both as it is gendered in the plot of the novel and as an attitude towards England’s “destitute” colonial neighbors.

The Earl’s letter concludes with an extended metaphor of a vine and stake:

Cherish by kindness into renovating life those national virtues, which, though so often blighted in the full luxuriance of their vigorous bloom by the fatality of circumstances, have still been ever found vital at the root, which only want the nutritive beam of encouragement, the genial glow of confiding affection, and the refreshing dew of tender commiseration, to restore them to their pristine bloom and vigour: place the standard of support within their sphere; and like the tender vine, which has been suffered by neglect to waste its treasures on the sterile earth, you will behold them naturally turning and gratefully twining round the fostering stem, which rescues them from a cheerless and groveling destiny (Ibid, 251).

For all the paternalism of the Glorvina solution, it is important to notice as well the fundamental attitude of restoration that lies within it: the restoration of Ireland's pristine bloom and vigor. The political allegory of the Earl's letter is unmistakable amidst his botanical language; itself a metaphor for the marital union between Glorvina and the Earl's son. The union between England and Ireland is like the union of a stake and a vine.

In this context, instances of material repair and ruin in Owenson's novel take on straightforward political overtones. The first description of Castle Inismore, for example, reads: "Towards the extreme western point of this peninsula, which was wildly romantic beyond all description, arose a vast and grotesque pile of rocks, which at once formed the scite and fortifications of the noblest mass of ruins on which my eye ever rested. Grand even in desolation, and magnificent in decay—it was the Castle of Inismore. The setting sun shone brightly on its mouldering turrets, and the waves which bathed its rocky basis, reflected on their swelling bosoms the dark outlines of its awful ruins" (Ibid, 232; 44-5). In the context of the political allegory discussed above, however, the ruinous state of Inismore's castle is clearly another metaphor for the "fallen" state

of Irish nobility. There is beauty and power in this fallen state, but it is a power which has refused to modernize; has refused to maintain itself. By contrast, for example, the Earl's Irish estate is "undergoing some repairs" by the novel's conclusion.

But the picturesque attitude of Castle Inismore also signals a different aesthetic mode than the one's we have encountered so far. The aesthetic of the ruin invokes the style of the late eighteenth-century gothic romance, a genre inaugurated by Horace Walpole and developed by authors such as Matthew Lewis, Charlotte Dacre, and Ann Radcliffe. Indeed, Owenson seems to reference Walpole's best-known work, *The Castle of Otranto*, when she describes the Prince of Inismore as a "haughty spirit of a proud chieftain" who could not let go the wrongs of the past, and whose stubbornness in this regard harms his daughter and, allegorically, his country (Ibid, 248). This characterization encourages us to read the resolution of *The Wild Irish Girl* as an inversion of Walpole's *Otranto*.

That tale concludes—rather than begins—with the material ruin of the titular castle. This ruin is brought about by a curse placed upon the descendants of those who assassinated the rightful owner of the castle and stole his estate. In retribution for this ancient crime, the castle is destroyed and the heirs of the villainous family killed. Hence the moral of the story, as delivered by Walpole in the first edition's preface: "The sins of fathers are visited on their children to the third and fourth generation" (Walpole 2008, 7).

While in Walpole's story—which established the standard themes for the many gothic imitations that followed—the sins of ancient fathers end in the ruin of the present generations, for Owenson these past sins are opportunities for repair. The Earl of M--- explains his motives for surreptitiously marrying Glorvina as follows: "It was only dictated by motives pure as the object that inspired them; it was the wish of snatching this lovely blossom from the desert where bloomed unseen... of giving her a legally sanctioned claim on that part of her hereditary property which the suspected villainy of my steward had robbed her of; and of retributing the parent through the medium of the child" (Owenson

2008, 247). Here, the retribution is an opportunity rather than a punishment. Though the Prince of Inismore may remain bitter towards the past, his child has the opportunity to embrace a modern, Anglo-Irish present.

The inversion of gothic motifs and the overall allegory between material and colonial repair is developed further by Maria Edgeworth in her novel, *The Absentee*, published in 1812. In many respects the plot of *The Absentee* parallels that of *The Wild Irish Girl*, also ending with a “Glorvina solution” between the young protagonists. In terms of genre, however, *The Absentee* anticipates the historical romances of Sir Walter Scott and even the realist works of Charles Dickens rather than harkening to the epistolary novels of the eighteenth century. Eschewing the epistolary form altogether (barring one concluding letter), Edgeworth employs third-person narration to follow her central character, Lord Colombe as he ventures to Ireland to experience the land his parents own as absentee landlords.

Dispensing with the necessary subjectivity of the epistolary novel, *The Absentee* is arguably more upfront with its theme of repair than *The Wild Irish Girl*. In the opening chapters of the novel we meet its villain, Mordecai, a Jewish coach-maker and creditor. Colombe has visited him on behalf of his friend, Berryl, on account of Berryl’s curricule being put out of repair. The coach, according to Berryl and therefore Colombe, acting as the former’s agent, was “warranted sound, for which he had paid a sound price, upon express condition that Mr Mordicai should be answerable for all repairs of the curricule for six months. In three, both the carriage and body were found to be good for nothing—the curricule had been returned to Mordicai—nothing had since been heard of it, or from him” (Edgeworth 2000, 6). In other words, not only was the curricule shoddily made, it was overpaid for *and* Mordicai seems to be avoiding the warranty Berryl had purchased. The scene has both metaphorical and practical implications for the plot. The disrepair of the curricule and the refusal of Mordicai to repair it is symbolic of the absentees’ stewardship of Ireland. Practically, however, Mordicai’s role as creditor—or usurer to use the more pejorative term—

affects Colambre directly, for his father, it seems, owes Mordicai a great sum of money. Thus Mordicai figurally and literally represents mercantile interests, which Edgeworth positions—via anti-Semitism—as antagonistic to the reconciliation of Irish subjects and their English landlords.

Yet the theme of material repair is, for Edgeworth, only part of the problem. Just as Hawksmoor balks at the sight of London Bridge, Edgeworth identifies an *aesthetic* of disrepair popular in Ireland—especially among the absentees’ stewards. She associates this aesthetic with the gothic revival, an architectural vogue inaugurated by none other than Walpole. Whereas Owenson depicts Castle Inismore as a genuine Irish ruin, the gothic revival attempted to simulate the appearance of age and ruin by facsimile and architectural folly. Notable examples include Thomas Beckford’s ill-fated Fontainville Abbey and Walpole’s own Strawberry Hill. Only the latter remains standing today.

When Lord Colambre visits the villa of one of his family’s stewards he witnesses a grotesque mixture of “taste and incongruity, ingenuity and absurdity, genius and blunder” typical of the gothic revival (Edgeworth, 2000, 84). The imperious facade of the steward’s home is made out of a kind of *papier maché*: “The pillars, though they looked so properly substantial, were really hollow and as light as feathers, and were supported with cramps, without *disobliging* the front wall of the house at all to signify” (Ibid, 85). In a further backhanded critique of the villa’s ornate style, Edgeworth writes: “In all Mrs Raffarty’s buildings, whether ancient or modern, there was a studied crookedness. Yes, she said, she hated everything straight, it was so formal and *unpicturesque*. ‘Uniformity and conformity,’ she observed, ‘had their day; but now, thank the stars of the present day, irregularity and deformity bear the bell, and have the majority.’” (Ibid).

Mrs. Raffarty’s architectural taste is symbolic of the stewardship of Ireland under the absentee landlords. With no nobility of their own nor even a proper ownership of the lands they administer, the stewards concern themselves only with show. A flaunting of wealth that, like Mordicai’s, was created out of economic necessity rather than noble heritage or endeavor. The style of the gothic

revival emphasizes this lackadaisical attitude; this character of un-work. In its hollow facades, Walpole's ornate style presences presence alone. Things are here, but they are only surfaces—they do no work. The pillars in front of Raffarty's house do nothing to actually support it. They are emblems of uselessness.

The novel's conclusion, by contrast, shows a new steward arriving to tend to Colambre's family estates. This agent immediately sets about the work of repair: "So some weeks past, and there was great cleaning at Clonbrony Castle, and in the town of Clonbrony; and the new agent's smart and clever: and he had the glaziers, and the painters, and the slaters, up and down in the town wherever wanted; and you wouldn't know it again" (Ibid, 253). Again, the language of repair is used to symbolize the restoration of Anglo-Irish relations under the benevolent rule of English landlords. There is no revolution; no "breaking" off or collapse of civilization as Hobbes feared for England in the 1660s or others feared for France in the 1790s. Instead, Owenson and Edgeworth depict a happy union, a "marriage" between England and Ireland that dissolves religious and political differences (though not, it seems, differences of class).

The logic of repair, as represented in these texts, is as applicable to empires as it is to ocean chronometers. And indeed, the two are in many ways one and the same: the success of Harrison's invention allowed Britain to govern with more effect and certainty its far flung colonies. Like Harrison's watch, colonial repair, if I may call it that, also attempts to conceal the work of imperialism itself behind a facade of things. This facade is not hollow, like Raffarty's pillars, but is rather thick with work, order, and activity.

And yet, if repair is as much in service of the order of Empire as it is the order of Enframing, what would its radical alternative be? Edgeworth and Owenson both have already hinted at the answer. Raffarty's pillars, the gothic revival, the advancing of presence over work: these qualities are satirized in the texts examined here, but I will argue in the next chapter that they open radical possibilities for human interactions with things; interactions ordered, at last, by the *telos* of presence instead of work.

Gothic Disrepair

According to authors like Edgeworth, the “gothic revival” featured an aesthetic of un-repair in that it emphasizes the presence of things which do not seem to “do” anything. Like Mrs. Raffarty’s pillars, they are closer to theatrical props than “real” things. Sir Walter Scott, in the introductory chapter of *Waverley*—inspired in no small part by *The Absentee*—writes:

Had I, for example, announced in my frontispiece, ‘Waverley, a Tale of other Days,’ must not every novel-reader have anticipated a castle scarce less than that of Udolpho, of which the eastern wing had long ben uninhabited, and the key either lost or consigned to the care of some aged butler or housekeeper, whose trembling steps, about the middle of the second volume, were doomed to the guide the hero, or heroine, to the ruinous precincts? Would not the owl have shrieked and the cricket cried in my very title-page? ... Again, had my title borne, ‘Waverley, a Romance from the German,’ what head so obtuse as not to image forth a profligate abbot, an oppressive duke, a secret and mysterious association of Rosycrucians and illuminati, with all their properties of black cowls, caverns, daggers, electrical machines, trap-doors, and dark lanterns? (Scott 2008, 3-4).

These gothic tropes are, in Scott’s rendering, effectively no different than the architectural tropes of the gothic revival. They are “generic” at best, signifying nothing more than the patterns of gothic texts that preceded them. Worse, they distract the reader from the content of the story, which seems to be Scott’s central concern here.

In its way, *Waverley* is structured similarly to *The Wild Irish Girl* and *The Absentee* in that an English protagonist ventures into the wild, romantic country of his family's past. It too features a "Glorvina solution" in which a marriage between Scottish and English families signifies an act of national union. I mention Scott in large part because, as we have seen, he is a keen critic of the gothic and is direct in his ambition to offer a different literary tack, one which will accomplish something that the gothic cannot.

Here, then, I wish to examine briefly what it is that Scott, Edgeworth and to an extent Owenson are turning away from by looking at an instance of repair in Ann Radcliffe's gothic novel, *The Romance of the Forest*. At the beginning of this novel our heroine, Adeline, is taken by Pierre La Motte, his wife, and their servant Peter into hiding. They discover a ruined abbey deep within a secluded forest. It is first described in precisely the gothic style Scott and Edgeworth mean to avoid:

[La Motte] approached, and perceived the Gothic remains of an abbey: it stood on a kind of rude lawn, overshadowed by high and spreading trees, which seemed coeval with the building, and diffused a romantic gloom around. The greater part of the pile appeared to be sinking into ruins, and that, which had withstood the ravages of time, shewed the remaining features of the fabric more awful in decay. The lofty battlements, thickly enwreathed in ivy, were half demolished, and become the residence of birds of prey. Huge fragments of the eastern tower, which was almost demolished, lay scattered amid the high grass, that waved slowly in the breeze (Radcliffe 2009, 15).

Here is disrepair, but it is depicted in the admiring mode of the sublime. It is over-aweing: the abbey's degradation suggests two ancient powers, one which

demolishes and one which remains. Despite its disrepair, the abbey itself has somehow proven resilient to the “coeval” forces of time and nature.

Nevertheless, La Motte speculates that “it might yet shelter some human being” and begins to explore its grounds. Upon entering, he experiences a disorienting collapse of history over the course of several paragraphs, which I will here abridge:

He surveyed the vastness of the place, and as he contemplated its ruins, fancy bore him back to past ages. ‘And these walls,’ said he, ‘where once superstition lurked, and austerity anticipated an earthly purgatory, now tremble over the mortal remains of the beings who reared them!’ ... La Motte sighed. The comparison between himself and the gradation of decay, which these columns exhibited, was but too obvious and affecting. ‘A few years,’ said he, ‘and I shall become like the mortals on whose reliques I now gaze, and, like them too, I may be the subject of meditation to a succeeding generation, which shall totter but a little while over the object they contemplate, ere they also sink into the dust’ (Ibid, 16).

The analogy between thingly and mortal remains is, as Radcliffe notes, an “obvious” one played out in dozens of gothic stories from the period. Nevertheless, it stands in sharp contrast to the repairing work depicted in a novel like *The Absentee*. The ruin is more than the negative of the shelter. It seems to be the grounds for contemplation and introspection. It is literally a gathering of the living and the dead, the standing and the fallen, into a singular experience Radcliffe characterizes as the sublime: “La Motte paused a moment, for he felt a sensation of sublimity rising into terror—a suspension of mingled astonishment and awe” (Ibid, 15).

La Motte’s first instinct is to move on in search of better refuge. The party’s progress is almost immediately stopped, however, by yet another familiar

instance of disrepair: their carriage catches upon a tree stump, is overturned, and breaks a wheel. The “broken tool” has intervened in the fashion of *deus ex machina*: the breaking of the thing has literally prevented La Motte from “progressing” and evading the ruined abbey. Thus arrested the decision is ultimately made to stay in the abbey at which point the characters begin the explicit work of repair. La Motte assures his wife: ““When one sees the place by day light, it’s none so bad, but what a little patching up would make it comfortable enough’” (Ibid, 23). Peter, La Motte’s servant is sent to gather supplies “for repairing the place, and some furniture” and together the group sets about making the abbey habitable:

At the dawn of the following day Peter arose to his labour: he proceeded with alacrity, and, in a few days, two of the lower apartments were so much altered for the better, that La Motte began to exult, and his family to perceive that their situation would not be so miserable as they had imagined. The furniture Peter had already brought was disposed in these rooms, one of which was the vaulted apartment. Madame La Motte furnished this as a sitting room, preferring it for its large Gothic window, that descended almost to the floor, admitting a prospect of the lawn, and the picturesque scenery of the surrounding woods (Ibid, 32).

The transformation of the abbey corresponds with many of the examples I have examined already. The new furniture is arranged, yet again, like Smith’s chairs or Crusoe’s magazine. The word “misery” appears again, as it did in Rousseau and Cook, to indicate an abject state of things as well as humans. And yet this misery, once terrifying and sublime, is transformed into the picturesque. The gothic windows are made useful—not as part of the abbey’s intimidating facade, but as

things through which Madame La Motte can look. The gothic space has been transformed into the domestic sitting room.

At this point the narrative of repair seems to track with Edgeworth's, but this moment also marks Radcliffe's subversion of this kind of logic. Unlike Rafferty's pillars in *The Absentee*, in Radcliffe's fiction it is the repair itself that signifies dissimulation. For all the repairs made to the abbey, it still houses the living and the dead. A few chapters later, La Motte discovers a corpse secreted in a hidden passageway. The useful arrangements and repairs of the abbey are fleeting, it seems. The original character of the gothic ruin is immutable; beyond repair and beyond falsification. Via its decay, the ruin seems to speak a certain truth about the ordering of things: it ends.

By contrast, it is the well-furnished villas and palaces of Radcliffe's novels that often house iniquity. Adeline is eventually captured and brought to the villa of the novel's villain. His home is described in terms of excessive luxury:

The airy elegance with which it was fitted up, and the luxurious accommodations with which it abounded, seemed designed to fascinate the imagination, and to seduce the heart. The hangings were of straw-coloured silk, adorned with a variety of landscapes and historical paintings, the subjects of which partook of the voluptuous character of the owner; the chimney-piece, of Parisian marble, was ornamented with several reposing figures from the antique. The bed was of silk the colour of the hangings, richly fringed with purple and silver, and the head made in form of a canopy. The steps, which were placed near the bed to assist in ascending it, were supported by Cupids, apparently of solid silver. China vases, filled with perfume, stood in several of the recesses, upon stands of the same structure as the toilet, which was magnificent, and ornamented with a variety of trinkets (Radcliffe 2009, 163-4).

Here are all the furnishings La Motte could desire for his ruined abbey, yet the villa is nothing more than a prison for Adeline. The irony recalls Rousseau's observation in the *Discourse on Inequality*: "A man could well lay hold of the fruit another has gathered, the game he has killed, the cave that served as his shelter. But how will he ever succeed in making himself be obeyed? And what can be the chains of dependence among men who possess nothing?" (Rousseau 1987, 58). La Motte expresses the same sentiment himself, and opines, "A forest with liberty was not a bad home for one, who had too much reason to expect a prison" (Radcliffe 2009, 23).

Radcliffe's critique is not terribly difficult to parse: the elegance and refinement of things, "luxury," always conceals a terrible secret, a hidden "work" that established the wealth in the first place. Murder, incest, theft: the house conceals the crime, just as in Walpole's *Castle Otranto*. This, in a sense, is the implication of gothic repair. The converting of ruin to useful arrangement is necessarily an act of veiling. The gothic, for all its tropology, makes this veiling explicit.

The question that remains, then, is what techno-logic and repair conceal. I have suggested here that there is a kind of "truth" in the drawn out decay of the ruined about; a truth that pertains to the inevitable dis-ordering of things. This observation leads me to the final chapter, with this question: if Enframing is that which orders things as standing reserve, then how do we read this dis-ordering of things? What does such a phrase signify? Fiction, I argue, and its ability to imagine alternative modes of interacting with things, can provide one answer to this question.

Chapter 4

Scientific Romance

As promised, this chapter serves as a bookend to the first, and more generally, as an attempt to illustrate an alternative to the themes discussed so far. In this sense, the chapter is written with a somewhat different template from the rest. First, it focuses primarily on a single author, Ann Radcliffe, and is comprised almost entirely of close-readings of her gothic romances, *The Romance of the Forest* and *The Mysteries of Udolpho* chief among them. Second, this chapter is meant to be recursive. The goal is to return to the major themes established throughout this dissertation in order to see how Radcliffe treats them differently than many of the texts we have encountered thus far. Contra its contemporary reception, I read Radcliffe's fiction as highly philosophical and engaged with the political and economic travails of the 1790s. Via romance, I argue, Radcliffe creates the fictional clearing for a hermeneutics governed not by utility, but by the affective and the presencing of things. Finally, it is in this chapter that I address the question of what a thing "is" and how it acts "outside" the ordering of Enframing.

The Thing

What then is a thing? I have skirted this ontological question till now in order to describe Enframing, work, and presence during the British Industrial Enlightenment. The theoretical framework for this concluding chapter must be shifted to describe a phenomenon which, in many respects, was "absent" during the eighteenth century if not the twenty-first. I would begin by contrasting the thinging of the thing to the usability of equipment. Heidegger writes: "Because it is determined by usefulness and serviceability, equipment takes into its service

that of which it consists: the matter. In fabricating equipment—e.g., an ax—stone is used, and used up. It disappears into usefulness. The material is all the better and more suitable the less it resists vanishing in the equipmental being of the equipment” (Heidegger 2001, 44). We have encountered this example before in our discussions of presence and withdrawal. It is the philosophical expression of Smith’s useful arrangement: the thing is present as that which is ready to withdraw into work. Drawing from “The Question Concerning Technology,” I have argued that the essence which structures this withdrawal is Enframing: the ordering of world as standing reserve. Together, these principles organize the representations of work and presence that I have described throughout this dissertation.

How then might we encounter things differently? In the essay “Building Dwelling Thinking” Heidegger provides a counter-example:

Let us think for a while of a farmhouse in the Black Forest, which was built some two hundred years ago by the dwelling of peasants. Here the self-sufficiency of the power to let earth and heaven, divinities and mortals enter *in simple oneness* into things, ordered the house. It placed the farm on the wind-sheltered mountain slope looking south, among the meadows close to the spring. It gave it the wide overhanging shingle roof whose proper slope bears up under the burden of snow, and which, reaching deep down, shields the chambers against the storms of the long winter nights. It did not forget the altar corner behind the community table; it made room in its chamber for the hallowed places of childbed and the “tree of the dead”—for that is what they call a coffin there: the *Totenbaum*—and in this way it designed for the different generations under one roof the character of their journey through time. A craft which, itself sprung from dwelling, still uses its tools

and frames as things, built the farmhouse (Heidegger 2001, 157-158).

If not Enframing, then what is it that “orders” the Black Forest farmhouse? Throughout this dissertation, I have taken up examples in which Enframing, broadly speaking, has ordered similar locations: Crusoe’s cave-magazine, Gulliver’s box-bedchamber, Celia’s dressing room, Equiano’s Africa, Colambre’s Ireland, and La Motte’s abbey. Here, Heidegger wants us to believe, it is not Enframing or the aesthetics of the ready-to-hand which order the house, but “the self-sufficiency of the power to let earth and heaven, divinities and mortals enter *in simple oneness* into things.” This phrase draws from Heidegger’s somewhat notorious concept of the fourfold: a coincidence of four categorical beings—earth, sky, divinities, and mortals—which one might visualize as at once distinct from each other and yet topographically coextensive with each other, like folds in a fabric.

The fourfold is often a stumbling block for Heidegger’s readers. Why four folds? Why folds at all? Has Heidegger once again brushed up against the metaphysics I have attempted to avoid? I can state more readily what the fourfold is not. It is not an essence like Enframing. Enframing, I have argued, is that which gives structure to techno-logic just as dwelling gives structure to building in Heidegger’s formulation. But here, the fourfold does not seem to structure anything, indeed does not seem to *do* anything at all. As if it were the opposite of essence, it seems to be a passive object, both ontologically and grammatically. Instead, things “gather” the fourfold into this “simple oneness,” or as Heidegger writes: “The thing things. Thinging gathers. Appropriating the fourfold, it gathers the fourfold’s stay, its while, into something that stays for a while: into this thing, that thing” (Heidegger 2001, 172). Phantasmal. Ghostly. The fourfold seems to be out of this world: the very definition of the metaphysical.

I would start over, as Heidegger often does, this time with a somewhat different “fourfold” that places us squarely within the material; squarely, in fact,

in the very histories of invention and creation that have comprised so much of my archive. In “The Question Concerning Technology” Heidegger regards a silver chalice and asks how it came to be. To answer, he begins by reminding us that according to classical philosophy, there are four causes which can be attributed to the making of a thing: matter, form, purpose or *telos*, and direct causation. He expands:

(1) the *causa materialis*, the material, the matter out of which, for example, a silver chalice is made; (2) the *causa formalis*, the form, the shape into which the material enters; (3) the *causa finalis*, the end, for example, the sacrificial rite in relation to which the chalice required is determined as to its form and matter; (4) the *causa efficiens*, which brings about the effect that is the finished, actual chalice, in this instance, the silversmith. (Heidegger 1977, 6).

The concept of causation is most appropriate when projecting the future being of some thing. If one were to set about crafting a chalice, in other words, checking off these four causes would be a fair guide as to how to bring such a thing into existence. This is precisely what the silversmith must do. He must procure enough silver for the task and the proper tools necessary to shape the silver according to some plan that designates what a chalice ought to be shaped like. If he accomplishes those tasks (supplies those causes) then he can indeed “effect” a chalice.

Rather than carry forward from the chalice to his main subject of modern technology, Heidegger instead stops and returns to the problem he has just described, but this time he begins with an already completed silver chalice and works from its existence “back,” as it were, to its four causes. Now, the language of causation appears misplaced. In order to maintain the chalice’s ongoing existence, the silversmith need not repeatedly (1) collect silver, (2) form and reform the chalice, (3) perform infinite sacrificial rites, or (4) effect the chalice.

These “causes” end while their “effects” remain, in a sense, *as* the chalice itself. The language of causation, in short, can tell us a great deal about the creating work of the silversmith, but very little about the chalice itself—especially as the work of its creation recedes into the past.

And so Heidegger begins again and introduces an alternative vocabulary that aims to maintain the relationship between the perpetual being of the thing and its original causes, even if the event of those causes has long since passed. He settles on two more or less interchangeable terms: responsibility and indebtedness. Presented with a complete silver chalice, one can say that the chalice is “indebted” to the silver out of which is made. It is “responsible” to the form into which it has been molded; responsible to the “aspect (*eidōs*) of chaliceness,” as Heidegger puts it. Both its matter and its form are indebted/responsible to its *causa finalis* as sacrificial vessel, the idea of which circumscribes the way in which the chalice can appear (i.e., it cannot be formed with perforations in its bottom and still function as a vessel for pouring sacrificial spirits).

Finally armed with the language of responsibility rather than causation, Heidegger returns to the silversmith, who he originally depicted as the *causa efficiens*—the kind of forceful cause that brings about an actual effect. Heidegger revises himself on this point. He writes:

The silversmith considers carefully and gathers together the three aforementioned ways of being responsible and indebted. To consider carefully is in Greek *legein*, *logos*. *Legein* is rooted in *apophainesthai*, to bring forward into appearance. The silversmith is co-responsible as that from whence the sacrificial vessel’s bringing forth and resting-in-self take and retain their first departure. The three previously mentioned ways of being responsible owe thanks to the pondering of the silversmith for the

“that” and the “how” of their coming into appearance and into play for the production of the sacrificial vessel (Heidegger 1977, 8).

The silversmith, in other words, must be aware of the other modes of the chalice’s indebtedness. He must ponder these other responsibilities in order to produce a thing which fulfills them: a chalice. The silversmith is the *gatherer* of the chalice’s origin—the moment “from whence the sacrificial vessel’s bringing forth and resting-in-self take and retain their first departure.”

With this word, gather, we have returned to Heidegger’s definition of the thing: that which gathers the fourfold in simple oneness, but we have arrived at this word through the language of causation and the act of material creation. We have arrived through a particularly anthropocentric chain of events, and have found that our language describes the silversmith as much as it does the chalice, and perhaps for this reason it is easier to understand; easier to place in “our” world.

Yet as the silversmiths are left to history, the chalices persist—“self-sufficiently”—and continue their gathering work, their responsibility, their indebtedness. This, I believe, is what Heidegger means by the thinging of things. Returning to the Black Forest farmhouse, this gathering, this responsibility, and this indebtedness “order” the house. Crucially, this order does not preclude use. The inhabitants of the farmhouse still use “tools and frames,” but they use them “as things,” which is to say they use them such that they are not “used up.” Instead, the users acknowledge their indebtedness to their tools, equipment, and frames just as these objects are indebted to their own material origins. Link by link, these relationships stretch back beyond history into a mythological, but not necessarily metaphysical, no-place which can only be evinced as earth, sky, divinities, mortals: the fourfold.

A perpetual indebtedness to creation. This idea directs us to the final eighteenth-century texts I will examine in this dissertation. They are each

concerned with a relationship between spirituality and materiality and the sublimity of creation. Their motivations, I argue, are similar to Heidegger's. They are reactions to the utilitarian ideologies of their day, and imagining alternatives to those ideologies.

In many ways, we have only just arrived at the critical object of the sundry "New Materialisms" mentioned throughout this dissertation. Tropes such as the subject/object divide or the principle of utility are either abandoned or subverted. As a result, things themselves are given a different kind of clearing within which to presence themselves and to act. In the ontological terms of Bruno Latour and Jane Bennett, we might say that the thing emerges as an actant: something as equally capable of producing effects as any animated or sentient being. More simply, however, these texts allow a thing to thing—allow its being to coincide with its doing in the full, phenomenological sense.

Finally, this being-doing, I argue, operates outside Bentham's totalizing principle of utility. The being-doing-thing readies nothing, prepares nothing, and has no end. Its "action" refers back only to itself. For Bacon, this was the sign of danger, chaos, and disorder: things "fluctuating" in endless vacuum awaiting Prometheus and his torch to bring them to anthropocentric order. This is Smith's disarranged sitting room or slow-running watch. It is Robinson Crusoe's wild island or Thomas Hobbes' state of nature. But where these writers imagined a kinetic danger in the self-referentiality of thing-as-thing, Ann Radcliffe depicts a contemplative stillness—a communing between human and thing. This communing, though spiritual, is not necessarily metaphysical. On the contrary, as her trope of the "explained supernatural" reminds us, the interaction between human and thing itself is always a material, even scientific, phenomenon.

I argue that Radcliffe sees utilitarianism as a perversion of the hermeneutic possibilities engendered by the Scientific Revolution. In contrast to Heidegger's assertion that science was always-already "applied," Radcliffe aims to resurrect a "pure," non-utilitarian science; a form of knowing ordered not by work, but by the affective presencing of material objects. I argue that Radcliffe

routes human memory and experience through inter-actions with everyday, material phenomena: trees, veils, storms, ruins, and so on. For Radcliffe, openness to the affective potential of these seemingly mundane and manifestly non-supernatural interactions is therapeutic. On the one hand, it provides investigative paths for individuals in pursuit of the “gothic” values of “wisdom, simplicity, and pure devotion,” and on the other it offers a common ground for social and domestic gathering and restoration (Radcliffe 2008, 117).

The Counter-Industrial Enlightenment

All but one of Radcliffe’s novels were published during the turbulent decade of the 1790s. Britain and Europe more generally were confronted with radical challenges to their political, colonial, and economic systems. The American colonies had achieved independence in 1783. Six years later France would undergo an internal revolution resulting in the toppling of its monarchy—an event that resonated in the British imagination with their own Civil War. Finally, the Industrial Enlightenment was giving way to the Industrial Revolution proper. The spread of textile machinery, steam-powered coal mining, and the improvement of metal foundries was transforming Britain’s social and natural landscapes.

These events were not unrelated, especially in the context of British communities of use. Americans had participated directly in Britain’s Industrial Enlightenment submitting numerous patent designs over the course of the eighteenth-century. The rise of “King Cotton” supplied valuable raw materials for British textile manufacture—as Equiano, for example, well knew. After gaining independence, the United States adopted a patent system effectively identical to Britain’s with notable inventions such as Eli Whitney’s cotton gin (1793) and John Fitch’s early steamboat designs (1791) already appearing by the end of the century.

Perhaps more harrowing, however, was the relationship between the French Revolution and the utilitarian calculus only recently published by Jeremy Bentham in 1789. The same year, Joseph-Ignace Guillotin would present a new invention to France's National Assembly. Like Bentham's Panopticon, Guillotin's apparatus was advanced as a model of penal reform. Heralded as a more humane, more efficient means of killing, the guillotine became the icon of the "Reign of Terror"—a reign that would kill tens of thousands before coming to an end in 1794 when the machine beheaded its chief administrator and advocate, Maximilien de Robespierre. Radcliffe's *The Mysteries of Udolpho* was published two months later.

Indeed, the relationship between the events of 1790s and the Industrial Enlightenment creates an important bridge between the publication of Radcliffe's novels and their late gothic settings. As I have argued, while the Industrial Enlightenment proper may have begun with the passage of the *Statutes of Anne* (1710s), its ideological antecedents stretch back to the early seventeenth century. This chronological revision is especially important in view of the settings of Radcliffe's novels. Despite their affiliation with the genre of gothic romance, Radcliffe's major works are often set on the cusp of the Scientific Revolution or its aftermath. *The Mysteries of Udolpho* is set in 1584, with *A Sicilian Romance* (1790) also set "towards the close of the sixteenth century" (Radcliffe 2008, 3).¹ I argue that the temporal settings of these two works in particular mark less a divide between gothic and modern eras, and more a moment of history just prior to the kind of "always-already-applied" science espoused by Francis Bacon in *Novum Organum* (1620). By setting these novels in the decades leading up to Bacon's major treatises Radcliffe creates room for a kind of alternative history wherein the ends of scientific practice might simply be the presenting of "things themselves" without subsuming this presence to human needs or desires. This imaginary

¹ *The Romance of the Forest* and *The Italian* are set even later—mid-seventeenth and eighteenth centuries, respectively.

resurrection of a pure science that never was is, to my mind, fundamentally romantic.

This chronological revision also encourages us to place Radcliffe's fiction in the context of seventeenth- and eighteenth-century thought rather than the Romanticism of the early nineteenth century. The typical novel with which to consider the relationship between the gothic and science, for example, would undoubtedly be Mary Shelley's *Frankenstein* (1818), but strains of scientific horror, if we may call it that, had invaded the British imagination long before Shelley's novel. The "horror" of Thomas Boyle's air-pump experiments, for example, was reproduced by Joseph Wright of Derby in his painting, "An Experiment on a Bird in the Air-Pump" (1768). Here, the design of the air-pump apparatus has been refined into an elegant, table-top version. It works to devastating effect. The cockatoo sealed within spasms due to the lack of oxygen. The experiment's small audience reacts in various ways: the two lovers ignore it, the adult males contemplate its significance, and the scientist himself gesticulates like a wizard as his accomplice explains the proceedings. But the focal reactions are those of two young girls, illumined by candlelight, and only slightly younger than a Radcliffean heroine. One hides her face in horror while the other stares with a look of consternation at the dying animal.

The painting is an inverse of a gothic novel: the modern, scientific setting is marked by the aesthetic features of the Burkean sublime. One can catch a glimpse of the full moon breaking through the clouds outside while the feeble candle, obscured by some grotesque specimen suspended in liquid, throws the observers into a sharp contrast of light and shadow. Even the gothic dungeon makes an appearance: the bird's cage hangs ominous and empty in the background. If this is an expression of Wright's reverence for science, then it is the same reverence reserved for a powerful and terrible god. If this is enlightenment, then it is a dark and somber one. And if this is the new, post-

scientific-revolution British social order, then it is one in which the family—including the patriarch—has been displaced by the scientific apparatus *qua* altar.² Surely this cannot be the science that Radcliffe envisions. Wright's painting reinforces the subject/object divide; it subsumes things—bird and vacuum alike—into a demonstration of technical mastery. The spectacle here is not nature, but apparatus. It is power disguised as knowledge, and put to devastating effect.

Even Boyle struggled with the ethics of his own experimentation. Anticipating Wright of Derby's miserable cockatoo, Boyle describes his experiments on a glow-worm, similarly trapped in a "crystalline prison." He reflects with irony that had the glow-worm refused to glow, it would never have found itself ensnared by Boyle's apparatus: "And if, as he sometimes for a pretty while withdrew that Luminous Liquor, he had continued to forbear the disclosing of it, he might have deluded my search, and escap'd his present Confinement" (Boyle 1848, 309). It is difficult to imagine Emily St. Aubert or other Radcliffean heroines sacrificing birds and insects in the name of scientific discovery. Instead, as we will see below, Radcliffe supplies poetry in place of apparatus, allowing the presencing light of the glow-worm to be captured, but not extinguished.

As the paintings of Wright of Derby make clear, Radcliffe was hardly the only Briton to be re-imagining the relationship between art and scientific practice in the 1790s. Erasmus Darwin's *The Botanic Garden* (1791) also aimed to preserve scientific specimens in verse and illustration. Like Radcliffe, Darwin mixed poetic fancy with scientific fact. Both he and Wright of Derby were associates of Birmingham's Lunar Society, where one finds still more parallels, biographical and formal, with Radcliffe. Rictor Norton, for example, has argued that Radcliffe—like Society member Joseph Priestley—was a Unitarian dissenter, though that claim has been contested.³ Society members Richard Lovell Edgeworth and Thomas Day were both devotees of Rousseau's *Emile* (1762), a

² For more on the relationship between the scientist and the magician, see Stafford 1994, 99-102.

³ See Norton 1999 and Mayhew 2003.

text that has also been cited by numerous scholars as an influence on Radcliffe's benevolent father-figures—*Udolpho's* St. Aubert and *The Romance of the Forest's* (1791) La Luc chief among them.⁴ Rousseau's "vicaire savoyard," the character typically compared to Radcliffe's patriarchs, also advocates the controversial idea of "natural religion," the animistic belief that God and any supernatural beings derived from him reside in natural objects.

An even earlier and arguably more influential precedent can be found in James Thompson's popular poem, *The Seasons*. Thompson's poem created two important precedents that Radcliffe would follow. First, it aligned scientific research with aesthetic beauty and religious devotion. For example he writes of Boyle:

Why need I name thy Boyle, whose pious search,
Amid the dark recesses of his works,
The great Creator sought?

And Newton:

Let Newton, pure intelligence, whom God
To mortals lent, to trace his boundless works
From laws sublimely simple, speak thy fame
In all philosophy (Thompson 1788).

For Thompson, God—the Creator—works through science to reveal the face of nature.

Despite this trope, scientific phenomena are not depicted as mystical in nature. On the contrary, Thompson gives multiple examples drawn directly from

⁴ See, for example, Chloe Chard's copious notes to the Oxford edition of *The Romance of the Forest* (Radcliffe 2009). For a full treatment of the Lunar Society, see Uglow 2002.

scientific principles. For example, after describing a rain shower Thompson refers to Newton's theories on the refraction of light and contrasts this scientific understanding to the wonder of a young boy witnessing a rainbow:

Here, awful Newton, the dissolving clouds
Form, fronting on the sun, thy showery prism;
And to the sage-instructed eye unfold
The various twine of light, by the disclosed
From the white mingling maze. Not so the boy:
He wondering views the bright enchantment bend,
Delightful, o'er the radiant fields, and runs
To catching the falling glory; but amazed
Beholds th' amusive arch before him fly,
Then vanish quite away (Ibid).

This side-by-sidedness of scientific understanding and affective wonder will be repeated throughout Radcliffe's fiction, though I will argue that she sees them as compliments to each other rather than contrasts, and that indeed it is possible to see the rainbow, as it were, as scientist and child simultaneously.

Second, Thompson establishes a kind of prosody that Radcliffe will imitate in prose-form. In this passage, Thompson describes the budding of leaves in early spring, but he does so in such a way that supposedly inanimate objects are the principle actors in the scene:

From the moist meadow to the wither'd hill,
Led by the breeze the vivid verdure runs,
And swells and deepens to the cherished eye.
The hawthorn whitens; and the juicy groves
Put forth their buds, unfolding by degrees,

Till the whole leafy forest stands displayed,
In full luxuriance, to the sighing gales (Ibid).

The breeze leads. The verdure runs, swells, and deepens. The hawthorn whitens. The groves put forth and unfold. The forest stands displayed. The gales sigh. We might think back to James Cook's association of "misery" with the color "red" in regards to the Tierra del Fuegians and their concepts of utility. Cook can only perceive the beads and shells the islanders coveted in the pure, aesthetic terms of color. In Thompson's poem, colors themselves are animated. Verdure *does* things. It leads the eye across the meadows. The hawthorn whitens; color is represented as a doing. Yet there is no manifest utility in the scene, these activities are, as represented, purely aesthetic. They call attention only to the appearance and acting of things themselves.

Radcliffe, I argue, reassembles these tropes into prose form, and by placing them in the context of the late-gothic period she attempts to use these tropes to counter the *telos* of utility. She, like Thompson, instead proposes that science can—and ought—to lead to the discovery of beauty, the animation of objects, and ultimately spiritual devotion. As many scholars have lamented, the dearth of biographical information on Radcliffe leaves such genealogies tenuous at best. Most relevant to this historical contextualization, however, is the recognition that science and romance, reason and affect, need not be diametrically opposed. Nor was Radcliffe's mixture of science, morality, and art idiosyncratic or unprecedented. As the artistic productions of the Lunar Society suggest, there were already established grounds for treating science in terms of aesthetics and imagination rather than work and application.

Science and the Explained Supernatural

Radcliffe's early interest in the relationship between science and romance can be seen developing in her second novel, *A Sicilian Romance*. Though *The*

Mysteries of Udolpho treats the subject with greater nuance, the directness of the earlier work helps foreground the kind of “pure” science Radcliffe is after. The relevant passage comes after the novel’s heroine, Julia, arrives at a gothic monastery. The story’s narrator interrupts to critique the superstitions of gothic Catholicism:

The dark clouds of prejudice break away before the sun of science, and gradually dissolving, leave the brightening hemisphere to the influence of his beams. But through the present scene appeared only a few scattered rays, which served to shew more forcibly the vast and heavy masses that concealed the form of truth. Here prejudice, not reason, suspended the influence of the passions; and scholastic learning, mysterious philosophy, and crafty sanctity supplied the place of wisdom, simplicity, and pure devotion (Radcliffe 2008a, 116-17).

This passage presents a simple binary between superstition and science, aligning each with the rather heavy-handed imagery of the “dark ages” and “enlightenment,” respectively. Even so, the passage plays with the aesthetics of sublimity described by Edmund Burke in his *Philosophical Inquiry into the Origin of Our Ideas of the Sublime and Beautiful* (1757). It is the contrast between light and shadow—or obscurity, to use the Burkean term—that creates the sublime affect Radcliffe is often after in her fiction. Furthermore, this intermixing of the gothic and the modern, the ignorant and the enlightened, captures Radcliffe’s motives for setting this story towards the end of the sixteenth century. The “rays of science” are just breaking through this world—but the truth they may ultimately reveal remains uncertain. Hiding behind those heavy masses—much like the veils and locked doors littered throughout Radcliffe’s fiction—is not only truth, but possibility.

The final sentence of the passage has something of a Baconian ring to it as well. The scholasticism and mysterious philosophies of the monks resound with the prejudicial “idols” Bacon famously critiques in *Novum Organum*. Indeed, we might compare it to another passage from Thompson, writing on Bacon’s impact on natural philosophy:

The great deliverer he! who from the gloom
Of cloistr’d monks, and jargon-teaching schools,
Led forth the true philosophy, there long
Held in the magic chain of words and forms,
And definitions void (Thompson 1788).

And yet, for Radcliffe, the final terms of this passage are not the utilitarian values of “knowledge and power,” but the “gothic” values of wisdom, simplicity, and pure devotion.

The more important question raised by the narrator’s interruption, however, is *how* the rationalism and experimentalism of seventeenth-century science can end in these ostensibly gothic values; how indeed, when the material conditions of 1790s England reflected a culture in which the end of scientific discovery was application and industry. *A Sicilian Romance* does not do this question justice, but *The Mysteries of Udolpho* does make such an attempt, and its deployment of the explained supernatural, I argue, is critical to its success.

For over two centuries, critics have had difficulty making sense of the “explained supernatural” in Ann Radcliffe’s novels. The term refers to Radcliffe’s habit of supplying natural causes to phenomena that appear, on first blush, to be the effect of some supernatural agent. Typically, the “reveal” occurs towards the end of the novel, leaving both readers and characters in suspense only to deflate the story’s phantasmagorical possibilities with mundane—and sometimes improbable—explanations. The effect, according to some of Radcliffe’s contemporaries, is at best a vague disappointment, and at worst a feeling of

having been duped by cheap, gothic tricks. Perhaps the trope's most famous complaint was penned by Sir Walter Scott in his *Lives of the Novelists* (1821-24). Regarding Radcliffe's penchant, he writes: "A stealthy step behind the arras may, doubtless, in some situations, and when the nerves are tuned to a certain pitch, have no small influence upon the imagination; but if the conscious listener discovers it to be only the noise made by the cat, the solemnity of the feeling is gone, and the visionary is at once angry with his sense for having been cheated, and with his reason for having acquiesced in the deception" (Scott 1906, 329).

Scott is not the only one to have felt cheated. Modern critics—especially those invested in recovering "The Mistress of Udolpho" as a self-aware critic of Enlightenment ideologies—have expressed frustration at Radcliffe's refusal to "stick to her guns and include 'real' ghosts" (Clery 2000, 67). Behind this displeasure is a shared assumption that representations of the supernatural must by default subvert Enlightenment values such as rationalism, empiricism, and realism. Certainly, the historical context of the 1790s, when most of Radcliffe's novels were published, was ripe for subversive commentary. France was in the throes of revolution, and conservative Britons like Edmund Burke—whose aesthetic ideas heavily influenced Radcliffe's prose—feared the spread of "The Terror" across the English Channel. No wonder that critics have looked to Radcliffe's novels in hopes of finding a response—radical or conservative—to France's political upheaval. Alas for her modern advocates, Radcliffe's resort to the explained supernatural has only encouraged readings that frame her as an endorser of the social status quo, or at least as an author reluctant to challenge it directly. As Joseph Durant put it during the heyday of the gothic's critical revival, "That return to logic has long irritated Mrs. Radcliffe's critics, simply because it shows all too clearly that she rejects the revolutionary gothic. She insists that as soon as one understands one's place in the ordered world of the family, all else falls into place" (Durant 1982, 527).

While the early wave of gothic scholarship turned to psychoanalytic or post-structural models to deconstruct the explained supernatural, more recent

scholarship—bolstered by the ontological turn in eighteenth-century studies—has attempted to revise conceptions of the material itself in order to disarm the explained supernatural’s trap.⁵ By suggesting that things themselves maintain a reserve of subversive or extant meaning, less significance rests on the stories’ phony phantoms. On balance, however, these ontologically-minded approaches have downplayed the looming historical context of the 1790s, turning instead to philosophical models—old and new—to justify the explained supernatural’s function.⁶

In my reading, the explained supernatural is the formal trope that opens up the possibility of a hermeneutic based on the thinging of the thing. It interrupts and arrests the progress of narrative with manifestly “ordinary” descriptions of material phenomena. It presents, in other words, the thing as thing rather than manifestation of repressed human desire or what Radcliffe would simply call an omen. In these arresting moments, the explained supernatural gives Radcliffe’s characters and readers an opportunity to contemplate how the presencing of things orders their experiences and connections to their natural, social, and domestic milieus.

Though the explained supernatural manifests itself more than once over the novel’s six hundred or so pages, I intend to focus on a single scene in which the explained supernatural appears in one of its starker forms. Our heroine, Emily, has been exiled from the castle Udolpho, and is escorted by two ruffians to a fate unknown, but likely violent. During their journey, a mysterious flame appears, as if by magic, at the end of one escort’s pike. Emily has seen such a flame before—ominously—on the stereotypically dark and stormy night of her aunt’s death. That prior scene unfolded thusly:

⁵ For the earlier approaches see Sedwick 1986 and Castle 1995. For more ontologically-minded approaches see Townsend 2007 and Brown 2005.

⁶ See for example Katherine Ding’s recent effort to contextualize the explained supernatural in terms of Hume’s speculative philosophy (Ding 2013).

The moon gave a faint and uncertain light, for heavy vapours surrounded it, and, often rolling over the disk, left the scene below in total darkness. It was in one of these moments of obscurity, that [Emily] observed a small and lambent flame, moving at some distance on the terrace... The light appeared and disappeared frequently, while, as she watched, it glided under her casements, and, at the same instant, she was certain, that a footstep passed... Emily wished to speak, to end her doubts, whether this figure were human or supernatural, but her courage failed... (Radcliffe 2008b, 372-3)

The mysterious flame is, in this earlier scene, at least partially explained. It stems from a passing soldier's lance, but even he knows not what caused it. His suspicion—one shared by many of his fellows—is that the flame is some kind of omen, and indeed, some few hours later Emily's aunt expires. Was the flame an omen of her aunt's doom, and tonight, perhaps, an omen of Emily's own?⁷

The omen was one of the many superstitions that Bacon's science sought to discredit. It is thoroughly un-modern, un-scientific, and as expected, Radcliffe dispenses with it by means of material explanation. The authorities through whom she explains this phenomenon, however, are somewhat exceptional. Emily's nefarious escorts witness the flame as well, but unlike their superstitious comrades, they consider it an omen of nothing more than an approaching storm. Says one, "You are not one of those, that believe in omens: we have left cowards at the castle, who would turn pale at such a sight. I have often seen it before a thunder storm, it is an omen of that, and one is coming now, sure enough. The clouds flash fast already" (Radcliffe 2008b, 408).

⁷ The omen also recalls Equiano's interaction with magical objects such as the quadrant. Such moments invoke not utility, but an intense, idiosyncratic subjectivity.

The guard's words are enough to dispel Emily of her superstitions, but Radcliffe goes a step further for her readers. In a footnote she directs the reader to see "Abbeé Berthelon [sic] on electricity" for further information. While Radcliffe is a demonstrably citational author—as her multiple epigraphs attest—the citation of Bertholon is curious for several reasons. Pierre Bertholon was a French scientist best known for his work on what would now be called Galvinism—the behavior of electrical current when passed through organic bodies.⁸ For this footnote, however, Radcliffe probably has in mind Bertholon's treatise on electricity and meteorological phenomena, *De l'Electricité des météores* (1787). In that text Bertholon collects eyewitness accounts of unusual atmospheric conditions ranging from what we would now call Saint Elmo's Fire to tornadoes. Not surprisingly, these accounts are marked by superstitious bewilderment, which Bertholon attempts to explain via experimental methods.

At a functional level, then, Bertholon works as a citational authority, and yet interpretive questions remain. Why does Radcliffe invoke his authority at this moment when she never bothers to cite naturalists to explain the novel's other supernatural events? If, as some critics have argued, Radcliffe's use of the explained supernatural is merely a device to avoid censure from a morally or politically conservative reading population, why does the phenomenon of the glowing lance invoke this citational affirmation? Surely the novel contains more gruesome encounters, such as the scene in which Emily supposedly discovers a preserved corpse in the bowels of Udolpho. Alternatively, perhaps Bertholon's presence is necessary to reinforce the claims of Radcliffe's two guards—hardly trustworthy figures—or even Radcliffe's own authority as a dispenser of scientific knowledge. The fact that Bertholon is both a Frenchman and a Catholic raises still more puzzles. Does his identity signify Revolutionary sympathies as many of Radcliffe's critics might hope?

⁸ This kind of science would inspire Mary Shelley's *Frankenstein*.

I hazard that Bertholon's presence in the text signifies at best an amelioration of political tensions. Even French Catholics—often the butt of gothic romances, including Radcliffe's—can be open to the work of scientific discovery. It must be remembered that Radcliffe's benevolent patriarchs—St. Aubert and La Luc—are both French Catholics who base their philosophies on a relationship between nature, morality, and truth. Perhaps, then, the citation itself suggests that the international scientific community—to use modern parlance—is not unlike an extended family, and its cooperative pursuit of truth in things offer a model for resolving the political crises of the 1790s.

But Bertholon's citation also serves as a paratextual invitation to participate in what I term a "scientific romance," that is, the pursuit of a non-utilitarian hermeneutic of things. Should the reader like, he or she may defer Emily's story in order to pursue the study of electrical phenomena. Structurally, such a deferral is romantic, even quixotic, but while the knight-errant's quest was ordered by the terms of romantic fancy, here the reader's journey is ordered by the modes of scientific research as prescribed by Bacon. The paths these investigations might take, however, are non-linear and resist, ironically, the straightforward, matter-of-fact quality often attributed to the explained supernatural itself.

What, then, does such a scientific romance "look" like in Radcliffe's prose; what are its formal or aesthetic properties? If the Bertholon citation presents the reader with the option to pursue his or her own scientific romance, to potentially reach across borders and texts in pursuit of scientific discovery, it is only after Radcliffe has given representations of this pursuit in her fiction. In the case of *Udolpho*, these illustrations are delivered via Emily's father, St. Aubert. St. Aubert is a botanist, and while he has built a greenhouse, his chief pleasure is roaming the nearby mountains in search of native species of plant. These ventures always begin with scientific intentions, but inevitably end with ostensibly unscientific activity. A typical scene is found in the novel's second chapter:

Among the neighbouring mountains, which afforded a luxurious feast to the mind of the naturalist, [St. Aubert] often passed the day in the pursuits of his favorite science. He was sometimes accompanied in these little excursions by Madame St. Aubert, and frequently by his daughter; when, with a small osier basket to receive plants, and another filled with cold refreshments... they wandered away among the most romantic and magnificent scenes, nor suffered the charms of Nature's lowly children to abstract them from the observance of her stupendous works. When weary of sauntering among the cliffs... they would seek one of those green recesses, which so beautifully adorn the bosom of these mountains, where, under the shade of the lofty larch, or cedar, they enjoyed their simple repast, made sweeter by the waters of the cool stream, that crept along the turf, and by the breath of wild flowers and aromatic plants, that fringed the rocks, and inlaid the grass (Radcliffe 2008b, 3).

Tracing and delineating scientific activity in this passage yields surprising results. In the spirit of Carl Linnaeus' *Systema Naturae* (1735) the modern reader might expect these botanical expeditions to be primarily taxonomic enterprises. While taxonomy potentially exists here—the small osier basket is ready to receive the plants—it is incorporated into parallel practices. The specimen basket, for example, mirrors a picnic basket; the plants themselves, “Nature's lowly children,” are similarly complimented by “stupendous” cliffs. Here, science is not a puissant activity terrorizing European domesticity—as Wright of Derby's painting might suggest—rather, it is a cheerily familial affair, an activity that brings work, play, family and nature together into a literal clearing—a “green recess” adorning the bosom of the mountains.

This gathering of humans and nature is not merely proximal, but formal as well. Indeed, the passage is a classic demonstration of Radcliffian prose, which Scott once again describes aptly:

The force therefore, of the production [of a Radcliffe novel], lies in the delineation of external incident, while the characters of the agents, like the figures in many landscapes, are entirely subordinate to the scenes in which they are placed; and are only distinguished by such outlines as make them seem appropriate to the rocks and trees, which have been the artist's principal objects (Scott 1906, 320).

For his part, Scott means this statement to critique Radcliffe's powers of characterization. He compares her characters and situations to the stock scenarios of melodrama in a thinly-veiled pejorative. They are two-dimensional cut-outs unlike, say, the psychological interiorities often ascribed to the eighteenth-century realist novel, not to mention Scott's own historical romances.⁹ Radcliffe's characters are in turn pasted into picturesque landscapes; paper-thin "outlines" no different than the machinery of a theatrical set.¹⁰

Despite the derogatory bent of Scott's remarks, this non-distinction between human characters and rocks and trees is crucial to understanding Radcliffe's anti-utilitarian conception of science. In her fictional worlds, the subject is not necessarily privileged over the object. Consequently, Hobbes'

⁹ This is a central point of Ian Watt's *The Rise of the Novel: Studies in Defoe, Richardson, and Fielding* (Watt 1965). Scott's own sentiments correspond: "The species of romance which Mrs. Radcliffe introduced bears nearly the same relationship to the novel that the modern anomaly entitled a melodrama does to the proper drama. It does not appeal to the judgment by deep delineations of human feeling, or stir the passions by scenes of deep pathos..." (Scott 1906, 320).

¹⁰ That, at least, is how Scott meant it, but ironically his condescending description of Radcliffe's style resonates with the philosophical vogue of "flat" or "object-oriented" ontology.

anxieties over the “horrifying” scientific experiment do not carry the same weight. Because humans and objects are indistinguishable, there is no absolute political authority to surrender to the laws of nature; nor is there is an eventual redirecting of nature to useful ends. In short, Radcliffe’s collage of humans and objects circumvents the knowledge/power equation.

Instead via Radcliffe’s prose humans and things participate in the interactive presencing of each other. As in Thompson’s poetry, they serve varyingly as a sentence’s subject *and* object. A thing may act upon a human in one sentence, only to have this action reversed in the next. In this scene our humans wander and saunter. They carry two baskets (only one of which is meant for the collection of plants), and when they grow weary they sit together and enjoy a picnic. But this is only half the activity of the scene. The humans’ actions are matched by predicates extended to the scene’s things: green recesses *adorn*, the cool stream *crept*, the wild flowers and aromatic plants *fringed* the rocks and *inlaid* the grass. The list increases if one allows for objects that take infinitives of verbs as well: a small osier basket *to receive* the plants, the charms of nature’s lowly children *to abstract* them. Scott is right: the characters appear indistinguishable from the rocks and trees; this is not, however, because the characters are ill drawn. It is because the rocks and trees themselves are equally animated by Radcliffe’s prose, just as they were in Thompson’s poetry. Both humans and objects “act” towards the overall presence of the scene.

Importantly, although these objects appear animated, their animation does not necessarily imply *animus* or any kind of existence separate from the materiality of the object. There is nothing explicitly supernatural in their representation. Thus, while we can see traces of Rousseau’s natural religion in the formal quality of Radcliffe’s language, the content of her fiction leaves less room for outright animism. Instead, Radcliffe’s objects possess *animation-sans-*

animus.¹¹ Admittedly, this phrase takes on an oxymoronic quality not unlike that of the “explained supernatural,” but it is not *the* explained supernatural—at least not as I defined it—for there is no untruth to dispel. Here, the supernatural *animus* is never posited in the first place.

That said, with this vision of scientific romance, we can now make full sense of the explained supernatural’s function in Radcliffe’s novel. It dispels the supernatural. It freezes the progress of narrative. And, most importantly, it creates a formal “clearing” for scientific romance to emerge out of the power struggles of the narrative proper.

To illustrate, we might return to the dreadful night of the glowing lance as Emily and her escorts make their way through the surrounding forests of Udolpho. They take shelter from the storm beneath a giant chestnut tree. Thanks to her guards (and, paratextually, Bertholon) Emily’s superstitions have been refuted, but her situation remains dire. Despite this danger, Radcliffe freezes the action again for a brief paragraph, and gives one last mention of the glowing lance:

The men now rested under an enormous chesnut-tree, and fixed their pikes in the ground, at some distance, on the iron points of which Emily repeatedly observed the lightning play, and then glide down them into the earth (Radcliffe 2008b, 410).

¹¹ The “animation” bears similarities to Jane Bennett’s reworking of Bruno Latour’s concept of the “actant.” (Bennet 2010). Also Barbara Johnson’s analysis of Heidegger’s definition of the thing in *Persons and Things* (Johnson 2008). My own theoretical bent, however, draws directly from Heidegger and his claim that the “thing things.” For Heidegger, the “thinging” of the thing is a banal, everyday occurrence and implies no agency. In this sense, I find Heidegger’s analysis more befitting of the affect of the explained supernatural.

With the possibility of omens and the supernatural dissipated, the language returns to the interactive presencing of scientific romance. The guards rest, Emily observes, and the lightning glides and plays. Unlike so many other encounters, this brief paragraph precludes us access to Emily's interiority, despite informing us in the previous sentence that "other terrors occupied her mind." She is, as Scott says, purely a figure in a landscape.

In this case, the landscape is dominated by the chestnut tree. The species appears several times throughout the novel, but it receives special attention in the early chapters, often in association with the novel's chief romantic scientist, St. Aubert. In the opening chapters of the novel, Emily shares an evening stroll with her father on the grounds of their former estate, *La Vallée*. Pausing before another chestnut, Emily seems to allow herself a bit of superstitious fancy: "Now the breeze swells again. It is like the voice of some supernatural being—the voice of the spirit of the woods, that watches over them by night. Ah! what light is yonder? But it is gone. And now it gleams again, near the root of that large chestnut: look, sir!" St. Aubert chides his daughter for her superstition—the light is no more than a glow-worm, he says. The supernatural is explained. But Emily is a step ahead of him, for her mention of mysterious lights is a reference not to the tree itself, but to a poem *about* the tree that Emily had written some time before. In that poem, she imagines the glow-worm as a magical lamp-light for fairies:

When, down among the mountains, sinks the ev'ning star,
And the changing moon forsakes the shadowy sphere,
How cheerless would they be, tho' they fairies are,
If I, with my pale light, came not near!

Yet cheerless tho' they'd be, they're ungrateful to my love!
For, often when the traveler's benighted on his way,
And I glimmer in his path, and would guide him thro' the grove,
They bind me in their magic spells to lead him far astray;

And in the mire to leave him, till the stars are all burnt out,
While, in strange-looking shapes, they frisk about the ground,
And, afar in the woods, they raise a dismal shout,
Til I shrink into my cell again for terror of the sound (Ibid, 17)!

Like the osier baskets, this scene can be placed in a kind of side-by-sidedness with the stormy night outside Udolpho: St. Aubert is doubled by the murderous thugs; the glow-worm by the lightning lance; romantic fancy by terrifying superstition; and Emily, our poetess, is not merely doubled by, but has in reality become the benighted traveler.

But there are more patterns at work here than the return of the repressed typically associated with “gothic doubling.” The glow-worm, as mentioned above, has played its own minor role in the material and aesthetic history of the Industrial Enlightenment by prompting Boyle to ruminate on the ethics of his experiments. It appears again, briefly, in the context of the Lunar Society. An endnote in Darwin’s *Botanic Garden* cites a passage of Francis Mundy’s “Needwood Forest” (1776) wherein this glow-worm, much like Radcliffe’s, serves as an organic lamp for the procession of a faerie queen, “Or, when obscure the midnight hour, / With glow-worm lanterns hung the bower” (Mundy 1776, 15).¹² Even Wright of Derby surfaces again, tangentially, thanks to his picturesque painting, “Cottage in Needwood Forest” (1790). Motivating Mundy’s publication, if not Wright’s painting, was the impending enclosure of Needwood, and the attendant threat of its deforestation. Like *The Mysteries of Udolpho*, Mundy’s poem functioned as a romantic critique of an overtly utilitarian ordering of nature. Alas, his efforts failed: an Act of Parliament granted the enclosure of Needwood, prompting Mundy to write an elegiac sequel, “The Fall of Needwood” (1808). All but two square kilometers of the forest were subsequently obliterated.

¹² Darwin also contributed a commendatory poem to Mundy’s work.

Radcliffe's tree faces an identical threat. The chestnut which prompts Emily's poem, we learn, is threatened when St. Aubert's brother-in-law, Monsieur Quesnel, buys the title to the estate. Quesnel states his case with overtly utilitarian logic:

“[The trees] interrupt my prospects. There is a chesnut which spreads its branches before the whole south side of the chateau, and which is so ancient that they tell me the hollow of its trunk will hold a dozen men. Your enthusiasm will scarcely contend that there can be either use, or beauty, in such a sapless old tree as this” (Radcliffe 2008b, 13).

There is some irony in Quesnel's verbiage. He acknowledges the chestnut's activity—its spreading and its holding—but these presencings of the tree are inconsequential for they have no use. And Quesnel is right: for all its spreading and holding the tree *is* useless, but the interactions which St. Aubert cherishes it for were not useful to begin with. For him the chestnut presents itself as something else:

“Good God!” exclaimed St. Aubert, “you surely will not destroy that noble chestnut, which has flourished for centuries, the glory of the estate! It was in its maturity when the present mansion was built. How often, in my youth, have I climbed among its broad branches, and sat embowered amidst a world of leaves, while the heavy shower had pattered above, and not a rain drop reached me! How often have I sat with a book in my hand, sometimes reading, and sometimes looking out between the branches upon the wide landscape, and the setting sun, till twilight came, and brought the birds home to their little nests among the leaves! How often—but pardon me,” added St. Aubert, recollecting that he was speaking to

a man who could neither comprehend, nor allow for his feelings, “I am talking of times and feelings as old-fashioned as the taste that would spare that venerable tree” (Ibid).

St. Aubert’s speech recapitulates several of Radcliffe’s favorite themes. The chestnut is older than the mansion itself and, barring any interference from Quesnel, would likely survive it. Indeed, the chestnut is tied to several gothic signifiers: venerable, noble, and old-fashioned.

Shortly thereafter St. Aubert contrasts the chestnut with the Lombardy poplar, a favorite of Quesnel. The poplar thrives, St. Aubert concedes, “On the banks of the Brenta... where its spiry form is intermingled with the pine, and the cypress and where it plays over light and elegant porticos and colonnades, it, unquestionably, adorns the scene; but among the giants of the forest, and near a heavy gothic mansion—” (Ibid 14). St. Aubert trails off, but his meaning is clear: the gothic forest, if not the gothic romance, is no place for a poplar; there the chestnut belongs. The distinction between the poplar’s neoclassical setting and the chestnut’s proximity to the heavy gothic mansion—later realized to be Udolpho itself—is obvious enough; but the “gothic” chestnut is not *merely* a temporal or aesthetic signifier; it is an active participant in St. Aubert’s sense of domestic place. It is a dwelling, a network of imagination, a world of leaves shared with books and birds and raindrops.

It is here to the world of the chestnut that the hermeneutics of scientific romance have led us—and have perhaps led Emily as she momentarily pauses amidst the *Sturm und Drang* of her persecution. The chestnut opens a clearing for the becoming of St. Aubert as botanist, for Emily as young poetess, and, near a heavy gothic mansion, it opens the clearing in which the lightning plays and glides down into the earth. As written by Radcliffe, the chestnut—a botanical object, a thing—opens a world in which things appear as animate inanimate objects, interactively presencing themselves with the humans who share their clearing.

In this sense, to open this clearing or world is to explain: “to open out, unfold, spread out flat... To make plainly visible; to display.”¹³ It is this explanation, this mutual unfolding of humans and things that drives back the “dark clouds of prejudice” that Radcliffe identifies in *A Sicilian Romance*. At stake, again, is not the past divide between gothic and modern, but the present integration of knowledge and power at home and abroad. The imprisonment of the glow-worm and the severing of the chestnut are the symptoms of this power—this collapsing of humans and things into usefulness—as are the mills and foundries of England—as are the guillotines of France.

Conclusion: The End of Enframing

At the beginning of this dissertation, I stated that my aim was to re-turn Heidegger’s elaborate exegeses of essence—Enframing in particular—to the “everyday” realm of material history. I aimed to show the “presence” of Enframing through empirical readings of disparate historical artifacts and documents, and to provincialize this presence via traditional models of social and economic history. In addition to its ontological ramifications, calling Enframing an essence had a hermeneutic function. It allowed me to “hold apart” such binaries as work and presence, technology and *techne*, or thing and thinging. This holding apart was valuable insofar as it allowed me to highlight historical difference, or “essential change” as I termed it in my Introduction.

I wish to conclude, however, by re-turning the Heideggerian circle once more and posing an obvious query. In my reading of Heidegger, the thing is that which perpetually gathers to itself the conditions of creation. This definition, such as it is, is not limited to “material” things like rocks and air-pumps. It can equally apply to ideas, plans, emotions, ideologies, and, to use the verbiage of Timothy

¹³ *The Oxford English Dictionary*.

Morton, “hyper-objects” such as global warming or geological time (Morton 2013). If all these things can count as things, then why not Enframing as well? Is it a thing too? And if so, does this Enframing-thing thing?

For me, the stakes of this question are not, contra Speculative Realism, purely ontological (what is a thing? what is Enframing?). Instead, they are phenomenological, which is to say: are “we” capable of perceiving Enframing as thing? Can we respond to its gathering? If so, what would that gathering possibly look like? In terms of what we might call this dissertation’s narrative arc, this returning of Enframing as thing signifies an end of sorts—an end to the “story of Enframing” as I have tried to tell it. Of course, this end is by definition a fiction—a conjecture—in that Enframing as I have described it remains a presence in twenty-first century Western society. And indeed, in terms of the generic distinctions made throughout this dissertation, I would certainly term this end in terms of romance rather than realism.

At the same time, this “end” does not signify the termination of a series of causes and effects, nor an “end” in the sense of *causa finalis*, as I described the “end of science” in Chapter One. Rather, I mean essential end: that moment when the essence no longer structures the thing of which it is the essence of; the moment when the rock is no longer ordered by rock-ness or tree by tree-ness. This is the moment of “radical” change I described using the Plutarch’s Ship of Theseus. What happens in the moment when ship is no longer structured by ship-ness? For Enframing, the question is slightly more expansive. It is to ask: what happens when things are no longer ordered as standing reserve?

But if we are to now consider Enframing as *thing*, and not essence, we can ask this same question in a different way. What becomes of *ship-ness* when it no longer structures ships? What becomes of *Enframing* when it no longer orders things as standing reserve? If things are that which gather and do, then perhaps their end can be characterized as an un-gathering or an un-doing. In this conclusion, therefore, I wish to speculate as to what the un-doing, un-gathering of Enframing might look like.

In order to do so, I must first define Enframing as a thing. In the introduction to this chapter, I relied on the material “origins” of things to claim that, by definition, a thing is that which gathers and responds to the “fourfold” of its creation. For objects such as hammers and spinning wheels it is easy enough to imagine their material creation and work from there. The same can be said of many natural objects, the origins of which we can comprehend thanks in large part to the revealing work of physical science. The “origins” of ideas can be cited even more easily. This, after all, is precisely the project John Locke had in mind when he wrote of “simple” and “complex” ideas his *Essay Concerning Human Understanding*, and so did Francis Bacon when he described the idols of the cave, tribe, marketplace, and theatre. From these *causa*—by which I mean, “only with these *causa* first in mind”—it is easy enough to attend to the perpetual gathering of creation that these things do by being.

For Enframing, however, there are no such explicit much less material *causa* from which we can adduce a gathering doing. For if one claims that Enframing’s origin “is” the Industrial Enlightenment—the confluence of scientific practice and free market incentive—then this narrative has collapsed into the tautology I flagged in my Introduction. No, I argue, the Industrial Enlightenment bears only on the historicized, provincialized *presence* of Enframing—not the origin of its work or its doing. Just as Western art has presenced in various modes—Baroque, Neoclassical, Romantic, and so on—so too has Western Enframing. But as with the work of art, one cannot define its essence or origin from an enumeration of its presencings. Nor can we simply ignore the problem of Enframing’s thingness. To do so would be to surrender to metaphysics. It would be to resign Enframing as non-thing to some functional place “outside” of things.

Fortunately, this task is not necessarily bound by the chronology of *causa*; there is no rule that says things must have an identifiable origin. If Enframing is a thing, as I have defined it, then it is that which gathers. Thus if we leave aside a moment the associations of origin, creation, and cause we might simply ask this: what is it that Enframing gathers? Heidegger tells us: “Enframing is the gathering

together that belongs to that setting-upon which sets upon man and puts him in position to reveal the real, in the mode of ordering, as standing-reserve” (Heidegger 1977, 24). So Enframing is the gathering of things “as” standing-reserve—a claim that, I hope, is well understood by this point. But missing from this paraphrase is a definition of the term “mode of ordering.” For it is not accurate to say that Enframing “merely” gathers as might a rock or a river. Enframing gathers into a prescribed order, much like Heidegger’s silver chalice gather’s the sacrificial liquid into its pre-defined shape. Furthermore, as we have seen, Enframing must *sustain* the coherency of this order. It must prevent the things it gathers from escaping its domains just as the chalice must prevent the wine from spilling or Cooke’s patent drill machine must prevent its seeds from scattering to the winds. As that which orders, Enframing’s perpetual gathering is plagued by this threat of dis-order or *un-gathering* (i.e., the threat of anti-regress).

By this word, un-gathering, I do not simply mean dissolution or disintegration. These terms are symptomatic of an understanding of thing as matter and form; as that which can be atomized and particularized. Un-gathering is meant to suggest something more essential. We can easily imagine, for example, the dismantling of the Ship of Theseus. We can picture it smashing against the rocks like Cloudesley Shovell and *HMS Association*. Its hull can splinter and its sails can tear. This is material disintegration, and we have seen that Enframing readily responds to this event with the logic of repair. Un-gathering, by contrast, would imply that the ship, in its very being-doing, is at risk of annihilating its own essence—its ship-ness. Somehow, over the course of many voyages, the Ship of Theseus would have to rebuke its being ship at all.

One can imagine this possibility in the circumscribed context of language. Through deconstructive maneuvers, the trained post-structuralist can dismantle the relationship between ship and ship-ness with relative ease. But while post-structuralism is a helpful means of picturing what this un-gathering (this deconstruction) might look like, it is itself artificial. Rather than listen for the “speech” of things, it writes them into language. Only by arguing, as Jacques

Derrida and Jacques Lacan have, that language itself constitutes reality can the linguistic turn legitimate its relevance to ontology.

But there is no need to call upon deconstruction to witness the same un-gathering in things. Once more following Heidegger's technique in *Being and Time*, we can begin to familiarize ourselves with this idea by attending to our own, human experience. As mortals, we are supremely aware of *our* un-gathering, an act which we also often confuse with our material disintegration. Our bodies break down through violence, disease, and time until they are unable to sustain themselves. We subsequently (or prophylactically) repair them; we affix them to machines to supply the parts that have defected. Often, we do this long before "death" itself demands our immediate attention.

But the un-gathering implied by mortality has nothing to do with the dislocation or mutation of cells. No, it is the subject, the ego, *Dasein* that is at risk. I am that which gathers the fourfold to myself, but in death "I" will gather it no more. My gods, my loved ones, my dreams, my memories—divinities and mortals, sky and earth—these things will depart from "me." Instead, "I" will have become "it:" a corpse, a memory, a ghost—an unwilling and unknowing participant in the ruinous gathering of the living and the dead.

Enframing and techno-logic have little to say on this count. Medical and technological futurists have instead seized on the problem of disintegration perhaps because they see it as a problem that can in fact be solved—solved, not surprisingly, by the logic of anti-regression and repair. Once, this solution was imagined as the cyborg. Now, futurists call it the singularity—the non-distinction of human and machine. As computer scientist and author Vernor Vinge writes: "Within thirty years we will have the technological means to create superhuman intelligence. Shortly after, the human era will be ended." In a recent opinion piece published in *The Independent* theoretical physicist Stephen Hawking—who famously embodies and is embodied by these very objects of concern—writes: "We cannot predict what we might achieve when this intelligence is magnified by the tools that AI may provide, but the eradication of war, disease, and poverty

would be high on anyone's list. Success in creating AI would be the biggest event in human history... Unfortunately, it might also be the last, unless we learn how to avoid the risks."

Is this dystopian future the end of Enframing? If this end seems possible, even likely, it is only because—as with the danger of the atomic bomb—Westerners have long been conditioned to see the relationship between humans and technology in these terms. But even more to the point, if human or post-human history should culminate in such a future, it would *still* avoid addressing the crisis of un-gathering. Even in this post-human state, Enframing itself—however it may be presenced—would still be struggling to hold together its ordering. The wine still risks spilling and the seeds scattering.

To hold together, in Latin, is a conjunction of the words *con-tenir*. These words form the etymological root of the English verb “to contain” and its noun equivalent, the container—that which holds together. In Ancient Greek the word for container was *pithos*. A “jar” used for the storage of economic goods. The *pithos* has already appeared in the story of Enframing via the myth of Pandora. In English traditions, the phrase “Pandora’s box” comes from a mistranslation of Erasmus who rendered *pithos* as *pixis*—the latter referring to a small wooden box. As I have shown through works like Jonathan Swift’s “The Lady’s Dressing Room” and Francis Bacon’s *The Wisdom of the Ancients*, by the time the Pandora myth was received by early modern England it had been conflated with misogyny and evil. For the most part, early modern interpreters were less concerned with the nature of the “box” and more concerned with the things contained within it.

But Pandora, true to her name, did deliver a great gift that was indifferent to evil or hope. The *pithos*, that which in strictly material terms allowed humans to contain; to stave off the constant onset of waste and deterioration described by Locke in the *Second Treatise*. This storage jar, this technology, allowed goods to be stored and shipped over long distances; to be sealed and quarantined; to be categorized and placed; hidden and exposed. For all the potency of Prometheus’ torch, the mythological origin of Enframing is as indebted to Pandora’s *pithos*.

Indeed, it is the alliance of the two that best evinces the “origin” of Western Enframing. The steam engine. The atom bomb. The rocket ship. Torch and vessel. *Pyra* and *Pithos*. Content and container.

If this mythological origin has any bearing on Enframing—and it may not—then what would its un-gathering and un-doing look like? For humans, according to Heidegger, this transformation is signified by the *Totenbaum*, the “tree of the dead,” or the coffin. It signifies the transformation of the “I” as that which gathers into that which is gathered around, literally, as in a funeral. This, of course, is precisely the sentiment La Motte expresses in the ruins of Radcliffe’s abbey. He feels it for himself in a kind of human communion. But perhaps it is expressed in the St. Aubert’s precious chestnut as well; an object and a domain within which things come to present themselves in discrete ways.

Can we imagine Enframing’s end this way? Imagine it as no longer that which gathers and orders, but as that which is gathered around? Imagine it as a thing, like the *Totenbaum*, which is reserved a special, even sacred, place in Heidegger’s pastoral dwelling or Radcliffe’s gothic ruin? Laid to rest. Planted to grow. Might Enframing be allowed to gather and not order?

This ending is perhaps too obvious. As with race, class, and gender scholars know better than to surrender to the idea that Enframing is a totalizing, ahistorical project. Only by objectifying it and provincializing it can we counter ideologies that would foster Enframing as *world* order. These ideologies, like the utilitarian examples I have examined in eighteenth-century Britain, would see Enframing as a truly metaphysical object—that which stands outside and structures Being itself. In this dissertation I have attempted to depict Enframing as exactly the opposite using the methods of phenomenology and historicism. By citing specific times and places I have attempted to indict Enframing. To say, “Enframing, there it is! Its work presences despite itself.” If Enframing is ever to be understood as thing, as *Totenbaum* and *pithos*, then these inquiries must be further developed, critiqued, and revised not just for eighteenth-century Britain but for the myriad histories science, technology, and humanity.

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