Salvation through Science Alone: The Soteriological Potential of Science in Case Studies of Ursula Goodenough, Sam Harris, and E.O. Wilson

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DEDICATION AND ACKNOWLEDGEMENTS

Continuing a tradition I intend to uphold for the duration of my career, this thesis is dedicated to Dorothy Ruper. She is my hero, my greatest inspiration, and the reason I have the resilience, power, and passion necessary to dream bigger than we ever thought possible.

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SHORT ABSTRACT

Traditional religion has collapsed in the West, at least according to many theorists of the modern religious landscape such as Charles Taylor. This has led to a diversification of what Lois Lee has identified as existential cultures—tropes and communities that address the questions, frailties, and limitations of human life. Mary Midgley's work on the culture of science has demonstrated that science is one such existential culture. Taking Midgley's lead, this thesis explores the *soteriological potential* of science insofar as it has the ability to remediate *existential anxiety,* meaning that it can facilitate a transition from negative affect to neutral or positive affect regarding the embodied limitations of human life. This requires three moves that comprise part I of the thesis: 1) the responsible deployment of evolutionary theory and cognitive science in the humanities, 2) a robust understanding of the material power of affectivity, and 3) an exploration of salvation as a "religion-like thing" that is not specific to religious doctrine but rather is an affective, phenomenological potentiality inherent to subjects across traditional religious-secular divides. Part II entails three case studies: biologist Ursula Goodenough, who is saved from the thought of death by interpreting the germ-soma distinction of multicellular organisms, popular philosopher Sam Harris, who is saved by the ability science has to disambiguate questions of morality, spiritual belief, and spiritual practice, and zoologist E.O. Wilson, who is saved by the ways in which science helps him develop a more intimate relationship with nature as his sacred home. Identifying science as *salvific* for these thinkers provides a means by which to theorise about experience beyond traditional religious-secular bounds and demonstrates the affective power inherent to science not just as a discipline but also as a salvific cultural phenomenon.

LONG ABSTRACT

One of the most striking characteristics of the modern spiritual landscape is its plurality. Not only has the arc of Western religion entailed an astounding diversification of religious traditions in recent centuries, but it has also provided an impetus for the emergence of new cultural forms. Sociologist Lois Lee has identified these forms as existential cultures. An existential culture is, says Lee, a culture that engages "ultimate questions" (2015: 160) and thoughts and feelings related to "human frailty" (2015: 99). Existential cultures include but are not limited to traditional religion; they can be found anywhere existential themes are engaged, even in atheism (e.g., de Botton 2012). The rise of existential cultures Lee has documented confirms Charles Taylor's description of secularity *not* as the progressive death of singular religious narratives, but rather as a cultural transformation towards a "diversification" of forms of the quest for "spiritual and moral aspirations" (Taylor 2007: 26). Based on my own personal experience of finding solace and meaning in the sciences as an adolescent, in this thesis I explore the existential power of science, and specifically its *soteriological potential.*

Whenever I say that science, or any other phenomenon, has soteriological potential, I mean that it can remediate the materially-embedded tendency humans have to experience a group of affective states I have identified as existential anxiety. Evolutionary anthropologist Scott Atran posits that once humans evolved two key abilities—the cognitive capacity to make inferences and the emotional capacity to feel "higher order" emotions—they developed *existential anxiety* (2004). I describe this existential anxiety as being characterised by the kinds of concerns existentialist Paul Tillich (2000) addresses, but it also needs to be understood phenomenologically

as an embodied experience, so I emplace it in the body via Thomas Tweed's concept of *embodied limitations* (2006). Embodied limitations include materiality, death, futility, frailty, and loss, to name some examples. Salvation is the remediation of these states. Salvation can be dramatic or minimal, quiet or loud, long-running or short-lived, healthy or unhealthy, belief-centric or practice-centric, intentional or unintentional, or any other variety of qualities. It can be facilitated by traditional religious rituals or experiences or by friendship, song, dance, meditation, nature, or, of course, science.

Why "salvation"? Why not "meaning making"? The concept of salvation has a long history within Christianity and many people use it to refer to their own religious practices. I do not transgress this. Salvation is also often studied in the form of an explicit doctrine of salvation, such as in Calvin or in Luther, or perhaps an underlying promise of restitution (e.g. Weber 1963). Such an approach is important for the study of religion, as it can deepen our understanding of doctrine and experience (McGrath 1986), can teach us about rituals (Bodiford 1992), and can reveal interesting comparative insights (Heim 1995). I do not transgress *this* either.

I do however proffer an alternative, if complementary, concept of salvation, inspired by Mary Midgley's work on the topic (2002). I define salvation formally as the remediation of existential anxiety—that is, the remediation of the felt limitations of embodied existence, or a transition from negative to neutral or positive affect with respect to existential anxiety. I do this in order to focus on the experience of the human subject within existential cultures, including but not limited to religion. It enables me to create a means by which to theorise about phenomenologically rich existential experiences beyond traditional religious/non-religious divides.

Exploring the concept of salvation as an embodied experience entails taking a thorough and careful dive into evolutionary theory, cognitive science, and affect theory. Postmodern analysis such as that famously conducted by Jean-François Lyotard (1984) has demonstrated the potential perils of theorising about human experience in any sort of generalised sense and particularly with the sciences. But a brief survey of theories regarding Western culture, focusing on Lee's sociology (2015) and Taylor's history (2007), suggests that even if a scholar attempts to by-pass claims about *human nature*, tenets about human functioning are nevertheless important facets—arguably necessary and foundational ones—of theories of culture. This leads me to conclude it is important to undertake the task of theorising, and to do so with intentionality and care. I endeavour to explore human evolution, animality, and affectivity with an unrelenting commitment to postmodern insights about metanarratives, categories, and essentialising discourse.

The thesis as such begins with an exploration of means by which to deploy sciences in the study of religion and religion-like things such as salvation while simultaneously being sensitive to difference and *sui generis* critiques of the category of religion. Russell McCutcheon has argued that deploying the sciences to understand religion or religion-like things will "lead to that pesky old notion of *sui generis* religion re-entering our field, doing it this time through a new, biological back door" (2010: 1191). But McCutcheon's reservations are misplaced in light of recent developments in evolutionary thinking and cognitive science. I demonstrate this by exploring these developments and how they perform significantly better than older, more entrenched and popular scientific models as in the case of the work of Griet Vandermassen. The stance in evolutionary thinking I advocate taking is a spandrelist stance. The stance in cognitive science I promote is an interactionalist stance, which embeds the plasticity of the brain in material

interaction with the environment. The result is a means by which to theorise about human evolutionary history, genetics, and biological development that never speaks of determinants but instead of tendencies, and which can actually be a potent ally in efforts to dismantle homogenising discourse.

These scientific insights are coherent with affect theory, which is the subject of chapter two. Affect theory is a constellation of perspectives emerging out of the humanities that, as a whole, are characterised by the efforts made by its proponents to disrupt the modernist notion that subjects are private, autonomous, disembodied, and cut off from the material world. Indeed, affect theorists argue that the opposite is true: subjects are necessarily embedded in social and physical environments—what early twentieth century biologist Jakob von Uexküll calls *umwelten* or lifeworlds (1934). Affect theorists as a whole differ in many ways, though the group is united by its interest in affect as a material-cultural form of pre-linguistic power. Power, for affect theorists, is *felt.* Affect is pre-linguistic, and affects are complexly interwoven throughout our inevitably networked and public existence—or in what Sara Ahmed calls "affective economies" (2004b: 120). Affects are transmitted, felt, mutated, absorbed—all the while constantly shifting in exchange with incoming and outgoing influence.

Affect theory can be understood as taking shape in the academy in two general branches. One is what Donovan Schaefer calls the "Deleuzian" or "Spinozistic," which underlines "plasticity" and "the fundamental re-configurability of bodies" (Schaefer 2015: 13). This branch regards affect as an "intensity" that laces between bodies—bodies which are in Schaefer's words "plastic shapes created *ex nihilo*" (13). The great flaw with this perspective is that it considers bodies to be "blank slates without pre-existing affective dispositions" (37). This thesis, taking evolutionary theory to

be foundational to human affectivity, rejects this branch of affect theory in favour of what Schaefer calls the "phenomenological." This branch entails "intransigence" (13), by which Schaefer means that humans are embedded within and transformed by history of all sorts: evolutionary, cultural, personal.

Salvation as such emerges out of a nexus of animal predispositions, cultural influences, and personal affective matrices. I devote chapter three to the construction of the embodied, affective, subject-focused concepts of existential anxiety and salvation. In chapter three, I demonstrate that all humans have a potential to experience existential anxiety based on evolutionary tendencies and cultural context. I also explore the ways in which salvation should not be equated with religion. Instead, it should stand alone, as an experiential phenomenon that traverses categorical divides.

These three constructive moves in total—the reframing of science for the sake of salvation (chapter one), the exploration of affect theory for the sake of salvation (chapter two), and the construction of the concepts of existential anxiety and salvation (chapter three), comprise Part I of the thesis.

Part II is composed of case studies. It opens with chapter four, a case study of the soteriological relationship biologist Ursula Goodenough has with science. I explore Goodenough's salvation against the backdrop of the quest of religious naturalists to find and create ethically motivating worldviews. Affect theorist Jane Bennett provides an account of affective motivation that arises as a result of affective attachment to the world. Religious naturalists must consider affectivity if they wish to maximise their ethical potential. Bennett's account of affective attachment is

however incomplete because it includes science only when it has the enchanting properties of surprise. I supplement her account with the affective potency of the sciences when they are calculable, slow, contemplative. I demonstrate how Goodenough's youthful experiences of existential anxiety come to be remediated over time as she explores science and her interpretations of it. Goodenough's affective experiences provide a way for religious naturalists to think through means by which scientific viewpoints can be affectively powerful and ethically motivating: specifically, if they are engaged in ways rich with soteriological potential.

Chapter five is a tour of Sam Harris's simultaneously scientific and spiritual brand of New Atheism. I explore his salvation against the backdrop of charges that New Atheism is fundamentalist. I argue that charges of fundamentalism based on stridency of tone or the enactment of scientific "faith" as an epistemology are insufficient for deeming the New Atheist movement fundamentalist. There is however certainly a resemblance of New Atheism to Christian fundamentalism, and it comes in the form of attachment to a salvific epistemology. I demonstrate how Harris's attachment to science is salvific insofar as it neatly orders his world. It does this by engulfing realms of life traditionally distinct from science such as morality, spiritual belief, and spiritual practice into the realm of science. The latter two categories are of particular interest because Harris appropriates Buddhist tenets and practices to his "scientific" spirituality. Longing for order and answers in a time of uncertainty, Harris is saved by the inflation of science into scientism and manipulation of his whole world including morality and spirituality into a scientific framework.

Chapter six explores the salvation of famous zoologist and environmental advocate E.O. Wilson. In her 2017 book *Consecrating Wonder,* Lisa Sideris argues that science is antithetical to

environmental ethics insofar as it imposes an affective distance between subject and the natural world and shifts wonder regarding nature to the anthropocentric triumphs of science. E.O. Wilson is her case study for wonder at and "religious" investment in abstractive science over the natural world. I however conduct an affective analysis of Wilson's attachments to and lifelong relationships with nature and in doing so demonstrate that Wilson's religious longing is not characterised by triumphalist science that directs his energy away *from* nature but actually channelled through science in *to* nature. Wilson is saved by science not necessarily because it provides abstract knowledge (what Sideris claims) but rather because it provides him with A) means by which to deepen his relationship with nature with its practices and B) means by which to consider himself rightly at home in nature with its theories.

These case studies indicate that as much as science has historically (in both the academy and the public) been allocated to the realm of "facts" while religion has been deemed rich in value and emotion (e.g., Gould 1997a), science is itself a richly affective phenomenon. Goodenough, Harris, and Wilson experience science on an existential register. It might not always be the case that science is related to with such flavour or intensity, but it is no surprise that it often is or can be because of science's existential power, a concept I thematise in the conclusion to this thesis. Science has such a power in part because it can inform how we think about some of our most ultimate questions and concerns. It can radically change, challenge, heal, or undermine experiences of meaning or solace that are predicated on the stability of certain beliefs. Science can be harmful in this sense, but it can also be salvific, which is my focus in these case studies. Humans are feeling creatures, and science is *felt.* In the modern religious landscape, science is even apparently sometimes *needed.* As people bump into it, it can become a potent source of salvation.

The thesis concludes by highlighting the affective matrices of science and their existential potentialities, and I recommend that the academy and specifically the subfield of religion and science take a closer look at the existential qualities of science itself. Scholars often use the tools of science to study religion, but what if we also use the tools of religion to study science? I recommend several avenues for future study: utilising the category of salvation to conduct cross-cultural and cross-experiential analyses, exploring the existential power of science at greater length, exploring the religion and science conflict in terms of existential power, and using affect theory to explore the relationships between belief and action and between salvation and morality.

INTRODUCTION

"Everything that the human race has done and thought is concerned with the satisfaction of deeply felt needs and the assuagement of pain. One has to keep this constantly in mind if one wishes to understand spiritual movements and their development."
Albert Einstein[1]

I was a teenager the first time I was saved by science. I watched a clip from Carl Sagan's *Cosmos* (Oyster et al 1980), a TV series about space known for its grandiose rhetoric and tone. This clip comforted me with its promises of profundity and meaning. I had been having nearly daily panic attacks about dying since I was four years old. It had simply always seemed obvious to me that once my material body died my personal experience would die along with it. I hated this idea with every fibre of my being. Lacking any sort of discourse around death in my parents' avowedly anti-religion home, I kept my thoughts and feelings to myself. I spent my early years despondently staring off into the distance while my peers chatted excitedly about their catechisms, heaven, and Jesus Christ. Not me. I was sceptical, suspicious, cynical, anxious, increasingly nihilistic, and, most of all, frequently, deeply, and alarmingly terrified.

But when I watched *Cosmos*, and when I subsequently began traipsing to the local library every Saturday morning to seek out popular science books by Sagan and his ilk—Stephen Hawking,

[1] In Einstein's *The World as I see It* (1949: 24).

Steven Weinberg, and Richard Dawkins, to name a few—I began to feel better. My world blossomed with wonder and promise. I wasn't sure what it was a promise of, *per se*, but I had found clarity, identity, and beauty. These were people who experienced the cosmos as meaningful without having to resort to beliefs I then found silly—exactly what I had always wanted! I fell in love with the science of these writers as I clung not just to their wondrous and elegant theories but also to their ruthless commitment to reason and the scientific method. Science may not have precisely solved all of my existential anxieties, but it did soften and remediate many of them, as it lessened my feelings of being lost, alienated, and terrified. *Real* answers were out there, and I could find in them great beauty or maybe some kind of eloquent purpose. I wore shirts with Einstein's face on them, carried Hawking's *Brief History of Time* (1989) in my purse, and eventually got a tattoo of *ursa minor* across my collar bone.

Science, I thought at this time, was my religion. I always understood that science didn't operate quite like a religion (however defined) might, but it didn't operate quite *not* like one, either, at least where the experience of my own salvation was concerned. "Science" understood in the broadest social and cultural sense is instead what I now consider to be, thanks to the work of sociologist Lois Lee, participation in an existential culture (2015: 159-161), specifically one oriented around the values, methods, and content of science. An existential culture is, says Lee, a culture that engages "ultimate questions" such as "the origins of life and human consciousness" as well as "distinctive notions of meaning and purpose in life" (2015: 160). Lee doesn't mean "existential" in a way that pertains specifically to philosophical existentialism in the strict historical sense. She means it rather more broadly, as in, relating to human existence. An existential culture, essentially, is a culture that engages existential things.

The category of existential cultures includes religion but is not limited to religion. Today there are many burgeoning alternatives to religion in which Lee says "at least some aspects of religious culture can be found" (2015: 159). In a 2019 piece, for example, Lee describes the commissioning of the design of an atheist temple by atheist philosopher Alain de Botton in terms of "existential embodiment". The temple is meant to spur atheists to contemplate and experience existential themes such as material fragility (Lee 2019: 50-51).[2] De Botton is an outspoken atheist who holds up science as a source not just of information but also of wonder and awe;[3] Lee nevertheless remains careful to identify him as existing within a broader cultural trend. De Botton's atheistic temple is a product not of his singular vision but rather of the broader cultural context in which he exists and operates.

Lee's ideas about the emergence and proliferation of existential cultures cohere with Charles Taylor's articulation of the transformations entailed in the secular age. Taylor describes secularity not as the progressive death of religion and birth of a secular world order, but rather as a cultural transformation towards humanism as the default worldview. This transformation entails a "diversification" of forms of the quest for "spiritual and moral aspirations" (Taylor 2007: 26). Our modern existential sensibility has as such—for a wide variety of reasons explored at length in Taylor's many books, especially *A Secular Age* (2007)—changed from entailing a singular, cultural assent to the authority and views of the Church to a pluralisation of religious forms to such an extent that no view could be the default. It is out of this diverse and pluralising milieu from which

[2] Importantly, for Lee, these existential questions can be engaged on a philosophical level, though they are often very social, very embodied practices experienced "aesthetically and communally" (2015: 159).
[3] Lee also describes Richard Dawkins as a proponent of creating such "secular" spaces and communities (2019: 57).

new, unorthodox forms of Lee's existential cultures (such as those revolving around science) now spring.

Today these unorthodox varieties of existential cultures continue to burgeon. This is exemplified not just by Taylor's theories but also by quantitative surveys. Information such as that collected by the Pew Research Centre has suggested that even as traditional religion wanes, "in some ways Americans are becoming more spiritual" (Pew Research Centre 2015: 6). In 2007 about 53 percent of U.S. adults claimed "a deep sense of spiritual peace and well-being"; by 2014 this measure reached 60 percent. The number of Americans who experienced "wonder at the universe" had also increased, from 36 to 46 percent. Pew attributes this change in part to a generational shift,[4] although the increase that the U.S. population witnessed in spiritual wellbeing and wonder at the universe was "demographically broad-based" (26). People who experienced this shift were found among all ages, genders, and regions of the country. There is also little difference, says the report, "between the religiously affiliated and religious 'nones' (people who claim 'none' when asked about religious affiliation) on the question about feelings of wonder about the universe" (26). So far as spiritual experiences and feelings may be discernible in such quantitative studies,[5] it seems that something *religion-like* is happening even where traditional religion wanes.

[4] The growth in the "nones" (people who say "none" when asked with which religion they identify or to which religion they belong) is in large part due to cohorts of older, self-identifying Christians passing away and being replaced by "a new cohort of young adults who display far lower levels of attachment to organised religion than their parents' and grandparents' generations did when they were the same age" (2015: 6). Religious beliefs such as belief in God, religious behaviours such as praying daily, and considering religion as "important" all consistently decline throughout generations, from the Silent generation (born 1928-1945), to the Baby Boomers (1946-1964), to Generation X (1965-1980), to Older Millennials (1981-1989), and to Younger Millennials (1990-1996). Generation X and Millennial generations currently comprise the largest group of "nones" seen in U.S. history, and this trend is not expected to stop. Importantly, these "nones" deny the importance of religion in their lives at increasing rates. Nones who identify religion as "somewhat important" decreased from 41 percent to 34 percent, and a corresponding number of nones who identify religion as "not at all important" increased from 57 percent to 65 percent. This is "rapid growth" according to Pew (19).

[5] Its limitations have been explored in Day and Lee (2014).

Lee has devoted much of her career to conducting qualitative explorations of these kinds of quantitative data, exploring people's experiences outside of traditional religious forms. In doing so she has demonstrated that there are rich layers of complexity and depth in the group of people typically identified by quantitative analyses as nones. This is important because in quantitative analyses this group is inevitably over-simplified (Day and Lee 2014). Lee's qualitative analyses demonstrate the extent of the experiential diversity: nones may, for example, define themselves in contradistinction to religion or as tangential to religion. They may engage existential cultures on a deeply intentional and intellectual level, or they may come to an existential culture for economic, familial, or territorial reasons. They may prioritise the kinds of beliefs or morals they and their acquaintances have or they may not particularly care (Lee 2015: 160-161). But what all participants in existential cultures do share is some kind of engagement with or attachment to cultural phenomena that have existential concerns, themes, or ideas at their core.

Lee's idea of what it means to be "existential" derives from the work of Philip A. Mellor and Chris Shilling, who propose that religion is best understood as an existential embodied reality, something they call a "religious habitus." In their words, religion entails "existential reassurance and anxieties reflective of human frailty, the stimulation and regulation of emotion relative to the sacred, and the development of rituals, techniques, and pedagogics with the aim of stimulating a particular form of consciousness and experience" (Mellor and Shilling 2010: 217 in Lee 2015: 99). Lee develops this concept by asserting that it applies beyond traditional categorical bounds: "this notion of religious habitus," she writes, "accommodates embodied modes of non-religious cultures alongside religious ones, complicating the idea of it as religious habitus per se" (Lee 2015: 99). In Lee's estimation, the qualities of religious habitus Mellor and Shilling use to characterise

religion also characterise existential cultures, grounded in any given culture's attempts to assure existential safety in the face of human frailty.

I will explain more precisely what I personally mean by "existential" in chapter three of this thesis, as I extensively thematise the concept of existential anxiety. Briefly here, it is any negative affect one experiences having to do with the limitations of embodied human existence such as death, meaninglessness, anomie, chaos, alienation, or frailty, grounded in human evolution and manifest according to cultural circumstance. It is a different use from Lee but not a contradictory one; we both use "existential" to gesture toward the embodied experience of human limitation.

Can science be said to be an existential culture outside my personal experience? Very little about this culture could ever be said to be intentionally spiritual, communal, or anything associated with religion. Many science advocates tend to define their projects *against* that which is traditionally conceived of as religion (e.g., Dawkins 2006; de Botton 2012). But it isn't necessary to identify as a religion or even be intentionally communal in order to quality as one of Lee's existential cultures. All a culture needs in order to qualify as existential in Lee's eyes is engagement with some way or ways of relating to existentially relevant themes such as the meaning of life or death (2015: 10, 19). The existence of phenomena such as Einstein shirts, star tattoos, and perhaps even more so, teenage girls who deem these things religious, suggests that there is at least some kind of science-centric existentiality afloat in popular culture. [6]

[6] Evidence of such existentiality abounds, such as, for example, in science fiction literature. While fantastical, science fiction still deals with an astounding breadth and depth of religious themes such as purity, eschatology, sin, and death with *science* at the centre of it all (Herrick 2008).

Probably the most ubiquitous example of science's status as an existential culture is the fact that there is a whole genre of popular science books that entail deep, far-reaching ponderings about the meaning of life. Philosopher of science Martin Eger has identified a pattern among these books he calls a "P-S-P sandwich" (Eger 1993). In this sandwich, the first chapter of the book is a philosophical prelude; then follows the scientific meat of the book; finally comes the concluding chapter in which the author delivers an impassioned speech about what it all *means*. It's a philosophy-science-philosophy (P-S-P) sandwich, and it is ubiquitous in popular science writing. It has in fact been around for as long as the genre has. As a case in point, E.O. Wilson's *On Human Nature* (1978) is a book about genetics, but it concludes with a discussion about universal rights. Physicist Stephen Hawking's *A Brief History of Time* (1989) concludes with the assertion that through science we will "know the mind of God." Physicist Steven Weinberg's *Dreams of a Final Theory* (1993) famously makes the same kind of grand philosophical claim but isn't quite so optimistic: he argues for the nihilistic perspective that "the more the universe seems comprehensible, the more it also seems pointless" (1993: 204).

Science writers, advocates, popularisers, and consumers like me have as such created a culture in which deeply existential meanings are engaged on a regular basis, but planted firmly in the realm of science, broadly construed. No one needs to take these ideas back home to their churches or spiritual groups in order to engage their existential depth; it's all right there, in the text, cloaked in the legitimising languages of science and reason. The meanings engaged in these books can be, as evidenced by my personal experience of them (and by the case studies in this thesis), deeply emotionally significant. This is so much the case that I deem them rich in something I call soteriological potential. Science can *save.* The purpose of this thesis is to explore the underlying means by which science can be compelling to people on an existential level. Science saved me,

and it saves others, with arguably as much potency as "religion" does. But why and how is this possible? It's *science.*

Unemotional Science in Western Thought

Science may have saved me, and it may save others, but the idea of science as an emotionally-rich existential experience contradicts deeply embedded Western ideas about the nature of science. In varying threads throughout the academy and to varying degrees, science has often been depicted as antithetical to religion, and especially with respect to emotion. Religion has been easily and perhaps obviously associated with profoundly affective experiences such as salvation.[7] Science on the other hand has often been more associated with data, cognition, logic, and reasoning to such an extent that throughout history it has been seen not just as standing in opposition to religion but actively causing it to deteriorate, acting like, in Daniel Dennett's words, a "universal acid" that "eats through just about every traditional concept" (1996: 63).[8] This corrosive power of science has been a key component of narratives of secularisation throughout history, especially as they flourished in the social sciences from the mid-nineteenth to the mid-twentieth centuries (Brooke 2010: 104). There were of course many varieties of these narratives, but the one commonality among all of them was the loss of the credibility of religious beliefs as "scientific cosmologies progressively embarrassed them" (105). Scientific knowledge gradually "replace[d] ignorance." Superstition, it was certain, would "surely recede" (106).

[7] This was notably the case as religion turned inward during the seventeenth and eighteenth centuries—for more on which see page 40 of this thesis. Consider also a paradigmatic theorist who comes from this era, Friedrich Schleiermacher (1958; 1986).

[8] Dennett applies the idea of a universal acid just to Darwin's theory of evolution, but I here use it for science as a whole.

While the presumption that science is a rational collection of facts that has forced and continues to force religious irrationality to the side lines has been discredited in contemporary scholarship (e.g. Taylor 2007: 2, Brooke 2010), the association of science with the progress of rational thought and of religion with regressive irrational belief endures in popular culture and especially among science advocates. Banu Subramaniam (2008: 178-202) for example has explored at length how for science advocates in America and India, modernity and reason are "linked with the objectivity and rationality of science" (184). In doing so Subramaniam makes the extremely trenchant point that for much of popular culture science retains its quality as directly antithetical to religion: at the heart of the advocacy of science activists across America is "the construction of science and religion as oppositional and mutually exclusive practices" (183).[9]

Science is often held up by science advocates and the broader public as a paragon of reason, free from the toxicity of religion's irrational beliefs and the license to believe something because of emotion. Religion is actually toxic in the eyes of science advocates. New Atheist (and subject of chapter five of this thesis) Sam Harris states this baldly, saying that "[t]he danger of religious faith is that it allows otherwise normal human beings to reap the fruits of madness and consider them holy" (2005: 73). He has also said that "[t]he difference between science and religion is the difference between a willingness to dispassionately consider new evidence and new arguments, and a passionate unwillingness to do so" (2006). In Janet Jakobsen and Ann Pellegrini's words, if secularism represents rationality, then religion "can only present a danger to those who cherish" it (2008: 9). In much of the popular imagination, religion and science are distinct because religion

[9] It perhaps goes without saying that this view is popular among natural scientists. John Hedley Brooke has argued that this view "is certainly favoured by many natural scientists" (2010: 104). It is not hard to find examples of atheist scientists who value science (107) specifically because it elides the emotional irrationality of religion. Consider for example Richard Dawkins's *The God Delusion* (2006).

is characterised by emotion (specifically, irrational emotion) and science is characterised by thought (specifically, rational thought).

Science has of course been throughout history and is today by its advocates permitted some degree of emotionality, even religiously flavoured emotionality. One of history's most ardent science advocates, August Comte, for example, advocates for a version of the secularisation narrative in which science's empirical rigour dissolves traditional religion (for more on which see Bourdeau, Pickering, and Schmaus 2018). For Comte, the rational, scientific intellect is key to progress. It is the foundation upon which his entire system is built. But Comte also highly values emotions and so much values the spiritual ones that he founded an atheistic church that prioritised the cultivation of love: "[w]e tire of thinking and even of acting," he writes, but "we never tire of loving" (dedication to *The System* [1865]). Science and logic are actually meant to be in service of what Comte calls the "affections", the "heart", and the experience of love (Bourdeau 2018). They are important both for the good life and also for creating a good society.[10]

Even one of today's most ardent proponents of science over religion, Richard Dawkins, encourages the cultivation of certain emotions in one's relationship with science. These emotions mostly include variations of appreciation and wonder. Dawkins asks, for example, "[i]f history had worked out differently, and Michelangelo had been commissioned to paint a ceiling for a giant Museum of Science, might not he have produced something at least as inspirational as the Sistine Chapel? How sad that we shall never hear Beethoven's *Mesozoic Symphony* or Mozart's opera *The Expanding Universe"* (2008: 111). He expresses wonder at the world that we have discovered

[10] For more on which see Bourdeau, Pickering, and Schmaus eds. (2018).

through science:[11] wonder at our cells, wonder at distant galaxies, wonder at the fabulous complexity of the web of life (1998: 8). There is reverence, here, in Dawkins. There is awe, appreciation, and gratitude. This is different from but still as emotional as Comte. Dawkins's science is a source of solace, meaning, and value.

The problem is that even while science advocates permit emotions such as love and wonder to be associated with science, science still stands in contrast to religion on the basis of rationality. This is because emotions are corralled to second-order experiences, and when they do occur, they are licensed by the *reason* on which they are based. Referring to Dawkins's ideas about wonder, Donovan Schaefer writes that "[t]he emotionality of science is…a fringe benefit, a side-effect, the prize at the end of the race" (2017: 62). Science *cannot* be foregrounded by or composed of emotions. This would, says Schaefer, "contradict the wall of separation between emotion and truth, to locate the scientific method too close to the ambiguities of bodies" (62). Emotions have a place in science, but only insofar as they remain *scientific* and can be rightfully justified by scientific means. This is precisely the point of contrast between religion and science with which I take issue: science cannot in any way be experienced *like religion,* because then all of the neat categories that bifurcate the thought from the felt and the logical from the illogical would fall away. But perhaps this is precisely what needs to happen.

If this were to happen, an important gap in our understanding of science would be filled. As much as scholars attempt to take a more nuanced view of the tension between religion and science, scholarship on religion and science retains echoes of this characterisation of science as distinct

[11] For an exploration of the ways in which such a wonder may be anthropocentric see chapter two (pages 29-49) of Sideris 2017.

from emotional experiences, and especially ones with religious flavour. Specifically in the field of religion and science, for example, science is discussed by and large as an intellectual phenomenon that provides data points; its main function is to impact religion or to provide data with which religion must wrestle. It is not something that has its own sphere of affections, meanings, and culture. Philip Hefner represents this view in his essay "Religion and Science" (2008).[12] Science possesses an "integrity" that stands apart from religion and even from the field of religion and science. The purpose of scientific knowledge is not to "alter perennial values—love, family, and justice, for example" but it does and should "transform the context in which those values embed themselves" (564). Science isn't entirely removed from the process of making meaning, because it provides information that is useful to meaning. But it is still separate from the processes of making meaning, which belong to religion.[13]

The types of phenomena scholars in the field of religion and science choose to analyse reflect this distinction. Much of the literature in the field explores science as a set of data points or as a cultural force that impacts religion, and not as a phenomenon worthy of experiential analysis in and of itself. The content of *The Oxford Handbook of Religion and Science* (2008) illuminates the extent of this gap. The handbook is composed nearly entirely of articles about the various impacts science has on religion. The first seven chapters concern how various faiths such as Christianity, Judaism, Islam, and Indigenous Lifeways respond to the sciences. Later chapters delve into the scientific, anthropological, and psychological study of religion, methodologies in approaching relationships between religion and science, various important debates such as Darwinism and

[12] This article is primarily concerned with how the subfield "religion and science" can itself be characterised as a religious endeavour at least insofar as it is a process of "discernment." In the process of making this argument he describes science in this way (Hefner 2008).
[13] This concept is highly resonant with Stephen Jay Gould's popular concept of Non-Overlapping Magisteria (NOMA) which normatively describes religion and science as distinct phenomena (Gould 1997a).

Intelligent Design, and various theologies that have developed in response to scientific advancement. The focus here is either on the unfolding of conflict between science and religion or on how science affects religion. Science is what is used, impacting. Religion is the quest for meaning that is impacted.

Another way to look at the state of the field of religion is through the lens of disciplinary tools. Within the subfield of religion and science, the tools of science are often used to study religion. What if, however, we use the tools of religion to study science? What if we open up space in the field for understanding people's relationships with science in ways that are historically associated with religion? Science has a history of being cordoned off from emotion, from affective experience, from embodiment, from meaning, from religious feelings and experiences. But my personal experiences of salvation in science and the materials being produced by other science lovers and advocates (such as those I analyse in my case studies) suggest that we reconsider this bifurcation. The barriers in popular cultures and whatever barriers are left in the academy between the experiential qualities of science and the experiential qualities of religion must be taken down. This would provide 1) a way to understand science as an existentially relevant phenomenon, 2) a way to analyse the unfolding of secularity and the modern religious landscape, and 3) a way to better investigate what I here identify as salvation.

This is not to say that scholars of religion and science would disagree that science has what Schaefer calls an "under-attended internal limit" (2017: 62)—by which he means that it is inescapably emotional. Many certainly would. And there is some precedent in scholarship for studying such a thing, specifically as it relates to experiences and feelings traditionally conceived of as belonging to the category of religion. Lisa Sideris's work and specifically her 2017 book

Consecrating Science is an obvious, important, and deservedly popular example of investigations into the emotions and aesthetics of science. So is Schaefer's 2015 book *Religious Affects* and the articles he has published on the affective matrices of science (2017) and New Atheism (2018). There is also notable tangential study occurring in two subfields of the field of religion: 1) implicit religion, in which scholars look to what they consider to be implicitly "religious" qualities of "secular" phenomena (e.g. T. Jenkins 2010), and 2) religious naturalism, in which scholars who are interested in naturalistic religious orientations to the world strive to analyse and construct such visions (e.g. Stone 1992; Goodenough 1998; Crosby 2002).

This is however still to say that there is a real gap in literature on religion and science insofar as the emotional and specifically existential aspects of science are concerned. This gap derives from a deeply embedded historical narrative that pits religion and science against each other not just in epistemological, metaphysical, and political conflict, but also as phenomenologically incommensurable insofar as one is allocated to the realms of data and reason and the other to the realms of faith and feelings. This distinction needs to be blurred, and this gap needs to be filled. Science, says Schaefer, "never manages to supersede the guiding emotionality of our bodies, and therefore our minds" (2017: 62). I concur and take the argument further than Schaefer. It is not only that science shares with religion (and, indeed, all other aspects of life) that it is unrelentingly emotional. It is also that sciences shares with religion the power to be unrelentingly emotional on a deeply existential level. The *experiences* of relating to religion and of relating to science have long been deemed incommensurable because of science's association with data and to logic. But science can be at the same time both rich in data points and also have richly textured soteriological potential.

To rectify this gap I proceed by making two major methodological choices. The first is to focus on science not as a specific mode of empirical investigation, but rather as a set of concepts and affects afloat in culture at large. Hefner's perception of science as having a unique integrity that stands apart from religion derives in part from centuries-long attempts to answer the question: What is science? Is science distinctive? If so, why? How does science *stand apart?* While scholars have not reached consensus on the matter, they often point to its empirical methodology, communities of researchers, and values such as repeatability, reproducibility, and falsifiability, as aspects of science that suggest it's best conceived of as a distinct mode of investigation. Science *is* a special domain. Recently scholars have taken a "turn to practice" and explored the phenomenological aspects of conducting science, noting that science unfolds imperfectly as humans enact it (Andersen and Hepburn 2016). This has added ethnographic richness to scholarship on science proper (e.g. Latour 1979).

But to examine science only insofar as it is identifiable as a specific methodology enacted by scientists is to miss the sprawling power of discourse concerning "science" amidst broader cultural life. Very early on in my life I fell in love with something I thought of as science, but I wasn't in a laboratory. I wasn't scrawling proofs. I wasn't even taking science courses. I was watching television programmes, wandering through museum gift shops, and reading books about Einstein. I was getting swept up in moods of exploration, grandiosity, adventure, reason, and wonder. I wasn't a scientist by any means. I had never done any science, and I had never even learned all that much of it. But I was saved by something I encountered and experienced as belonging to the salvific realm of science.

Getting to the heart of the impact of science across cultural landscapes requires that we look beyond its special investigative "integrity" to the affective webs it laces throughout culture. Science must be understood beyond its methodological, technological, or institutional confines. It must be studied as a set of concepts, moods, and affects afloat in our world. In order to appropriately begin to map this, I let our cultural discourse speak for itself. That is, in each case study, I refrain from corralling the individuals' perceptions of science to a specific definition. Rather, I allow each of them to use the word "science" in their own way. I let science be what they think and feel it is. As such, images of science emerge throughout this thesis exactly as science exists across culture: variously and amorphously. Science laces throughout our affective lifeworlds as an existentially potent set of concepts, sentiments, feelings, and moods. In the case studies of this thesis, science takes shape according to each person's own cultural location and affective matrices, yielding multitudes.

This approach sheds much needed light on the multiplicity of ways in which presentations of science can manifest and impact people across cultural webs of thought and feeling. Offering a provocative juxtaposition, in Part I of this thesis, and especially in chapter one, I use the word "science" as it is commonly understood and as it relates to Hefner's understanding: referring to the empirical practice those who identify as scientists engage in order to study of the world in which we live. I use scientific theories regarding evolution and cognitive science as the basis of my concept of salvation. I liberally refer to "science" and "the sciences" in this sense. But then in Part II, I turn to using the word "science" broadly. Science ceases to be a specific set of methods and becomes a cultural phenomenon that exerts power and influences the people in the case studies on existential registers. Science becomes a web, or a multiplicity, of cultural sentiments and powers. Putting these conceptions of "science" side by side showcases the plurality of ways in

which it can be understood, used, and related to as an existentially potent phenomenon at work across cultural discourse.

The second major methodological choice I make is to study the existential culture of science in experiential terms. It is to analyse how science is felt, embodied, interpreted, and lived as a form of existentially-flavoured, embodied power. Specifically, it is to analyse how science can take on a salvific register in a context such as the modern secularised world. Discourses on secularism, science, and the relationship between religion and science need such a perspective because it elucidates the ways in which science is not so neatly aloof from the emotional tetherings of human being that it was once thought. Fortunately, this kind of exploration has already been conducted, so this thesis does not start from scratch. The fabric of science's salvation was first explored by philosopher Mary Midgley in her book *Science as Salvation* (2002). In this book, Midgley explores how science has been interpreted and related to salvifically. This effort set the precedent for my current study. Indeed, I have directly followed in Midgley's footsteps in my commitment to the language of salvation and its deployment with respect to science. A brief exploration of her work as such follows, after which I elucidate how I take up Midgley's task but in the more intentionally embodied analytic of affect theory.

Mary Midgley's Exploration of Science as Salvific

Midgley's starting premise is that God has been "amputated" from Western culture (2002: 32). There was once a time in which all of our spirit, meaning, value, solace, and existential understanding derived from God as an omnipotent creator. God performed a crucial ordering and consoling function. But because of science and various philosophical developments, God was

excised from the spiritual landscape. This pulled the core of spiritual stability right out from Western culture, something Midgley calls "a most dangerous and difficult psychological operation" (94). God had once carried "a huge freight of meaning" (32), which meant that amputating Him left the West with a far less simple and far more urgent spiritual landscape than any Enlightenment or positivist thinker might have been able to imagine. There is a sense in which Midgley's diagnosis of the modern spiritual problem mirrors Weber's narrative of disenchantment (this thesis: 187). She discerns that our world is one from which "[l]ife and vigour have been…drained" (94). But for Midgley, there is even more at stake than magic or enchantment. There is salvation.

For Midgley the most significant element of salvation—in the reclamation of vigour and meaning—is understanding. All of the despair, anxiety, and threats of meaninglessness one might experience following God's amputation actually stem from the loss of coherence that God once maintained within the system. This is to say: people require saving from chaos. "The cry for salvation" Midgley writes, "is a response above all to *confusion*" (emphasis hers, 2002: 63). The thing people most desperately seek "seems to be above all a meaning for life, a set of connections, however incomplete, that will make some sense of it, a general shape which will bring conflict and clashes into some perspective" (63). Midgley's salvation, then, is in a sense cognitive, and she takes a position of psychological functionalism (this thesis: 151). What people need most of all is belief: "a faith, something to believe in" (62). Feelings matter—and deeply, to Midgley—but they follow only after thorough sense-making (or its opposite) has been realised.

This *faith,* or *belief,* is necessary. It is foundational to the ability to live in the world. It is "something you must have before you can ask whether anything is true or not. It is basic trust…an

enclosing vision within which facts are placed…a way of organising the vast jumble of data" (Midgley 2002: 59). In other words, it is a comprehensive understanding of what things are and how they matter. The problem in the modern world is that with God gone and the spiritual landscape in shambles, the "jumble is getting more and more confusing" (59). Humans require "principles of organisation" and this need is most certainly "not going away" (59). It is for this reason that science is such a compelling salve for God's amputation. It provides order, coherence, explanation, understanding, and it can very often provide hope, solace, or excitement depending on the ways in which one interprets the information. For some examples: evolution can be construed as leading to the apotheosis of man and escape from material suffering (Midgley 2002: 152-164; see also Bernal 1929); space exploration can be experienced as a utopian promise or "physical eschatology" (Midgley 2002 183-184; see Dyson 1979); computer science and biology can be melded into hopes of evading death and even the end of the universe (Midgley 2002: 196-197; see Barrow and Tipler 1986: 658-659). Science can perform religious *functions.*

The psychological functionality of science in these religiously flavoured forms is Midgley's impetus for calling science salvific. Midgley anticipates that her critics may scoff at the choice and suggest she use a word such as "value" instead, but she thinks that value-centric language "may suggest a detached, market situation." At best, she says, the language of values "may suggest an art-gallery, a value-museum where we stroll through at leisure and admire the exhibits detachedly" (2002: 62). Value, in this sense, elides affective potency. It is cold, austere, *detached*. But what science does for people—and what all varieties of faith do for people (63)—says Midgley, is rich with phenomenological depth. People "feel the threat of some serious spiritual disaster" (63). We need a faith powerful enough to save us from chaos and help us make sense of the world in fulfilling ways. She uses the word salvation because she wants to stress "how deeply these

matters affect all of us" (1). Science is not just a "useful tool." It is also a "pattern" people follow at a "deep level in trying to meet our imaginative needs" (1).

Sense-making is so important to Midgley because she views orderliness or at least the longing for orderliness as a part of human nature. She has plainly written that "we naturally hope that the world is orderly. We like it that way" (2002: 119). A basically ordered world is "very important to us emotionally, may seem an important aspect of our salvation… It controls confusion, it makes the world seem more intelligible" (119). Humans simply need to make sense, and the need compels us on a deep, existential level. It is important to note that Midgley is not shy about using this kind of essentialist language about human nature. The need for salvation as a means of establishing cognitive order is according to her "deep and virtually universal." It is part of the mental and emotional architecture of human beings to require something to believe in that makes the world coherently navigable and worth living in.

Is Midgley right to make such universalising claims? In recent decades scholars have reflected on the history of theorising about human nature and realised that it is at significantly high (if not one hundred percent) risk of both being inaccurate and also marginalising (e.g. Haraway 1992, Peña 2014). This is because it abstracts singular claims into grand metanarratives (Lyotard 1984) that gloss over difference. These scholars make a significant point: the ability that studying human nature has to essentialise and to reify *must* be addressed thoroughly and with care. It is however nearly impossible to construct theories about various social movements or human behaviour without making empirically-informed generalisations about human beings. It is virtually inevitable that theories entail underlying notions about things humans tend to need or tend to do. If anybody is going to theorise about anything in religion, no matter how small or delicate the scope

of the study, there will be tacit presumptions about human functioning and even *human nature* sprinkled in the foundations of the theory.

An example of how some degree of theorising about *human nature* invariably finds itself tucked into cultural analysis and specifically that regarding secularism is Charles Taylor's *A Secular Age* (2007). Taylor's text is well-known for its insights into cultural change and how it shapes our experiences of religion and secularism. But if we truly wish to understand Taylor's theories it is important to find in *A Secular Age* the foundational fact about human beings upon which his whole set of arguments rests. It is this: the "secular" world looks precisely the way it does because humans have a nearly universal need for spiritual "fullness." All humans, says Taylor, "believers and unbelievers alike," are engaged in a "search for fullness" (2007: 19). This quest is intrinsic to what it means to be human: "for any livable understanding of human life," he writes, "there must be some way in which this life looks good, whole, proper"; without it, we are in "abject, unbearable despair" (600). Essentially, says Taylor, the reason secularism has taken the shape it has is because humans ineluctably seek fullness. Lois Lee makes a similar move. According to her, regardless of how someone identifies with respect to their existential or spiritual activities, they will encounter "existentially pressing moments" that compel them to address their loosely inherent spiritual needs (Lee 2015: 183).

Neither Taylor nor Lee devotes much text to these tacit notions about human spirituality. In fact, the ideas appear to be almost afterthoughts, sprinkled sparsely throughout the texts. Perhaps these ideas truly are insignificant for Taylor and Lee; based on the sporadic and limited nature of their appearance in the texts, it is impossible to adjudicate. Regardless, Taylor's idea about fullness and Lee's idea about existentially pressing moments are foundational to their ideas about

secularism. These ideas are actually some of very driving forces of the theories altogether. Without these tacit nuggets of suggestion about human nature, Taylor and Lee would have little justification for their views on how and why the modern religious landscape looks the way it does. Neither Taylor nor Lee seem to intend to open up a discussion about how and why people are "religious" or "secular," and this makes sense: they want to focus on history and culture. But the ideas about human nature that undergird their work perform theoretical functions anyway.

Even while postmodernism has taught us that there is significant reason to step carefully around theorising about *human nature,* this actually means that we have all the more reason to theorise, as opposed to not. I would much rather undertake such a task with intentionality as opposed to letting tacit assumptions operate without refinement or criticality. The latter seems more dangerous to me, and the former much more fruitful both for our understandings of the modern religious landscape and also probing at *human nature* and the relationship between the universal and the particular. So I operate in this thesis with the firm belief that if narratives, accounts, or theories of culture tacitly entail a theory about human nature anyway, it is prudent to engage the task head on. It is for this reason that I follow and develop Midgley's quest to theorise about human experience—with abundant attention to the perils of homogenising discourse (see chapter one). I seek to provide analytical foundations and tools for the study of religiosity and the modern religious landscape.

I do however undertake the quest with important differences from Midgley. In recent decades the study of religion has made what has been called a materialist turn (Vásquez 2011: 3; see also Strenski 2003). This turn seeks a "non-reductive materialist framework" (Vásquez 2011: 5) in which to understand religion as existing within an embodied matrix of identity, narrative, practice,

and environment (5). This means that salvation cannot simply emerge from a cognitive or intellectual need for order, as Midgley suggests. Rather, it unfolds out of embodied encounters with objects and persons in the environment. Ideas are important. They are a part of this matrix. Midgley is certainly right about this. But they are simply a part. The whole is a mix of affective swirlings and attachments, embodied experiences of power. These are not so much facets of the discursive but rather the phenomenological. Salvation needs to be understood on an affective register—as something that moves through bodies, ideas and, above all else, roiling masses of material power.

One of the key insights of Schaefer's text *Religious Affects* (2015) is that power is phenomenological. That is, power is experienced on an embodied register. Power, in Kathleen Stewart's words, "is a thing of the senses" (2007: 84). Schaefer elaborates this point by exploring religion—"like other forms of power"—as something that "feels before it thinks, believes, or speaks" (Schaefer 2015: 8). Power is felt. Religion is felt. *Science is felt.* This attention to feeling as an experience of sensory power is an important step beyond Midgley's original theorising about the soteriological potential of science. If we focus on the human being as an evolved animal and specifically as one that experiences power through the felt phenomenon what Sara Ahmed calls "the *lived experience* of being and having a body" (emphasis hers, 2014a: 39), then the question is not solely about what science does *for* people but also about what science does *to* people. The materialist shift in religious studies asks us to consider how humans are impacted by and networked within social and environmental material. Midgley is right that we can experience profound salvation when we relate to science. But if we wish to provide the most comprehensive account of it, we must do so with full attention to our embodied and political animality.

In order to do that, I use the phenomenological branch of affect theory. I explore the nuances of my approach in chapter two of this thesis. But for now, briefly, it serves to state simply that my embodied and affective approach takes salvation beyond Midgley's cognitivist confines. I define salvation as

> the remediation of existential anxiety; that is, the remediation of the felt limitations of embodied existence, or a transition from negative to neutral or positive affect with respect to existential anxiety.

I build this concept slowly over the course of chapters one, two, and three of this thesis, using evolution and cognitive science, affect theory, and existential approaches to human limitation respectively. This affective form of salvation takes a similar approach to Midgley's insofar as it explores the ways in which science impacts people on a deep existential register. And it honours the phenomenological depth of this experience. But it goes beyond Midgley's analysis as it explores the interstices of human affect and embodied limitation in rich theoretical detail.

The Language of Salvation and the Category of Religion

Why "salvation"? I define salvation as a remediation of existential anxiety, where existential anxiety is an embodied, evolutionary set of negative affects that are not necessarily manifest across space and time for all cultures but which are manifest and exaggerated in the modern West. Similar concepts have been explored with language that by-passes religious connotations: meaning making, for example (Park 2010), or, as Midgley discusses, value, valuations, or value-making. Midgley however makes the trenchant point that there is a degree of phenomenological depth to the religious language that is not well served by more clinical sounding terms such as value. "Value," Midgley says, is "detached." Salvation, on the other hand, is "colourful." It is

necessary to show "how much the whole things matters" (Midgley 2002: 50). Salvation is immediately pressing, deeply existential, and a pattern that we follow at a "deep level" (50) in order to parse chaos and arrive at an understanding that orders our world. Midgley is right that there is great phenomenological depth to the language of salvation, and I follow her example in using it in part for these purposes.

I also, however, supplement Midgley's reasoning with a specific goal: to address and to blur the distinction between the religious and the not-religious. The rise of unorthodox existential cultures such as science in the wake of the shift to Taylor's secular age suggests that it is prudent to interrogate or at the very least conduct research beyond the categories. Taylor retains a definition of religion as being concerned with the "transcendent" or having an "external" source of meaning, but he does this for practical purposes of explicating the transition from transcendent sources of meaning to immanent ones in Western culture (Taylor 2007: 15). I am not concerned with elucidating such cultural shifts; I am instead concerned with the underlying facets of human animality and experience which may give rise to such shifts. So it is better to start my inquiry at a place outside of such categories, or perhaps *prior to* such categories. It enables me to see how they and other phenomena function without being restricted by categories and debates about categories.

Understanding the history of "religion" as a category illuminates why for our purposes the divide between what's classifiably religious and what isn't is at best neutral and at worst actively inimical. In a very important sense "religion" is a modern construction.[14] We know this in part

[14] This idea has become important and hotly debated in the field of late, due to the advocacy of thinkers such as Russell McCutcheon (1997; 2003), Tomoko Masuzawa (2000), Timothy Fitzgerald (2003), and Brent Nongbri (2013) to name some examples.

because of the language: "religion" doesn't mean what it once did. Historian of religion Peter Harrison has demonstrated at length in his seminal text *Territories of Science and Religion* that the meaning of "religion" in early and medieval Christian history was not "belief," "faith," or anything remotely like what we consider religion to be today. Instead, it actually meant something like "inner piety" or sometimes "worship" (Harrison 2015: 8). It was an "important moral virtue related to justice" (7) which, according to Thomas Aquinas, referred to interior acts of devotion and prayer out of which more external behaviour such as vows and tithes would follow. The interior component always remained primary (Harrison 2015: 7; see also Deferrari et al 1948: 960). "Religion" wasn't a belief proposition. It was a virtue.[15]

The word religion first began to change from *piety* into its more modern meaning in 1517 when Martin Luther nailed his 95 Theses to the Wittenberg castle church door. This inaugurated the Protestant Reformation, which, with the power of the printing press behind it, enabled an increasing proportion of people to read the Bible in their own languages and really begin to interpret it for themselves—or to at least follow others who did so. The printing press enabled word to spread so quickly that geopolitical allegiances could form amidst burgeoning belief systems. This is a phenomenon demonstrated by the Peace of Augsburg, a treaty signed in 1555 by the Holy Roman Empire and an alliance of Lutheran princes called the Schmalkaldic League. In the text of this treaty the two sides are not divided along geographical lines *per se* but rather

[15] Indeed, in early Christianity and the Middle Ages people sought "true religion," but this was not a distinction between right and wrong *belief*. It was actually a distinction between worship properly and improperly directed. The ancient Church Father Tertullian was the first to use the phrase "true religion," and when he did so he was, according to Harrison, referring to a "true" worship of a "true God," as opposed to a fictitious one (Harrison 2015: 8). One of the most prominent theologians of the twelfth century, Peter the Chanter, distinguished religion that was pure and true (*munda et* vera) from that which was vain and false (*vana et falsa)* (Harrison 2015: 9). Peter's student, Radulfus Ardens, also spoke of true religion, in his words entailing "the fear and love of God, and the keeping of his commandments" (quoted in Harrison 2015: 9).

between the "old religion" of Catholicism and the "Augsburg Confession" of Lutheranism; the document calls these groups *religions*—not territories, not alliances, not fiefdoms—but religions. This was the first time in history a treaty was signed explicitly between religious allegiances as opposed to political ones (Harrison 2015: 97-98).

We tend to think of "religion" as a *sui generis* phenomenon that is separate from the rest of life (e.g. McCutcheon 1997, 2003; this thesis: 58-60). But this concept is very much a product of the developing tribalism among multiplying Christian sects and the way in which it intersected with the development of nation states in early modern Europe. After the initiation of the Protestant Reformation, more than ten million people died in the Wars of Religion.[16] If the European continent were to survive the bloodshed, then change was necessary, notably the privatisation of belief. In 1689, John Locke gave prominent voice to a solution to the violence: stop seeking a way to settle which religion was "true," and instead turn religion inward. He wrote: "the care of Souls cannot belong to the Civil Magistrate, because his Power consists only in outward force; but true and saving Religion consists in the inward perswasion of the Mind" (1689: 6). If people would isolate their beliefs to the private sphere, in the public sphere they could elevate their loyalty to what were then developing nation states (Nongbri 2013: 6). This would give everybody a higher authority under which they could co-operate while still allowing them the freedom of their personal beliefs. "Religion" is colloquially used to designate private beliefs to this day.

The problem with categories is that they can obscure insights into the nature of human experience and behaviour. This is especially the case with complex phenomena such as religion. So rather than contort what I observe across the supposedly secular age in order to fit this

[16] Though the causes of these wars were various and complex, not reducible to "religion."

particular category in this thesis, I follow Timothy Fitzgerald in observing society from the bottom up. Fitzgerald refrains from confining his observations to things that only seem "religious" to him. Instead he looks for "fundamental values of the society and the way they are institutionalised" in cultures as a whole (Fitzgerald 1993: 317). I consider it a " bottom up" approach because it begins with observation, outside of preconceived categories. This allows for trends and phenomena to arise organically and escape the confines of categorical parameters.

For this methodological reason, I analyse the existential registers of human experience completely outside categorical bounds. I start as much as I can from basic affective observation. I do not start with religion; I start with humans. I start with scientific perspectives and theoretical perspectives. I start with critique of these perspectives. This commitment to ground-up observations and analyses I learned from Fitzgerald is why I construct the concept of salvation the way that I do. I do not consider salvation to be *religion.* I consider salvation to be what Ann Taves has called and Russell McCutcheon now calls a "religion-like thing." Religion-like things are phenomena which may have traditionally been associated with religion or which may continue to have resonance with traditionally religious phenomena (Taves 2013: 151; McCutcheon 2010: 1191), *but* which are not necessarily confined by categorical bounds.

Salvation, as I here construct it in this thesis, is a religion-like thing. Salvation has been traditionally associated with religion, but it is not religion. It is experience. Salvation as such is basic, in the sense that it is basic to human experience, prior to categories. Salvation is animal. Salvation is affective. Salvation is compelling and compulsive. Salvation is a cultural phenomenon that occurs when animal potentialities are made manifest by context. Salvation—which is not universal but the potential for which is universal—is a powerful influence on what it means to be

human. Salvation is a religion-like thing. As a religion-like thing, salvation is more useful than the category of religion for my attempts to make sense of human functioning, existential cultures, and the modern religious landscape.

The category of religion creates boundaries between that which is experienced as "religious" and that which is not. But knowing what we now know about the history of the category of religion and the development of the modern religious landscape, it is clear that having language that helps blur these distinctions, at least on a phenomenological level, is well overdue. I choose the language of salvation specifically because it is traditionally associated with the category of religion. I do not mean to invalidate more traditional understandings of the term. But I do propose using the word salvation in this way so that the rich existential depths of people's experiences—both within the category of religion (however defined) and outside of it—can exist and be recognised on the same level with the same amount of potential for existential depth.

New Perspective for Theorising Salvation

This concept of salvation I here propose has one final purpose, which is to offer a new contribution (or resolution) to some theoretical debates about the concept of salvation. One popular concern among theorists of religion and salvation is the question of whether the concept of salvation can be applied universally across religious traditions. Salvation is of course a traditionally Christian term. But when scholars began to theorise about world religions in the nineteenth century, they became interested in the ubiquity and usefulness of the concept of salvation. They began to wonder whether there were cross-cultural parallels of Christian salvation in other religions.

The first notable attempt to universalise the idea of salvation was enacted by Max Weber, who explores salvation as a type of religious "promise."[17] For Weber, some religions are religions of "salvation," and others are not. Those religions which do participate in the "striving for salvation" provide content that varies "depending upon what one wants to be saved from, and what one wants to be saved for" (Weber 1963: 147). In other words, Weber believes that some religions offer promises, and each of these promises is contextually dependent. In Abrahamic traditions, according to Weber, for example, "[t]he distinctive content of salvation in the world beyond may essentially mean freedom from the physical, psychological, and social sufferings of terrestrial life." In a more Eastern mode, says Weber, salvation "may be more concerned with a liberation from the senseless treadmill and transitoriness of life as such" (149). In each case, even though the promise is different, a promise is made. In formulating such a framework for comparing religions, Weber initiated a thread of study in scholarship on religion that investigates salvation in terms of its universal applicability and functionality.[18]

One way scholars have taken up Weber's task is with a perennialist theological agenda. This endeavour is perhaps best represented by theologian John Hick. Hick seeks a perennialist idea of universalist salvation in which all religions, beyond the specifics of their cultural embeddedness, point towards the same ultimate ends and reality (Hick 1989: 56). According to Hick, today's

[17] This promise is meant to be delivered if a certain action is carried out. This is why Ephraim Fischoff translates Weber's concept as "compensation" instead of "salvation" (Fischoff's note in Weber 1963: 148).
[18] Weber is interested in salvation certainly but mostly in a sociological light, not in a theological light like Ernst Troeltsch is (Adair-Toteff 2015: 107). Weber's significant sociological interest in the concept is captured by Adair-Toteff in a summary of his works concerned with salvation. Adair-Toteff tells us that Weber wrote two chapters on salvation for the "*Religöse Gemeinschaften*" section of *Wirtschaft und Gesellschaft.* The first is titled "Salvation and Rebirth." It is less than five pages. The second chapter, "The Ways of Salvation and their Influence on the Conduct of Life" has more than sixty pages (Adair-Toteff 2015: 107-8; see Weber 2001: 301–305, 305–367).

major world religions awakened people from simple materialism into an awareness of "a limitlessly better possibility…transcendent to our present selves" (56). Each of the major religions now exhibits "a soteriological structure which identifies the misery, unreality, triviality, and perversity of ordinary human life" and "affirms an ultimate unity of reality and value….in which a limitlessly better quality of existence is possible, and shows the way to realise that radically better possibility" (36). Essentially, damnation and salvation are the same across religions. Damnation is characterised by evil, ugliness, and the perversity of selfishness from which we all need rescuing. Salvation is characterised by transcendence away from the shallow ego. This, Hick says, occurs in each religion in "different ways" (36), but the personal transformation entailed therein is identical. Salvation is everywhere the same.

To theorise salvation in such a normative, perennialist vein way is theoretically conflationary and problematically colonial, as S. Mark Heim demonstrates in his book length critique of Hick's theories (1995). The question remains of whether the concept of salvation can be useful in a descriptive sense. One potentially fruitful approach is to take a more strictly interpretive, closely-read, cross-cultural approach to salvation. This is the approach of John Thatamanil, who both constructs a model of salvation as well as conducts a close comparative reading of two thinkers within his model. Thatamanil calls his model the "medical model." This notion is similar to Weber's in that it thematises a sort of delivery from insufficiency. But Thatamanil's is more nuanced insofar as it deploys four specific components of salvation, each of which he explores in exacting detail. There is 1) a diagnosis of the "human predicament," 2) an aetiology for that predicament, 3) a prognosis for remediation, and 4) a course of treatment (Thatamanil 2006: 17).

Thatamanil applies this medical model to the thoughts of both Christian theologian Paul Tillich and Advaita Vedanta philosopher Adi Sankara. For Sankara, according to Thatamanil, at least, the diagnosis is samsara,[19] the aetiology is ignorance, the prognosis is liberation, and the course of treatment is the study of non-duality (Thatamanil 2006: 17).[20] For Tillich, the diagnosis is sin/the estrangement from God, the aetiology is the fall, the prognosis is forgiveness, and the treatment is living in the New Being through acceptance. After thorough and careful comparison and contrast, Thatamanil tentatively concludes that there is real commensurability among salvations in these viewpoints. They are articulated differently, but they have resonance in their metaphysical, ethical, and experiential components. Objections to attempts to draw parallels between salvations, says Thatamanil, are "premature." "Careful and patient comparison," he writes, "demonstrates that summary judgments of incommensurability are off the mark" (183). For Thatamanil, some degree of universality or at least a basis for drawing cross-cultural parallels between doctrines is real, if you conduct your analyses carefully enough.

Thatamanil's work is relevant to inter-religious dialogue and should not be ignored. But it remains extremely difficult—after one hundred years of sporadic work done on the topic since Weber—to conduct such analyses and draw such parallels (Heim 1995), especially when zooming out from particular thinkers or texts. So the question I bring to the dialogue is this: if we wish to discuss salvation in a sense that all humans can (though do not have to) experience salvation, or in a

[19] For a discussion of the potential problems with identifying a "human predicament" in Sankara's work see Thatamanil 2006: 13-15; Thatamanil relies on Robert Neville's elucidation of a tri-partite comparative schema in Neville's book *Recovery of the Measure: Interpretation and Nature* (1989) to justify his comparison of Sankara's thought with Tillich's, and especially his use of Western language in doing so.
[20] Thatamanil here recognises the importance of the Buddha and how early writings about the Buddha as a physician "suggests that this analogy was not unwittingly foisted onto Buddhist tradition by nonindigenous sources," but rather is embedded in the tradition, and therefore relevant to Sankara's Advaita Vedanta (Thatamanil 2006: 17).

sense that all religions might (though do not have to) entail salvation, why not ground the concept of salvation in the human being, as opposed to in the religion? This is not to say that doctrinal (or ritual) understandings of salvation are incorrect or need to be jettisoned. *But,* juxtaposing these more doctrinal investigations of the nature of salvation with my subject-based investigation of the nature of salvation demonstrates that these are two different and complementary levels of analysis. There is the level that compares the content of religious texts, rituals, or practices. There is also the level—my level—that explores the phenomenology of affective experience. These are different concepts, but do they intersect. And the latter approach, my own, illuminates how and why salvation can be experienced. It also provides a framework for comparing and contrasting experiences of salvation across religious (and secular) divides.

Modelling soteriology in a way that is based on doctrine, ritual, or any other component of religion that belongs exclusively to religion is important. It can deepen our understanding of doctrine and experience (McGrath 1986), can teach us about rituals (Bodiford 1992), and can reveal interesting comparative insights (Heim 1995). But adding an alternative model opens up ways in which to delve into the subjective aspects of affective salvific experience. My concept of salvation turns from the centrality of *religions* to the centrality of *subjects,* who often experience salvation *within* religion. Salvation as I envision it first and foremost resides in the flesh and neuro-circuitry of the human animal. This is a concept upon which I elaborate in chapter three. I articulate a *phenomenology*[21] of salvation as an experience embedded in human materiality. This is a conceptual formulation that does not replace traditional salvation. But it does supplement it, and it provides new avenues for analysis in a globalising, pluralising, and "secularising" world.

[21] For a thorough explication of my election of the term "phenomenology" see footnote 5 on page 129 of this thesis. Briefly, I do not invoke the philosophical tradition of phenomenology or phenomenologists of religion; rather I use the term to designate *experience* "directed toward" 'something (Smith 2013).

This thesis is concerned first and foremost with the qualities of human experience that give rise to various attachments, compulsions, and actions that account for developments across the modern religious landscape in the ebbs, flows, and confluences of existential cultures. Because I identify salvation as a phenomenologically rich affective experience, I am capable of discerning a diverse palette of experiences outside of traditional religious bounds. Religion is not a helpful category for this analytical endeavour; the "religion-like thing" of existential remediation—of salvation—however, *is.* As I carefully develop throughout chapters one, two, and three of this thesis, humans come equipped with a potential to experience existential anxiety that is manifest and exaggerated in the modern West. Since this potentiality exists in humans across traditional categorical bounds, the notion of salvation yields an important new phenomenological layer to the studies of secularity and of science.

Chapter Overview

This thesis is divided into two parts. The first part entails approximately half of the text and is concerned with constructing the theoretical apparatus with which I later in part II apply to three case studies on the soteriological potential of science.

Part I begins with chapter one, "The Promise of Science for Studying Religion and Salvation." This chapter is an exploration of means by which to deploy the distinctive methods of *science* in the study of religion and religion-like things such as salvation while simultaneously being sensitive to difference and *sui generis* critiques of the category of religion. Russell McCutcheon has argued that deploying the sciences to understand religion or religion-like things will "lead to that pesky

old notion of *sui generis* religion re-entering our field, doing it this time through a new, biological back door" (2010: 1191). But McCutcheon's reservations are misplaced in light of recent developments in evolutionary thinking and cognitive science. I demonstrate this by exploring how these new developments outperform the somewhat simplistic and outdated scientific approach of feminist scholar Griet Vandermassen. The new stance in evolutionary thinking I advocate taking is a spandrelist stance mixed with Schaefer's Derridean deconstruction of the carno-phallogocentric linearity of evolutionary theorising. The new stance in cognitive science I promote is an interactionalist stance. The result is a means by which to theorise about human evolutionary history, genetics, and biological development that never speaks of genetic certainty but instead of tendencies which are amply interactional with culture.

Chapter two, "The Affective Contours of Salvation" introduces affect theory while continuing this critique of overly linear, neatly sorted theorising. In this chapter I establish affect as a means by which to conceptualise how salvation and other human experiences take place. Affective neuroscientist Antonio Damasio adopts a Spinozistic understanding of the human *conatus* as homeostatic and naturally oriented to wellness. Two examples of medieval religiosity—Julian of Norwich and Catherine of Siena—however, demonstrate how that which may be "good" for us can also be simultaneously "bad." Affect theory provides a means by which to account for the non-linear, queer character of human experience as materially embedded within and influenced by power. This entails an exploration of the differences between Deleuzian/Spinozistic and phenomenological branches of affect theory. I use the phenomenological branch because of its receptivity to evolutionary history and influence. I depict human beings as animal, material, embodied, feeling, and affective creatures whose affective matrices are deeply compelling. This

lends credence to my view that psychologically functional approaches to religion need to be expanded to include not just what phenomena do *for* people but also what they do *to* people.

Chapter three, "What Does It Mean to be Saved?" applies what has already been explored in terms of the sciences and affect theory to build my concept of salvation. Here I enfold the existential anxiety of Paul Tillich into an evolutionary framework comprised mostly of the evolutionary theorising of Scott Atran. Atran posits that once humans evolved two key abilities—the cognitive capacity to make inferences and the emotional capacity to feel "higher order" emotions—they developed *existential anxiety* (2004). Atran's explanation of evolutionary origins lacks experiential depth, however, so I develop it further by deploying Thomas Tweed's concept of *embodied limitations* (2006). Embodied limitations constitute negative affects that arise out of the material frailty and limits of the human condition. As a result of evolutionary history these affects have become deeply embedded potentialities that may be realised in human cultures (depending on the context), as evidenced by the intensity of existential anxiety in the modern West. And they compel us to seek remediation. This remediation does not, however, happen solely in religion. I demonstrate how salvation occurs across categorical bounds with a brief exploration of the salvation of Saint Augustine.

Part II opens with chapter four, a case study of the soteriological relationship biologist Ursula Goodenough has with science. I explore Goodenough's salvation amidst the unfolding of the religious naturalism movement, which seeks to create ethically motivating worldviews. Religious naturalists must explore affectivity if they wish to maximise the ethical potential of their work. Affect theorist Jane Bennett provides an account of affective motivation that can be useful to religious naturalists, but Bennett's account of affective attachment is incomplete because it

includes science only when it has the enchanting properties of surprise, delight, and arrest. I supplement Bennett's account with the affective potency of the sciences when they are calculable, slow, and contemplative—given that they are also salvific. I demonstrate how Goodenough's early experiences of existential anxiety and despair come to be remediated over time as she explores ways to interpret scientific findings: Goodenough's salvation is a result of the intermixing of the more ordinary affects of science with its existential potency. Goodenough's engagement with science, when analysed affectively, provides impetus for religious naturalists to investigate and cultivate the soteriological potential of science in their materials.

Chapter five is a tour of Sam Harris's brand of New Atheism. I explore his salvation against the backdrop of charges that New Atheism is fundamentalist. I argue that charges of fundamentalism based on stridency of tone or the enactment of "faith" as an epistemology are insufficient for deeming the New Atheist movement fundamentalist. There is however a resemblance between New Atheism and Christian fundamentalism, and I describe it in terms of attachment to a salvific epistemology. I demonstrate how Harris's attachment to science is salvific insofar as it neatly orders his world and provides neatly sorted answers to the chaos and ambiguity of life. Harris deploys science to engulf realms of life traditionally distinct from science such as morality, spiritual belief, and spiritual practice. The latter two categories—spiritual belief and spiritual practice—are of particular interest because Harris goes so far as to enfold Buddhist tenets and Buddhist practices into his "scientific" spirituality. Harris professes to being deeply spiritual in this sense, but he is only able to be spiritual when science is the legitimising frame. Longing for order and answers in a time of uncertainty, Harris is saved by the inflation of science into scientism and manipulation of morality and spirituality into a scientific framework.

Chapter six explores the salvation of famous zoologist and environmental advocate E.O. Wilson. In her 2017 book *Consecrating Wonder,* Sideris argues that science is antithetical to environmental ethics. According to Sideris, emotional investment in science imposes a distance between the subject and the natural world; it shifts wonder away from nature and directs it toward the anthropocentric triumphs of science. Wilson is her case study for "religious" investment in anthropocentric science triumphalism. I however conduct an affective analysis of Wilson's relationships with nature and science and in doing so demonstrate that Wilson's salvation in science does not direct his energy away from nature but actually in *to* nature. Wilson, I argue, is saved by science not because of the triumphs of its knowledge production (what Sideris claims), but rather because it provides him with A) means by which to deepen his relationship with nature and B) means by which to consider himself rightly at home in nature. Even while Sideris may be correct to disrupt the triumphalist anthropocentrism that can be a part of scientific discourses on wonder, Wilson is not a proper case study for it.

I conclude with a discussion of three big questions underlying the explorations in this thesis: what is science? What is humanity? How can the two relate? One of the foundational tenets of affect theory is that affects are materially embedded forces that give shape to our subjectivity and behaviour. Throughout this thesis I build on this core tenet to argue that there is an existential register to our affective matrices. Science, though it has often been perceived as cool, objective, and immune to emotional influence, is actually so affectively potent that it can function on these existential levels, moulding experiences of existential anxiety and salvation throughout our supposedly secular age.

Part I: Theory

I. THE PROMISE OF SCIENCE FOR STUDYING RELIGION AND SALVATION

"*It belongs to our species' life to bring ourselves into being, through others, as unique individuals. Difference is natural to us.*"
Terry Eagleton[1]

In recent decades the study of religion has made what has been called a materialist turn (Vásquez 2011: 3; see also Strenski 2003). In Manuel Vásquez's words, this turn to a "non-reductive materialist framework" "begins with the acknowledgment that the practitioners' appeals to the supernatural, god(s), the sacred, or the holy have powerful material consequences for how they build their identities, narratives, practices, and environments" (2011: 5). That is, one cannot separate experiences related to religion from the rest of life, culture, and surroundings, specifically as they pertain to embodied experience. In Bruce Lincoln's words, this means that scholars must insist that "discourses, practices, and institutions that characteristically represent themselves as eternal, transcendent, spiritual, and divine" be studied in light of their "temporal, contextual, situated, interested, human, and material dimensions" (1996: 225). To be religious is not to enact Mircea Eliade's separation of the sacred from the profane (Arnal and McCutcheon

[1] In Terry Eagleton's *The Illusions of Postmodernism* (1996: 117). Note: the ideas and some portions of this text of this chapter, especially among the sections on Russell McCutcheon's work, interactionalism, and biological regularities and difference, can be found in my article "To Naturalise is to Differentiate" (Ruper 2018).

2012).[2] It is rather to be fully human, fully embodied, fully emplaced, and fully material in all of our engagements.

Vásquez (2011: 3-4) and Ivan Strenski (2003) have compiled lists of dozens of scholars who have recently undertaken a more materialist approach to religion and emplaced religion within the context of embodied experience. Within this multitude of theories and works being produced, there has been significant debate as to the proper role science may play in understanding religion. While it is an over-simplification to parse the conversation into an either/or binary, there are some scholars who approximate such a distinction. Edward Slingerland's 2008 text *What Science Offers the Humanities: Integrating Body and Culture* (2008), for example, advocates that the sciences be deployed in the study of religion without reservation. On the opposing end scholars warn against the deployment of any degree of science in the study of religion. One such view has been championed by Russell McCutcheon. McCutcheon, in a review of Ann Taves's *Religious Experience Reconsidered* (2009), argues that a scientific approach to defining religion or even to studying what Taves refers to as "religion-like things" (McCutcheon 2010: 1191)[3] such as my concept of salvation will lead to a re-emergence of *sui generis* religion and a flowering of homogenising, hegemonic discourse.

McCutcheon's concern that deploying science in the study of religion and religion-like things (such as salvation) has problematic consequences is legitimate and important to address. Throughout

[2] McCutcheon also has a chapter on Eliade titled "The Debate on the Autonomy of Eliade" on pages 74-100 in *Manufacturing Religion* (1997).

[3] I define this in the introduction (41). McCutcheon does not delve into what he identifies as a "religion-like thing," other than to refer to Taves. Taves in the *Handbook of the Psychology of Religion and Spirituality* uses the term to describe "different elements" of religion, whether this be "non-ordinary powers" or "non-ordinary worlds" or any other such phenomena that have been identified as constituting or tangential to "religion." See Taves 2013: 151.

the history of the study of religion, scholars have continually attempted to define religion according to specific parameters. Each of these attempts has given rise to an inflexible and exclusionary concept of religion—a phenomenon explored by McCutcheon (1997, 2003) and others such as Brent Nongbri (2013) at length. These attempts are problematic because they lead to theories of religion that are both inaccurate and colonial, in the sense that they impose very specific Western-Academic categories on external groups, which I discuss at length below.

Introducing science to the mix, says McCutcheon, will "lead to that pesky old notion of *sui generis* religion re-entering our field, doing it this time through a new, biological back door" (2010: 1191). He is not wrong to be wary. Science has a long history of being deployed to reify socio-cultural phenomena as biological facts with drastic consequences for sociocultural equality (see e.g. Haraway 1992). It has the potential to reify religion to significantly problematic effect. But it does not *have* to. Applying a critical lens to science and especially recent developments can obviate McCutcheon's concerns. In this chapter, I critically explore the sciences as they relate to the study of humans, religion, and religion-like things. I demonstrate how recent innovations point the sciences away from reification and towards differentiation. This resolves McCutcheon's concerns about the study of humans, religion, and religion-like things.

Attempts have of course been made to use the sciences in ways that are friendly to critiques of reifying discourse. One such attempt has been conducted by Griet Vandermassen, a scholar of feminism interested in the intersection of evolutionary perspectives and feminist politics. Feminist politics are quite distant from our purposes here of addressing the category of religion. But this chapter engages Vandermassen's work because it provides a clear example of what scholars of religion should *not* do in the quest to find material and scientific bases for their

theories. Vandermassen's 2005 book *Who's Afraid of Charles Darwin?* attempts to demonstrate how an amicable partnership can exist between science and social constructionism. This is a feat that can be achieved—as I demonstrate later in this chapter—but Vandermassen's method is not one that can do it. It is necessary to explore where and how she errs, so that scholars of religion can move forward using and integrating science appropriately.

The reason Vandermassen's attempt fails is she takes excessively adaptationist and modular approaches to evolution and cognitive science, respectively. This is a mistake I later describe in Derridean terms as carno-phallogocentric, meaning that it falls prey to the tendency to impose neat order on a world that may not actually correspond to reality. Specifically, in scientific terms, Vandermassen fails because she does not account for recent developments in evolutionary theory and cognitive science that require greater degrees of nuance in their deployment (and less carno-phallogocentrism) than earlier strategies in using science to theorise. With these recent developments and innovations, however, specifically with respect to taking a more spandrelist approach to evolution and an interactional approach to cognitive science, science stops being inimical to the study of human phenomena (such as both gender and religion) and starts being an analytical tool that is eminently sensitive to difference. In fact, when used in the way described in this chapter, it can actively help dismantle homogenising narratives within the study of religion. This is especially the case in the study of religion-like things such as salvation.

We may as such very well be able to be scientifically rigorous in the study of religion while at the same time resist the very homogenising, reifying, and oppressive pronouncements McCutcheon fears. Karl Marx argued in the unfinished manuscript *Grundrisse* that the human being is "not merely a gregarious animal, but an animal that can individuate itself only in the midst of society"

(translated by Megill in Megill 2001: 84). At least on Terry Eagleton's reading, Marx meant that we are differentiators by nature—that is, that we are defined by our cultural multiplicity (Eagleton 1996: 117). This attitude set Marx and subsequent social constructionists apart from those seeking only evolutionary explanations. A divide between the two camps has become pronounced since then, but it is not necessary. We *can* use science to theorise about religion and religion-like things while integrating the importance of culture and differentiation. I demonstrate how in this chapter first by exploring McCutcheon's concerns about the potential of the sciences to reify categories such as religion, second by explicating Vandermassen's failure to allay his concerns within the context of gender, and finally by demonstrating how specific modifications to Vandermassen's approach yield a science that is robust in its ability to foreground the relevance of culture in the study of all things human, including salvation.

McCutcheon's Critique of the Scientific Study of Religion and Religion-like Things

Amidst a myriad of on-going, often intense discussions concerning the nature of religion, McCutcheon has levelled a trenchant critique. McCutcheon, claiming Michel Foucault as an intellectual forebear (McCutcheon 1997: iii-vi), demonstrates that the category of religion has inherent power: academics often ignore its socially constructed nature and glibly use it in a *sui generis* way, which legitimises Western authority and furthers hegemonic colonial interests.

By calling religion *sui generis,* what McCutcheon means is that it is conceptualised as "autonomous, of its own kind, strictly personal, essential, unique, prior to, and ultimately distinct from, all other facets of human life and interaction" (McCutcheon 1997: xi). Examples of it include

Rudolph Otto's appeal to apprehension of "the holy" (1950; see also Orsi 2012) or Eliade's appeal to "the sacred" (1961; see McCutcheon 1997: 74-100). Schema such as Otto's and Eliade's that define religious experience or religion by a specific quality determined by Western academic positionality deemphasises "difference, history, and socio-political context" in favour of "abstract essences and homogeneity" (McCutcheon 1997: 3). *Sui generis* religion reifies religion according to a specific taxon that is ultimately arbitrary, since religion is decidedly not, in McCutcheon's perspective, a natural type.

Under *sui generis* conceptions of religion, a given culture or phenomenon is often evaluated as to how well it fits the taxon. If it does not fit, then it is either considered a runt of the litter and disregarded as such, or it is distorted such that it does fit. Both of these outcomes serve to legitimise the authority of the scholars who construct the narrative at the expense of those who are studied. "Religion," McCutcheon summarises in *Manufacturing Religion*, "understood not simply as a useful heuristic, taxonomic, or analytical tool for demarcating and studying a certain aspect of human beings and communities but as an ontologically distinct category, an irreducible aspect of human experience or consciousness, privileges one group of human data over all others" (1997: 19). Note that McCutcheon does not wish to do away with the concept of "religion" altogether. It can be a "useful heuristic" for comparing and contrasting "how cultures are constructed," specifically in the modern era in which we deploy the word "religion" on a regular basis (McCutcheon 2014: 252). But when deployed in a categorising and especially in an inflexible, homogenous way, it becomes inimical to the search for understanding.

Science exacerbates the problem for McCutcheon because it has potential to reify these constructed categories. McCutcheon believes that naturalism will homogenise religion and

religion-like things, only in this instance under the "guise of science instead of transcendence." In this sense, he sees science simply as the next authority to step into the field of religion (after God) to place arbitrary parameters around what counts as religion and what doesn't. He writes:

> Any attempt to look for the pan-human, pre-social constraints that make people religious is a misguided effort at best. It amounts to taking but one local, recent, and folk classification system and universalising it by finding (i.e., placing) it into all people's hearts and minds. Naturalising this item of discourse—whether we say we study religion or special, religion-like things—will lead to that pesky old notion of *sui generis* religion re-entering our field, doing it this time through a new, biological back door (2010: 1191).

In other words, with its authoritative statements about data and categories, science could homogenise our conceptions of religion, rendering some groups "in" and others "out." McCutcheon fears what he sees as a "thriving naturalistic industry" that works to develop "a unique theory to discover the unique place in the brain or in the genome or in a collective of cognitive processes where the uniquely religious resides" (McCutcheon 2010: 1186). The problem with the naturalistic and specifically neurobiological approach, he claims, is that "it takes a variable discursive object as a settled matter of biological fact, thereby interiorising and normalising what, some of us would argue, is a contestable and always ongoing social event" (1190). Naturalising religion with science, in short, is reifying.

McCutcheon is correct in the sense that this approach does exist; some theorists do seek a biologically essential locus of religion. Two such thinkers are Andrew Newberg and Eugene d'Aquili, who claim to have found a neurobiological basis for religious experience. For these two thinkers, religion consists by and large of supernatural beliefs that relate to fundamental human needs in an "absolute" and "transcendent" way. This is the case because of "two distinct neuroanatomical and neurophysiological mechanisms in the brain": one they call the "causal

operator," which explains things, and one they call the "holistic operator," which has a tendency towards "total, absolute, or transcendent fulfilment" (1999: 150). Importantly, this second operator "culminates in the potential to develop altered states of consciousness" (50). D'Aquili and Newburg define religion by its neurophysiological potential to give rise to altered states of consciousness. Changes wrought by these altered states entail beliefs and behaviours d'Aquili and Newburg identify as *religious*. This altered consciousness is something McCutcheon would consider a religion-like thing, and it is used here to construct a reified notion of what religion is.

This kind of approach commits McCutcheon's sin of reification in that it inhibits open inquiry and inimically reinforces arbitrary categories. The idea of religion as a whole being characterised by a set of genes or biological abilities draws categorical lines that do not cohere with reality. Such lines have the power to include or exclude without justification. McCutcheon's concern is precisely that this kind of theory will flower and dominate discourse. As cultural arbitrator of all things *fact*,[4] science can establish culturally constructed phenomena as evidentially and inflexibly true. This would give discourse on religion a homogenising, exclusionary tint. It would reinforce divisions and discourage an authentic understanding of the vast differentiation of which we humans are capable. It would elide the processes by which we differentiate.

While McCutcheon is right to problematise the category of religion and the reification of religion-like things, he is incorrect in his assessment of science as necessarily functioning as a fuel to the homogenising fire. It *can* and *has* been used to reifying ends, but in this chapter I demonstrate that there is actually a way to use science that supports efforts to dismantle homogenising

[4] For a demonstration of the intensity and quality of the cultural authority of science see Gordon Gauchat's study of the National Science Foundation's 2006 *Science Indicators Survey* "The Cultural Authority of Science: Public Trust and Acceptance of Organised Science" (2010).

discourse and specifically in the study of religion-like things. In order to do so I first explore an example of one attempt that has been made to use science in support of difference, and why it fails. It is the approach of Griet Vandermassen, who has written extensively about how evolutionary psychology can be utilised in a way that supports social constructionism—that is, *nurture*. She ultimately fails, however, because of the simplified and somewhat outdated scientific theories she uses to found her efforts. Our remedy entails a turn to recent advances in evolutionary biology and cognitive science, which I discuss at length in contrast to Vandermassen's efforts.

Griet Vandermassen's Attempts to Support Discourses of Differentiation

Vandermassen is simultaneously highly scientific and highly politically motivated. Her 2005 text *Who's Afraid of Charles Darwin?* explores the values that evolutionary biology has for feminism. These values are diverse but centre around one main point: the power of evolutionary biology to explain why our world is the way it is without eliding culture. Vandermassen rightly considers the equation of science with genetic determinism to be "thoroughly outdated" (Vandermassen 2005: 148). In fact, Vandermassen takes serious issue with critics of the sciences who misunderstand this. Some critics, such as biologist Sue Rosser, consider a scientific approach to difference between males and females to lead to "a form of biological determinism implying that differences in social and cultural role, status, and behaviour are caused by genetic, hormonal, or anatomical differences between the sexes" (Rosser 1992: 157). Vandermassen however identifies mainstream science as a community as appalled by genetic determinism as its critics. She writes that it's a failure to understand science that leads "many feminists to the wrongheaded accusations of genetic…and biological determinism" (2005: 115).

Vandermassen theorises from a position within the sciences, but instead of seeing this as a hindrance to accounting for the influence of culture, she sees it as a boon. Vandermassen expresses deep commitment to the relevance of social factors for human development. Since "all traits and behaviours require environmental input," she writes, "this means that they can be altered by manipulating one or more of their developmental causes" (2005: 117). Vandermassen understands that the human animal is a material one, but also that this does not preclude sociality or embeddedness. In this sense, Vandermassen's view resembles Henry Plotkin's, who writes that "[n]ature and nurture are inextricably enfolded within one another because nurture has nature, and yet nature must be nurtured and nurture is a part-cause of nature" (1997: 68-69). Culture is important to Vandermassen's understanding of the human.

There is a dual problem with Vandermassen's approach, however. For one, she seeks adaptive ultimate causes to an excessive degree. In 1952 Ernst Mayr introduced the concepts of proximate and ultimate causes to the study of evolution. A proximate cause is an immediate cause such as physiology or culture. An ultimate cause is an evolutionary cause, such as from natural selection (see Mayr 2005).[5] By saying that Vandermassen over-emphasises ultimate causes is somewhat simply to say that as much as she supposedly embraces cultural causes, she seeks discretely allocated ultimate causes more often than is warranted, and I provide examples of this relating to sex differences below. She is able to do this in part because of the other problem with her perspective, which is that she follows the standard evolutionary psychology tactic of legitimising ultimate evolutionary claims with a modular theory of mind (Tremlin 2006: 53-64).[6]

[5] For a discussion of how this concept has changed over time se Laland et al 2011.
[6] Barrett describes how evolutionary psychology is allied with the modular perspective: "[m]ainstream evolutionary psychology is distinguished *within* the computational family of cognitive science by its

This modular theory of mind views the mind as a conglomeration of modules, and is a derivation of traditional computational neuroscience. In traditional computational neuroscience, the mind is akin to a computer (Barrett 2010: 595; Tremlin 2006: 53-64). [7] According to modular theory, the "computer" is broken up into many discrete parts. These parts comprise, in Vandermassen's words, "hundreds of thousands of evolved psychological mechanisms or mental modules" (2005: 133). The distinction then of modular theory is that the brain is not so much a computer, which is conceived of as one major "processing machine", but is instead best conceived of as a "Swiss army knife" (Vandermassen 2005: 133). This is analogous to David Buss's notion of the brain as a tool box from which one gains flexibility not by making use of one general tool but by having many specific tools (1999). According to modular theory, the mind is a conglomeration of hundreds of thousands of discrete evolutionary adaptations serving discrete evolutionary functions.

Vandermassen uses the Swiss-army-knife quality of the brain to account for difference. A "multiplicity of domain-specific mental modules, guiding us to correct adaptive solutions to adaptive problems," she argues "give rise to the tremendous flexibility of behaviour that

insistence that the mind comprises a collection of functionally discrete, domain-specific processors or 'modules' rather than a single general purpose processor" (emphasis his, 2012: 595).

[7] What is computationalism? Computationalism (or cognitivism) was the classic perspective of cognitive science throughout its initial decades in the mid-twentieth century; it is consistent with the simple "on-off" switch approach to human-environment interactions of Vandermassen (H. Gardner 1985; Cummins and Cummins 2000). Cognitivism presumes that the mind is blatantly computational, even mechanistic. "The orthodox [cognitivist] view," write Evan Thompson and Alva Noë, "treats perception as a 'sub-personal' process carried out by functional subsystems or modules instantiated in the person's or animal's brain" (2002: 2). Todd Tremlin summarises cognitivism in terms of actual computers: "[c]omputers, as Alan Turing defined them, are sets of operations for processing information…With respect to 'hardware,' then, both brains and computers are information processors that accomplish tasks by executing sets of computational operations" (2006: 46). However, recent advances in cognitive science have shown that, in Noë's words, "the hardware-software distinction has no basis in biology" (Noë 2003: 805).

characterises modern humans" (2005: 133). Some of these content-specific modules are, among many others, a face recognition module, a fear module, a social-exchange module, an effort allocation and recalibration module, a child-care module, a sexual-attraction module, and a grammar acquisition module (Tooby and Cosmides 1992). These modules, Vandermassen argues, developed over eons to provide humans with a plethora of tools at the ready, should they so need. Vandermassen's view as such presents a calculus of logic: if one is confronted with environmental stimulus A, and has a gene within module B, then C will result. In this sense behavioural flexibility for Vandermassen is limited; there is an inherent capacity to adjust behaviour in "appropriate or successful" ways to the circumstances faced, but it is entirely dependent upon activation of various evolutionary-given modules (135). Basically, since the mind evolved into thousands of discrete bits, each of these discrete bits has a distinct evolutionary origin.

Vandermassen argues that this kind of evolved structure "does not constrain" but rather that it "creates, or enables" (2005: 135). A closer analysis of her work however reveals that she pursues ultimate causes somewhat aggressively with the presumption that all behaviours have a discretely-allocated ultimate cause. This style of evolutionary explanation, to be clear, is not because Vandermassen wishes to be insensitive to social factors in the determination of behaviour. It does not mean she is insensitive to the insights that we are environmentally embedded or historically contingent. She is however confined by these standard models of evolution and mind. Vandermassen's ambition to link observed traits to evolutionary selected cognitive modules leads her to unwittingly articulate reifying notions of what it means to be male, female, or simply human.

Take, for example, Vandermassen's treatment of what she calls "trophy wives." It is "well known," she says, that throughout the world young, attractive women often pair up with powerful, older men (e.g., Kenrick, Trost, and Sheets 1996). Social constructionists have typically viewed this phenomenon as a result of cultural pressures. For them, women are pressured to seek out more established males because of inequalities in political and socioeconomic status (see e.g. Welch 2015: 11-14). For Vandermassen, however, "patterns of age difference and of women trading their youth and attractiveness for power in a mate are found throughout the world and throughout history and are *very likely due to sexual selection"* (emphasis mine, Vandermassen 2005: 181).[8] She goes on to say that "it makes evolutionary sense that…the trophies that females seek consist of social status and resources in a mate, both factors that typically accumulate with a man's age" (181). That is, according to Vandermassen, women tend to seek out older men because women have an intrinsic evolutionary module that tells them to. Here Vandermassen manufactures ultimate causes for behaviour that very well may have predominantly cultural factors at play.

Vandermassen elsewhere demonstrates her neglect of sociological factors in human behaviour in a discussion of sexual strategies and preferences. It is consistently observed, for example, that men in cross-cultural studies tend to be more promiscuous than women (e.g., Volscho and

[8] Note Vandermassen's usage here of sexual selection. It implies that selecting for particular mates—older males—provides a survival advantage to women and their children. According to Darwin's understanding of the sexual selection and natural selection of evolution, this would qualify more as natural selection than as sexual selection. Sexual selection is instead perhaps best conceived of as an "offshoot" of natural selection that is "clearly both a sub-branch of natural selection," writes Elizabeth Grosz, and also "an additional inflection, an intricate feedback loop, further complexifying natural selection processes, adding other criteria (primarily, attractiveness to the opposite sex), to its operations. Sexual selection adds more aesthetic, and immediately or directly individually motivating factors to the functioning of natural selection, and deviates natural selection through the expression of the will, or desire, or pleasure, of individuals" (Grosz 1999: 36-37). One of the cornerstones of Grosz's work on Darwinism is to highlight the ways in which sexual selection untethers traits from genetic adaptationism. Sexual selection is not about survival, *per se*; it is instead at its core fundamentally aesthetic.

Pietrzak 2002). I gladly acknowledge that this phenomenon may of course be genetically influenced (not as a rule, but as a tendency). But Vandermassen presumes such a high evolutionary value of promiscuity for men versus emotional investment for women (Vandermassen 2005: 175) that she deems discrete evolutionary modules for promiscuity or emotional investment to be the primary explanations for a wide variety of quite complex and socially influenced phenomena such as men's more frequent complaints about women's sexual withholding, and women "feeling disturbed" by men's sexual aggressiveness (referring to David Buss's 1999 book *Evolutionary Psychology: The New Science of the Mind*). The adaptationistic, evolutionary selection of these modules also accounts for women's preference for "elaborate sexual fantasies" and for erotic literature, which Vandermassen characterises as more focused on people with whom they are "involved" and their "personal characteristics" (175-176) when compared to men.

Nowhere in the text of *Who's Afraid of Charles Darwin?* does Vandermassen address social factors that might play a role in such phenomena. While I readily cede that some degree of emotional import may be evolutionarily influenced by differences in the level of investment (per Trivers's 1972 argument), and while I cede that different testosterone levels likely have an impact on differences in sexual behaviour,[9] the number of other factors that may contribute to women's feeling disturbed by men's sexual aggressiveness, for one example, or to their preference for erotica, for another, are vast. Perhaps women are disturbed by male sexual aggressiveness because they dislike aggression, or their sex drives are depressed by their subordinate and

[9] For a thorough discussion of determinism and social constructionism as they intersect with thinking about male testosterone levels, see Kenrick and Barr's essay "Testosterone's Role in dominance, Sex, and Aggression: Why so Controversial?" (1998).

objectified location relative to men (Brownmiller 1975; Travis and White 2000).[10] We may also wish to consider the possibility that men are conditioned from a young age to forego affective attachments and "be tough" (Scheff 2003), which could hypothetically result in a lack of affinity for emotional literature and erotica consumption. It could be argued along a number of different lines that men's and women's disparate preferences for sex and fantasies are highly contingent on the surrounding cultural environment, and what we witness are a result of structural regularities intersecting with animal bodies, as opposed to distinct evolved modules compelling discrete behaviours.

These examples are important for the study of religion because they demonstrate the homogenising potential of science incorrectly deployed. Vandermassen provides a simple explanation—the ultimate cause at the end of the balance sheet—without addressing cultural factors and variability, alternative or more general evolutionary tendencies that could account for observed behaviours, or leaving room for human bodies to be more flexible based on environmental conditions. She does not do this because she thinks sociological factors are irrelevant. She does this because her modular theory of mind in a rigid evolutionary framework demands the prioritisation of ultimate causes. It reduces complex conglomerations of evolutionary tendencies and cultural factors to neat, singular explanations. Vandermassen may seek explanatory power from evolutionary psychology for the sake of gender equality, but in doing so she participates in homogenising discourse.

The remainder of this chapter is an exploration of scientific concepts that can help us address McCutcheon's concerns about the potential of the sciences to reify in the context of religion

[10] For a critical view of female sexual suppression by males see R. Baumeister and Twenge 2002.

without falling into the homogenising traps that Vandermassen does in the context of gender. This involves a degree of critique of Vandermassen's views, but since I have already explicated her perspective at length, I focus primarily on explicating alternatives: 1) integrating more by-products into evolutionary theory (as opposed to Vandermassen's unilateral preference for ultimate adaptive causes) and 2) emphasising neural plasticity and the interactionalist perspective in cognitive science (as opposed to Vandermassen's modular approach). Taking these two scientific perspectives into account provides a means by which we can learn from studies conducted in evolutionary biology, psychology, and sociology while simultaneously being sensitive to and even actively dismantling homogenising discourses. That is, we can overcome McCutcheon's concerns and actually arrive at a science that provides ample room for theorising salvation and other religion-like things with sensitivity to cultural construction. I begin by disrupting the linearity of Vandermassen's approach to evolutionary processes.

Precision versus Accident in Evolutionary Theory

In 1902, Rudyard Kipling published *Just So Stories for Little Children* (2015), a set of stories about how the camel got his hump and the rhinoceros his wrinkly skin. The idea of the "just so" stories comes from the fact that his daughter would only fall asleep if the stories were told "just so"—that is, exactly as she wanted them told. "Just So Stories" have since become a byword for overly simplified stories or myths. And in the field of evolutionary biology, they have become a popular means by which to describe what we might call evolutionary fabrications, or simple stories one can make up without much evidence to explain observations.

Today's biologists "tend to be cautious about labelling any trait an evolutionary adaptation—that is, one that spread through a population because it provided a reproductive advantage" (Pinker 1997: 165;[11] see also Gottlieb 2012). Adaptationism—that is, the tendency to seek ultimate evolutionary explanations based on natural selection where they don't necessarily exist—is an "onerous concept" that is easily abused, and often "invoked to resolve problems that do not exist," the late George Williams, an influential evolutionary biologist, warns in his book *Adaptation and Natural Selection* (1966: 4). It is for this reason that many if not most or all evolutionary scientists aspire to follow Williams's exhortation to only propose an adaptation in light of strong evidence (4-5; see Pinker 1997: 166-170). Nevertheless, it is of course inevitable that scientists will fall on a spectrum of how much leniency they allow their concept of adaptation. When liberally devising genetic explanations or telling Just So stories (as Vandermassen appears to do) people can overextend their theorising with inimical effects.

The reason adaptationist ideas—such as, for example, Vandermassen's account of "trophy wives"[12]—fail is because they are too neat. Donovan Schaefer explores this concept at great length in his book *Religious Affects* (2015). In Schaefer's words, for adaptationists, "natural selection produces stingy results-neat columns on the balance sheet of a rationalised economy of survival" (2015: 147). When questions arise as to why a particular trait is exhibited by a species

[11] Pinker is adamant on this point. In *How the Mind Works,* he writes in full: "[o]ne claim is that reverse-engineering….is a symptom of a disease called 'adaptationism'… Apparently if you believe that any aspect of an organism has a function, you absolutely must believe that *every* aspect has a function, that monkeys are brown to hide amongst the coconuts. The geneticist Richard Lewontin, for example, has defined adaptationism as 'that approach to evolutionary studies which assumes without further proof that all aspects of the morphology, physiology and behaviour of organisms are adaptive optimal solutions to problems.' Needless to say, there is no such madman" (emphasis his, 1997: 165).

[12] Or, for another example, Desmond Morris's assumption that women evolved to be faithful, doting lovers in his book *The Naked Ape* (1968). For an interesting perspective on the problems inherent in adaptationism, see an article published in 2017 by *The Guardian* named after this book. "The Naked Ape at 50" contains reflections of four experts in the field—Robin Dunbar, Angela Saini, Ben Garrod, and Adam Rutherford—on what Morris "got right—and wrong" (Dunbar et al 2017).

(say, to take Schaefer's example, when Daniel Dennett asks why coyotes howl as a pack), adaptationists err by considering the question "a math problem." Says Schaefer, "[i]t must be accountable, arithmetically fitted to the ledger of credits and debits calculated as an organism seeks to flourish in an environment and successfully reproduce. *Cui Bono*? Dennett asks. Who benefits? What profit in this? What is the reason?" (Schaefer 2015: 148). Dennett is here looking for a precise evolutionary story as to why this coyote song happens at this precise moment in time. It *must* have natural selection—and one ultimate cause—as an answer. Schaefer's response is not to ignore the question altogether, but rather to suggest that the answer in this case may not follow from a "neat balance sheet" of specific, adapted traits.

Indeed, criticism of this strict adaptationist view, which may be called the by-product or spandrelist stance, comes from within the field evolutionary biology itself. The most famous advocate of this view is Stephen Jay Gould. In a seminal paper he published with Richard Lewontin, Gould and Lewontin actually first introduced to evolutionary biology and popularised the term "Just So Story" from Kipling's books. In this paper they argue that adaptationists underestimate the role of accident in evolution. Instead of all traits needing to be selected for, argue Gould and Lewontin, there are traits that are both simple by-products—or in their nomenclature, a *spandrel*—which is a phenotypic characteristic of an organism that is a by-product of the evolution of some other characteristic. According to Gould and Lewontin's definition, a spandrel is "a secondary epiphenomenon representing a fruitful use of available parts, not a cause of the entire system" (1979: 584). They are accidents, some of which can then become useful.

By-products are baggage. They do not contribute a clear benefit to the organism's fitness and survival. Two such examples may be the masculinised genitalia of female hyenas (Angier 1999: 252) or the brooding chamber of some snails (Gould 1997b: 10750), neither of which appear to have any adaptive purpose and which seem to simply have drifted into the genome. Some by-products do eventually develop useful functions. These are called exaptations (Gould 1997b). One instance of this is the Panda's "thumb"[13]—which is really an enlarged wrist bone which the panda uses to eat bamboo (Gould 1980: 22). It is important to note that scientists who fall more on the adaptationist end of the spectrum do not ignore the importance of by-products and exaptations. As Steven Pinker tells it, only a "madman" would take such an extreme view (1997: 165).[14] But there is still real potential to overreach for adaptive explanations (as Vandermassen does) for the sake of neat scientific explanations.

Gould's observations cohere with the perspective of biochemist Steven Rose, whose perspective is important because it marries the macro-evolutionary to the intricacies of the microscopic. Rose is a scientist interested in the ability of a set of genes as they are encased within an organism to adapt to an ever-changing environment. Rose explains that the means by which organisms adapt to and seek safety within environments is often characterised as homeostatic. That is, organisms are depicted as passive receivers of environmental stimuli that precisely adapt to them. Rose asks us to consider instead that organisms are *homeodynamic.* Rose's argument is that creatures do not tend toward well-insulated equilibria states—which would cohere with an adaptationist

[13] Thus the title of Gould's book about accident in evolution, *The Panda's Thumb* (1980).
[14] Judgments of what qualifies as adaptationistic of course reside in the eye of the beholder. It is important to bear in mind that while thinkers such as Pinker or scientists such as E.O. Wilson may claim they refrain from adaptationism, they may still commit it according to Gould's or other deconstructive critical perspective.

perspective on how well or even *perfectly* evolution does it job of creating efficacious beings—but instead are "radically indeterminate."

Indeterminacy, says Rose, is the nature of living systems. Organisms each "construct their—our—own futures, albeit in circumstances not of our own choosing" (2005: 7). Of this, Schaefer writes that "[f]or Rose, the signal feature of genomes is not their movement along predictable grids, but their susceptibility to the ensemble of environmental cues around them…organisms…[absorb] fields of influence around them as they transition between different mobile configurations" (2015: 163). On this view, neither individual organisms nor groups of organisms ever find a state of equilibria that can be optimised. As mutations occur and collide with other features of organisms, and as they encounter environmental stimuli, so they change outside of the narrow scope of an adaptationist or modular program. From a genetic point of view, and especially bearing in mind the ever-changing adaptive landscape, organisms may best be viewed as "chunky genealogies" (Schaefer 2015: 13) without the genetic calculus of which Vandermassen writes.

While we interrogate the excessive use of neat calculus within the adaptationist program, it is also worth interrogating the quality of neat calculus itself. Why do adaptationists seek such direct explanations? Schaefer asks this question and offers up as an answer the Western quality of what Derrida calls carno-phallogocentrism. Carno-phallagocentrism refers to the tri-partite disposition to privilege maleness, claim uniqueness among animals, and focus on language as assigning meaning to the world (D. Baumeister 2017: 51). Schaefer's read of Derrida's overall project, then, is as a destabilisation of carno-phallogocentrism. As male, language-using, other-animal-eating, and world-mastering human animals, the Western metaphysical quest presupposes the centrality

of order (Schaefer 2015: 150). This is contrary to a non-linguistic or pre-linguistic embodied existence, one that would not be so enamoured with the trappings of system and rationality.

Schaefer directs our attention to the very animality of Derrida's project: "I have ," Derrida states, "a particularly animalist perception and interpretation of what I do, think, write, live, but, in fact, of everything, of the whole of history, culture, and so-called human society, at every level, macro- or micro-scopic" (Derrida 2008: 92). In emphasising the importance of his animality, Derrida, says Schaefer, prompts us to consider that that which we have conceived of as neatly ordered simply is not. The basic human animality to which Derrida points is "a disruption of the perimeter of anthropocentric privilege that shifts from an analytic of destiny—often wrapped up with the transcendent prerogative of human language—to one of accident, or what Derrida and Catherine Malabou call destinerrance" (Schaefer 2015: 151). That is to say, while we deconstruct our position as God's favoured creatures and rationalistic language-users, we disrupt our linear metaphysics and our logo-centric thinking, too. All animals are animal, and all are subject to accident in a dis-ordered world.

Derrida's deconstruction reveals that accident, or to use Derrida's *destinerrance*, "[wrenches] apart the machinery of metaphysics" (Schaefer 2015: 151). One deconstructive tool of Derrida's that Schaefer finds crucial to this task is the notion of the grammé, or the unit of writing. The grammé, though it perhaps invokes literary and orderly connotations with its shared root with "grammar," in fact does the opposite. It invokes the very possibility of ontological, phenomenological, and epistemological differentiation in all codes and systems of difference. Language is a play of identity and difference with endless chains of signifiers (See Derrida 1982:

51-52). But importantly, emphasises Schaefer, this doesn't just apply to language, but to all of existence and means by which to perceive and relate to it.

This differentiation—the differánce for which Derrida is so well known—is marked by "accidental play" (Schaefer 2015: 152). There is a "viral cross-contamination among words and concepts through the very mechanism that defines them in opposition to one another" writes Schaefer. "If we understand only that a concept—God, truth, reason, the human, logos—is what it is by virtue of its differánce from what is around it, it is mangled by the network of collisions that ring it" (2015: 152). By mangling, Schaefer means that nothing proceeds apace in the orderly fashion we Westerns so ardently crave to fit the world to. Language in a sense participates in our illusions of order; grammatology demonstrates that this order may be a mirage. For Schaefer, Derrida teaches us that we need to re-think not just evolution but also our thinking, as we have a tendency to conceive of all phenomena in the world as much more linear, balanced, rational, and logical than it may actually be.

Can science still be science if we deconstruct the logos in our language and metaphysical heritage? Is Schaefer's suggestion to think deeply about accident consistent with empirical findings? The answer to these questions is yes. An approach to evolution that emphasises by-products is coherent with the idea, and is actually quite popular among evolutionary scientists (Pinker 1997: 166-170). Schaefer writes that this deconstructed perspective "defeats the emphasis on linear movement—on the orderly unfurling of logos—and replaces it with an unspooling, a reeling-around in concert and collision with the play of forces enfolding living systems" (2015: 163-4). This is not to say that evolutionary processes do not act, nor that they do not often result in adaptive solutions that are elegant, beautiful, or ruthlessly efficient. Evolution

is a mighty, ceaseless process. But it is to say that it occurs as a result of and in a matrix of accidents that do not function according to the clean calculus we are so eager to see.

Interactionalism

I earlier described Vandermassen's theory of cognition as modular theory (a subset of a computational theory). I also described how in this modular conception, the brain is said to have evolved hundreds of thousands of discrete modules that provide instructions for how to behave when encountering certain stimuli. The discrete nature of this system is the modular theory of mind's solution to what cognitive scientists consider to be the "problem of information." In the problem of information, cognitive scientists seek to establish the "source" of information. Is it genes, or is it the environment? How do the two interact? All theories within cognitive science must account for this. According to the modular theory of mind (so, for Vandermassen),[15] information tends to be defined as what Nathaniel Barrett calls "pre-defined, given, context free" (Barrett 2010: 597). It is provided by the environment, and the organism processes it.

Making such an attempt to address this problem is important and laudatory. Evolutionary psychologists (and Vandermassen) understand that the problem of information needs addressing. The environment does not "clearly present the information that humans need to acquire" (Barrett 2010: 598). As Pinker describes, the environment is not pre-labelled. It has no power to tell the organism what its goals are (Pinker 2002: 93). Evolutionary psychologists are interested in the

[15] Recall that modular theory is a subset of the computational theory. It doesn't disrupt the computer metaphor so much as break it up into discrete pieces.

development of the brain, so they seek a way to account for the brain's ability to process information.

But, Barrett argues further, evolutionary psychologists have not arrived at a satisfactory answer. The problem is in how they conceptualise information relative to brain architecture. It can never actually be pre-given and context-free. As a key piece of her argument for modularity, Vandermassen describes breakthroughs in artificial intelligence. The specific breakthrough of interest is the discovery that smaller, discrete modules are much better platforms for solving computer problems (2005: 134-135). Vandermassen argues that the bite-size quality of modules is precisely what makes them work—"essential kernels of content-specific frames must be supplied by the architecture" (134). But as Barrett makes clear, even while this concept may be able to account for how quickly a brain processes information, it still doesn't account for the "inherent functional identity" of modules (2010: 598). The brain must evolve with information not parsed into discrete bites but rather in a rich context. Otherwise it cannot make sense.

One solution to the information problem that is currently gaining popularity comes from what cognitive scientists call the interactionist, or interactionalist, program. Now, Vandermassen professes to following an "interactionalist" program, but she does so by emphasising that genes "take their cues from the environment" (2005: 98). This is a position on genetics (which I discuss below); it is not a position on cognitive development and neural plasticity. The field of cognitive science however has a growing body of interactionalist theorists. This is a result of the decline of success of the computationalist (and modular) perspective. "Important alternative research programs," write Alva Noë and Evan Thompson, "constitute a significant heterodoxy…one whose influence seems to be felt increasingly in mainstream cognitive science and philosophy" (2002: 3).

Two major approaches that fall under the umbrella of interactionalism include 1) James J. Gibson's "Ecological Approach" which was one of the pioneering visions that pushed back against the computationalist orthodoxy, arguing that perception is not simply a cognitive event but rather "an act of the whole animal, the act of perceptually guided exploration of the environment," (Noë and Thompson 2002: 3)[16] and also 2) "The Enactive Approach" of Humberto R. Maturana and Francisco J. Varela, which argues that "rather than representing an independent, external world, the nervous system generates or brings forth, on the basis of its own self-organised activity, the perceptuo-motor domain of the animal"[17] (5; see Gibson 2015 and Maturana and Varela 1992). In Andy Clark's words, both the body and the environment are "literally built into the processing loops that result in intelligent action" (Clark 1997: xii). These theories are deemed interactional because they recognise that information cannot come solely from the organism or from the environment, but rather from a dialectical relationship between the two.

In general, these interactional theories reject the idea of a brain as a passive computer and depict cognition as a controlling element within a context of interactive engagement with an environment (Clark 1997, 2008; Noë 2005). As such, the organism's relationship with information is dynamic. Instead of the cognitivist view in which the world is composed of a set of external data (environment), processed by a computer (the brain), and wired by hardware (inflexible modules of the brain), information "emerges out of a process of reciprocal selection between a system (e.g., an organism) and its environment" (Barrett 2010: 599).The human being is not "hardwired."

[16] For a critique of this approach see Jerry A. Fodor and Zenon W. Pylyshyn's "How Direct is Visual Perception?: Some Reflections on Gibson's 'Ecological Approach,'" in Noë and Thompson 2002.
[17] A similar view can be found in Freeman 1999. The "enactive approach" is also advocated in Vásquez 2011.

Nor is it a blank slate. It is instead a highly plastic mix of both, in which the genetically given programs themselves are to an extent malleable. According to Barrett, "the relational and open-ended nature of the interactive process is such that it cannot be parsed in terms of input-transformation-output, and it cannot be captured by an algorithmic function" (599). Thus, "very minimal" initial parameters set the stage for interactional development with the environment over time.

Barrett describes the environment in which this occurs as a "multi-layered adaptive landscape." One such landscape is any "subset of environmental features whose differential patterns afford definite paths of exploration" (Barrett 2010: 601). This landscape is "adaptive" in two reciprocal senses: first, because the exploring system (the individual) "evolves" by searching the landscape's contours for relevant information, and second, because the landscape (the environment) also "evolves" by gaining definition in the process of exploration. Once an individual explores a given layer of diversity, she can apprehend more. "We select and define the features of our environments that are important to us," summarises Barrett, "while they, in return, shape our paths of inquiry" (603).

As paths of inquiry are shaped by the environment, so are the structures of the brain. The brain is equipped with pre-existing genetic structures for development. Due to the interactive dynamic between human cognition and the environment, these pre-existing structures as they develop become freshly, functionally oriented. They are not fixed. "The human brain and body have no fixed, domain specific functions except in relation to stable features of the environment. Some of these features are very stable, and thus play a constant role in the convergence of human experience, behaviour, and belief" (Barrett 2010: 603). An example of a stable feature would be

the sky being blue, or living amongst other humans; each person varies however in how much time they spend exposed to the sun, or what types of experiences they have with other people. As such, there is a very real possibility of plastic re-adaptation. It is a logical consequence of the "relational character of functionality in an ever-changing, interactive context" (604). What we perceive as particular to a certain group—as Vandermassen and many other evolutionary psychologists do—is arguably the result some genetic predispositions with an amount of influence we do not yet understand interacting with stable features of the environment.

Biological Essentialism, Regularities, and Difference

Interactionalism supports the notion of difference in human behaviour and culture in ways that simplistic "nature" or "nurture" approaches to the human subject cannot. But before delving into the impact of naturalised difference, it is important to acknowledge that there is a biological limit to difference. The (occasional) postmodern rejection of biology as a determinant of human nature is, as Steven Rose dutifully points out, fatally flawed if embraced exclusively. Rose asks the important question: "[h]ow does Sartre's freedom deal with the inexorability of human decline, the ravages of cancer, the destructive onset of Alzheimer's disease?" (2005: 6) Humans are biological beings. The biological quality of human life cannot be ignored in its accounting. We may be free—and more free than Vandermassen accounts for—but that freedom is bounded by our biology. We are born, we age, we grow old, and we die. We experience hunger, thirst, and the need for companionship.

There are many other facets of human beings that appear to be somewhat essential to all humans, or, in Schaefer's more nuanced language derived from his deconstruction of evolutionary

linearity, *semistable.* Why "semistable"? Features of organisms—both genotypic and phenotypic—"emerge out of a dynamic evolutionary history." This dynamic history is characterised by change that never truly stops. But this change happens over such large time scales that features appear to be essential even while they in truth are not. Semistable forms can thus be said to "occur at the organismic level—the level of individual bodies within a species—reliably and predictably enough that they resemble an ahistorical essence" (2015: 47). Eye colour is one such example. Less obvious but equally "essential" examples are survival drives like hunger, sensations like the sweet taste of fruit, and the need for social interactions. These are all more or less facts of human existence no matter whom we are or where in the world we are located (Bulbulia and Slingerland 2012: 570-571).[18] We are animals with evolved traits. Schaefer calls these traits "intransigencies" (2015: 13). We are compilations of our evolutionary story and are still clunkily evolving.

Our nature as at least somewhat genetically influenced is not antithetical to the social construction of human identity and experience. In fact, both Rose and Schaefer consider biology and culture to be inextricable from one another. Both of them write extensively about the importance of history. In their perspectives, humans are historical beings through and through. It just so happens that our historicity is not just due to our personal experience and the cultures in which we are situated, but also the long line of embodied animality that extends eons before us. Schaefer writes that

[18]Evolutionary biologist Stephen Jay Gould argues, regarding "essentialism," that it is "high time that we repressed our aversion to this good and honourable word" (2002: 10). For Gould, to be "essential" does not mean a trait is permanent, fixed, or determined. Scholars can use "essence" as a concept by viewing it as a long-term pattern expressing a slow-motion trajectory of change.

> embodied histories always need to be understood in a double sense, as the accumulation of a complex genotype in deep time and as the cascade of accidents that affect the phenotype during an individual body's life span. That ongoing simultaneity of biological and cultural processes is what it means to think the dissolution of the barrier between nature and culture, to view them as contiguous and interwoven systems of force moving at different speeds, what Donna Haraway calls 'naturecultures'" (2015: 49; see Haraway 1991).

Rose ties this idea directly to evolutionary theory. He writes:

> The great population geneticist Theodosius Dobzhansky asserted that 'nothing in biology makes sense except in the light of evolution.' However I wish to go several steps further. Nothing in biology makes sense except in the light of *history,* by which I mean simultaneously the history of life on Earth—evolution, Dobzansky's concern—and the history of the individual organism—its development, from conception to death (2005: 15).

This history constitutes free beings in their environments, not biologically or mechanically determined ones. As complex braids of material forms, we can consider ourselves simultaneously biological and cultural beings. They are, in fact, one and the same thing. In Rose's words, "the organism is both the weaver and the pattern it weaves, the choreographer and the dance that is danced" (2005: 171). As this dancer, an organism is biological and in some genetically-constrained sense essential, but also quite undetermined and free. "It is not that we are the isolated, autonomous units of Sartre's imagination," writes Rose. "Rather, our freedom is inherent in the living processes that constitute us" (6). As interactionalist beings that are nevertheless constrained by biological limitation, we can conceive of ourselves *not* as conglomerations of specific evolutionary strategies, but rather as beings that evolved to be socially embedded and responsive.

Resolving Vandermassen's Reifying Problem

For the last several pages I took a scientific tour in alternatives to Vandermassen's adaptationistic and modular tendencies. The first alternative I proposed was disrupting the presumed adaptationistic neatness of evolutionary processes and embracing a more *spandrelist* interpretation of evolution. The second alternative I proposed was an interactional theory of cognition, which does not view the brain as discrete modules but instead as an organ designed for learning and highly contingent on environmental conditions. I did this in order to provide scientific bases for studying human phenomena including religion and religion-like things that can give appropriate due to environment and culture.

McCutcheon has argued that naturalism will reify phenomena such as salvation and religion and thereby contribute to homogenising discourse. The theories I have just here shared regarding spandrelism and interactionalism however do not just remain neutral on the issue of homogenising discourse: they actively dismantle it. They replace abstracted, neatly linear, reifying biological stories with an understanding of biology that emphasises processes of differentiation. They jettison the evolution of neat modules for the sake of clunkily evolving neuroplastic animals. They provide rigorously scientific ways of thinking about human beings that render social contingency itself a potent characteristic—if not *the* most potent characteristic—of embodied existence. As such, they build a strong bridge between the material and the social in a way that Vandermassen's adaptationism and modular theory simply cannot.

The differences between my spandrelist, interactionalist approach and Vandermassen's adaptationistic, modular approach may seem subtle at first, but they are not small. The modular approach (combined with some degree of adaptationism) envisions specific, adapted strategies built into discrete modular structures in the brain; the interactionalist approach (combined with a

more spandrelist view of evolution) envisions evolutionary tendencies embedded within material and neuroplastic animals that evolve outside carno-phallogocentric orderliness and in complex relationship with cultural environments.

These views do have some resonance: both Vandermassen and I deem evolution important for the ways in which humans develop and exhibit behaviours. We view cognitive science as essential to our quests to understand human traits and behaviour. But Vandermassen's approach yields human beings that abide by evolutionary rules depending on a calculus of genes and discrete modules interacting with the environment. My approach yields human beings that inherit evolutionary tendencies, but who are profoundly flexible based on the environment in which they develop. This has a significant impact on how we account not just for sex differences but literally all other social phenomena we witness, including behaviour typically understood as religious. We are environmentally-embedded creatures with evolved tendencies and some certain evolved limits—but with sociality and differentiation at the core of this biological understanding.

On Religion and Religion-like Things

McCutcheon argues that naturalising the study of religion will "lead to that pesky old notion of *sui generis* religion re-entering our field, doing it this time through a new, biological back door" (2010: 1191). When applied to the conceptualisation of religion as a reified whole, McCutcheon most certainly has a point, and some of the science we have surveyed in this chapter supports him. My deconstruction of evolutionary adaptationism suggests that finding a specific "natural type" by which to define religion is a pipe dream. There have been worthwhile accounts of potential evolutionary sources of the kinds of behaviours we often identify as religious today,

such as by David Sloan Wilson, who advocates for group selection of religion as a means of "social control" (2002: 19) via "moral systems" (44),[19] or as by cognitive scientists of religion such as Pascal Boyer, who identifies minimally counterintuitive beliefs (2001: 65-70), hyperactive agency detection (93-136), and purity norms (203-228) as evolutionary sources of practices we today identify as religious. But even if we allowed for these evolutionary claims to be veridical they would not necessitate religion be conceived of as a natural type. And knowing that we tend to project Just So stories back on evolution to make sense of modern circumstances, there really is no reason to presume that science can tell us what religion is or what religion isn't.[20]

Where McCutcheon errs is in the presumption that the sciences *must* function so as to reify within the field of religion, even in the case of specific religion-like things. I have demonstrated here that his critique is valid when levelled against popular scientific discourse; even a progressive, socially-aware thinker such as Griet Vandermassen fails to truly account for the true differentiation and difference with which McCutcheon is so concerned. But it does not *have* to be this way. In fact, it is becoming increasingly evident that it really *is not* this way. The natural world is as chock full of cultural influence and variance as social scientists and humanities scholars have long advocated for in the quest to dismantle homogenising narratives. We now see this in emerging critiques of adaptationism and logo-centric evolutionary thinking as well as in the developing sophistication of interactional theories of cognition.

[19] This is the only citation for David Sloan Wilson in this thesis. (Note: all other "Wilson" citations are for E.O. Wilson unless explicitly stated.)

[20] I will not do that in this thesis either, outside of pointing out that it is a constructed category that must be treated with contextual sensitivity as such, and which is perhaps most usefully studied—by the sciences—either broken up into specific "religion-like things" or with a ground up perspective such as Fitzerald's (2003), or both.

The question remains as to how we may best approach the study of religion or phenomena we may reasonably continue to call religion-like things, such as my concept of salvation. In an article in *Method and Theory in the Study of Religion* titled "To Naturalise is to Differentiate" (2018), I argue that if scholars wish to engage cultures authentically and to account for human behaviour truthfully, we must use a ground-up, more broadly cultural approach to religion. This would fuse insights from the science described here with sociological methods similar to those of Timothy Fitzgerald, who does not confine his observations to things that only seem "religious" to him, but which are also more seemingly "political" or" cultural" in nature. Fitzgerald looks for "fundamental values of the society and the way they are institutionalised" in cultures as a whole (Fitzgerald 1993: 317). This allows for the nature of a culture's religion-like things—that is, for Fitzgerald, phenomena such as gods or purity rituals—to exist and be analysed exactly as they are, without distorting them to fit pre-conceived categories. Fitzgerald has in fact seen great success with this methodology.

Applying a ground up approach to Japanese Buddhism reveals to Fitzgerald that traditional Western religious norms such as belief in deities (Fitzgerald 1993: 310) and having central religious sites (319) are not the most important aspects of religiosity to focus on in Japan. Instead, he finds that pollution and purity (315) and the Japanese school system (319) are much more important in understanding Japanese culture. Fitzgerald is well-known for his position that the term religion be discarded entirely.[21] We need not share this view however in order to benefit

[21] For more on which see Fitzgerald 1997 and Fitzgerald 2000. Fitzgerald takes this position because he believes it is the best way to conduct analyses and draw conclusions about human nature, even while one can study the "religion-like things" in a culture. Whether one draws the same conclusion that "religion" must ultimately be discarded is irrelevant to being able to appreciate the category-defying methodology and results of his studies. In fact, observations like Fitzgerald's that defy traditional categories have been used to challenge and refine conceptualisations of religion. For a discussion of Fitzgerald's influence in this way, see Saler 2008.

from his approach. We can use a more ground-up approach and still stay within the field of religion if we remove whatever lenses we may be wearing that contain pre-conceived biases about what religion *must* be and instead pay intentional attention to cultural institutions and norms beyond traditional bounds.

Ludwig Wittgenstein has famously identified "family resemblances" as a means by which to define concepts. Rather than look for one essential meaning at the core of a word—such as religion, says Wittgenstein, we should instead travel with the word's uses through "a complicated network of similarities overlapping and criss-crossing" (2009: 66). This idea has been proposed as a means by which to define religion by several scholars such as Ninian Smart (1973), Benson Saler (1993), Peter Byrne (1988: 3-28; 1989), and Brent Nongbri (2013: 18-20).[22] This involves, generally speaking, thinking of religion as an aggregate of phenomena throughout the ages, none of which is strictly required at any given point in time. It blurs otherwise strict bounds and permits more fluidity. I do not assert here that family resemblances are how we should necessarily go about defining religion (there is certainly no space for me to do so), but it is at least one useful concept to consider for scholars who wish to use the category of religion while eschewing essentialism.

For the purposes of this thesis I do not require use of the term religion at all. What I require is the study of religion-like things, and both McCutcheon's and Fitzgerald's critiques, when coupled with the science discussed above, leave ample room for the study of such phenomena. Consider as an example Fitzgerald's discussions concerning purity norms. He might dislike associating them with

[22] Fitzgerald actually objects to such an approach, arguing that "if an essentialist definition is not smuggled in for the purpose of maintaining a distinction between the 'religion' family and other neighbouring families such as ideologies, worldviews, values or symbolic systems, then the family becomes so indefinite that the word ceases to pick out any distinctive aspect of human culture" (1996: 215).

the category of religion, but these are nevertheless religion-like things insofar as they are commonly studied within and deemed relevant to religions or the religious.[23] Purity norms are an example of phenomena that are classifiable as religion-like things, but which, when studied from the ground-up, by-pass the category of the religion.

Similarly, I study a phenomenon I define as salvation. Salvation is a religion-like thing in the sense that, at least how I conceive of it as a remediation of existential anxiety, it is traditionally associated with religion.[24] And *yet* due to my ground-up approach, I am able to observe that it occurs also outside of traditional religious bounds, and to witness it manifest in a multitude of ways across a multitude of varieties and identity. It is a religion-like thing, but I study it in its sprawling abundance in broader culture, without being bound by specific definitions of what religion is or isn't. This is a thesis about *salvation,* which is associated with religion, studied materialistically, theorised scientifically, but also in full defiance of essentialising or reifying discourse. In making such moves I strive to refrain from homogenising the concept of salvation or distorting what I witness in case studies to fit certain criteria; rather, similar to Fitzgerald, I build from the ground up, and confine what I observe to this specific religion-like thing—salvation—and note, rather than obscure, differences as they appear.

There are similarities among the phenomenologies of salvation I discuss here in this thesis and elsewhere. And there are differences. This is precisely why I start with individuals, observe their affective experiences and attending behaviours with as open a mind as possible, and then—and

[23] See the work of Jonathan Haidt (e.g. 2009: 283-284) for a discussion of moral purity as a foundational component of religion from the perspective of moral psychology.
[24] As is somewhat the case with Thomas Tweed's work in *Crossing and Dwelling* (2006); for more on which see pages 144 and 149 of this thesis.

only then—draw conclusions about the shape of their salvation, and how it may resonate with the experiences I have observed in others. In this way I engage phenomena that are associated with religion and even the concept of religion as a category, but in doing so I am simultaneously following a ground-up approach such as Fitzgerald's and eminently sensitive to difference and the means by which we differentiate. Contrary to the fears of McCutcheon and others, and contrary to the misperceptions we may arrive at when failing to look past the veneers of standard evolutionary theorising and cognitive science, it is not just possible but potentially quite productive to use the sciences to theorise in the study of religion. I use science in the study of a religious-like thing—salvation—not to participate in but rather to dismantle homogenising discourse.

II. THE AFFECTIVE CONTOURS OF SALVATION

"When something happens, we swarm toward it, gaze at it, sniff it, absorb its force, pore over its details, make fun of it, hide from it, spit it out, or develop a taste for it."
Kathleen Stewart[1]

This thesis is about salvation. In the introduction I gave a preview of the concept as a materially-embedded, intrinsic evolutionary potentiality. I will explore the concept of salvation and all of its nuances in detail in chapter three. Before fully explicating salvation, however, it is important to interrogate the nature of the material medium through which salvation occurs. Why and how do we experience salvation, and why and how does the compulsion to seek it take place? What are the shapes of salvation as they move through and animate human bodies? In the previous chapter, I provided a material framework for exploring salvation via a critical approach to the sciences. I provided a means by which to use science to theorise about human experience, religion, and salvation that is responsible to critiques of homogenising discourse. In this chapter, I turn to the question of how we can conceptualise salvation and other phenomena as they occur within materially-embedded bodies.

The answer is with affects. Affects are the material medium through which our bodies are motivated. But we must understand that affects are not what I call *telic,* by which I mean that

[1] In Stewart's book *Ordinary Affects* (2007: 70).

they do not function according to specific ends. This *telic* perspective is a significant component of our historical and current cultural discourse, as it was once, for example, espoused by Baruch Spinoza, and it is today espoused by famous neuroscientist Antonio Damasio. Damasio is of particular interest to our purposes here because he elaborates on Spinoza's *telic* concepts with modern day science. In doing so he argues that humans have an inherent, evolved homeostatic mechanism. This mechanism involves the intrinsic drive to seek a homeostatic quality of wellness, what Spinoza and Damasio both call "joy." Affects are *telic* according to this view because they are the forces that guide us towards joy and away from "strain." The only instances in which we don't do this are when our biomechanical processes are broken by drugs or mental illness.

The problem with this view of affects is that it is altogether too linear, too neat, too *carno-phallogocentric.* I open this chapter with snapshots of the lives of two medieval mystics: Julian of Norwich and Catherine of Siena. These two women enacted religious commitments—and experienced salvation—in ways that were torturously painful. Damasio's view of affectivity comes close to being able to account for their experiences, insofar as it acknowledges the importance of their materially-embedded emotions. But Damasio's commitment to a *telic* homeostatic mechanism means that he fails to adequately account for the ways in which Julian and Catherine experience joy and suffering as deeply intertwined.

The experiences of Julian and Catherine suggest that wellness and unwellness cannot be so clearly bifurcated, as Damasio's views imply. In order to best account for this queer quality of wellness, I turn from Damasio's *telic* view of affects to affect *theory* (Damasio's scientific work is on affect, but he is not embedded in scholarly theoretical discourse on affect), and specifically to its phenomenological branch. This branch entails an emphasis on evolutionary animality much like

Damasio's work does—an important factor for my commitment to empirical observation and rigour—but it has the added benefit of accounting for the non-linearity of human affectivity. Eve Kosofsky Sedgwick and Adam Frank call affects *autotelic,* meaning their ends are embedded within themselves (2003: 19). Phenomenological affect theory enables us to conceptualise affects in this *autotelic* mode, not tethered to any evolutionary purpose. It also enables us to explore affect in a queer lens, and to arrive at affect theorist Lauren Berlant's concept of cruel optimism as a springboard off of which to make sense of Julian and Catherine's salvation, as well as our own.

Phenomenological affect theory provides a means by which to explore how human beings pursue things—objects, persons, environments, ideas, *salvation*—without being bound by *telic*, linear processes. We are creatures who seek,[2] but we do not seek according to specific evolutionary rules that dictate what is best for us. There is no clear way to precisely parse that which is good for us from that which is bad. Our pursuit of objects or experiences is simply beyond neat calculi; it rather unfolds as a result of our affective susceptibility to environments. One important point that I highlight below is that this *non-linearity* of affective meandering is not just because of the influence of culture; it is because being at the mercy of affective potency is a part of what it means to be animal. We are embedded creatures; we are impacted creatures; we are reacting, acting, what Kathleen Stewart describes as sniffing, swarming, gazing creatures (2007: 70). In subsequent chapters of this thesis I explore how this reactive-active sniffing occurs in the experiences of existential anxiety and salvation as they relate to science. Here I begin with the salvation of two medieval religious devotees: Julian of Norwich and Catherine of Siena, who find profound religious meaning in suffering and death.

[2] As are all creatures; for more on which see Panksepp 2011: 95-145.

Choosing Strain

In 1395, Julian of Norwich (1342-ca.1416) became the first woman known to modern scholars to have written a book in the English language. This book, *Revelations of Divine Love,*[3] is a recounting of a series of mystical visions Julian experienced while on the brink of death. In the *Revelations,* Julian expresses that some time before this illness she had desired "three gifts of God." The first was "mind of his Passion"; the second was "bodily sickness in youth, at thirty years of age"; the third was "to have of God's gift three wounds" (Julian of Norwich 2012: 45). That is, she wanted to suffer, and she wanted to experience what it was like to be on the brink of death. This would help her feel the love of Christ. She did get this wish, as she was deathly ill for a while in 1373.

But being deathly ill was not enough. In the wake of her grave illness, Julian craved even more suffering. She wrote that she "would have no manner comfort of earthly life…to have all manner [of] pains bodily and ghostly that [she] should have if [she] should die" (Julian of Norwich 2012: 46). She had realised how much "joye", "blisse", and "love" resulted from mimicking Christ's pain (Julian of Norwich 2006: 87, 287).[4] Suffering gave Julian a window into Jesus's wounds—literally, "peering" into the wound in his side (Julian of Norwich 1978: 220), which fostered an experience Anna Minore calls "salvation" (2014: 49). The more she suffered, the more she felt the love and grace of God (Hughes-Edwards 2012: 8). So she wanted to continue to experience suffering near

[3] There is a "long text" and a "short text" version of the book. The *Long Text* is approximately 63,500 words and is what I have cited here; the short text preceded it by about 20 years and is about 11,000 words long. The short text is an early documentation of Julian's experience of having visions of Christ; the long text is an elaboration (Jantzen 1988: 4-5).

[4] This is the one version of Julian's works I engaged that kept her words in their original form. The rest cited here are translations into modern day English.

death, which would include "all the dreads and tempests of the fiends, except the outpassing of the soul" (Julian of Norwich 2012: 46). She wanted to continue to have a quality of suffering that felt like actual death.

Julian later acted on this wish by becoming an anchorite.[5] Anchoritism was a widespread medieval ascetic practice that involved near literal *interment.* Becoming an anchorite meant Julian committed herself to spending the entirety of her life in a single cell embedded within the walls of a church. Julian was not completely cut off from society—as anchorites often, like Julian, acted as counsellors to townspeople—but she was confined within small quarters. Julian's room had only three small windows (one for the outer world, one for the altar, and one for the passing of supplies).[6] Choosing this life was such an extreme option that the Medieval guide to anchoritism the *Speculum*[7] required a year-long period of probation for prospective recluses (Hughes-Edwards 2012: 32). Anchoritism was not a commitment to be made lightly.

But Julian chose it because it provided a means by which for her to extend her suffering and physically act out the fact that "her life was over, symbolically speaking, and her vision was pointed toward the resurrection" (Minore 2014: 47). This death-like quality of her anchoritism was actually quite real, as death was the defining quality of how Julian's culture viewed the anchoritic life. For instance, the standard ritual initiating the life of an anchorite began with

[5] Anchoritism (from the Greek *anachōrētḗs*—"one who has retired from the world" [Harper 2016]) was a popular phenomenon across medieval Europe and especially in England. It endures today though to a much lesser extent (e.g. Anonymous 2017).
[6] The smallest known extant anchorhold cells are in Leatherhead and Compton in England—Leatherhead's cell is eight by eight feet, with a window of twenty-one inches square, while Compton's is six foot eight inches by four foot four inches, with a loft where the recluse may have slept. The rest of the extant cells are larger than this but not by much (Warren 1985: 32).
[7] The full title is *Speculum Inclusorum Auctore Anonymo Anglico Saeculi XIV* (Oliger 1938).

chanting of the psalms from the Office of the Dead, and the ritual ended with the door being permanently blocked up (Hughes-Edwards 2012: 4).[8] Julian probably never went outside again, one of the great privations inherent to life as an anchorite. When she died, the church simply sealed up the windows and made the anchorhold her tomb—or rather, let it persist as her tomb.[9]

Julian had a contemporary who was also a medieval mystic woman, an author of an important theological text, and later deemed a doctor of the church.[10] This was Catherine of Siena (1347-1380). Though they shared much in common, the two women also had striking differences, most notably their relationships with the wider world. Julian was extremely local, solitary, and confined. Catherine on the other hand was very public, roaming, on display. Catherine joined the Dominican Order early in life and leveraged the attention she received from her stigmata and mystical marriage to become very active politically, so much so that she appears to have held great sway with the papacy; for example, she helped convince Pope Gregory XI to leave Avignon for Rome (E. Gardner 2009). Of all of the differences between Julian and Catherine, however, there was one thing they did share, which was an affinity for suffering.[11]

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[8] The degree to which is hotly debated [Hughes-Edwards 2012: 112. See also H. A. Wilson (1910: 243–4). (Note, all other references to 'Wilson' in this thesis are to E.O. Wilson unless explicitly stated.) Ann Warren suggests that the door was only symbolically blocked (1985: 98).

[9] Anchorites were women more often than not (Hughes-Edwards 2012: 9). This likely had to do with broad medieval attitudes concerning women and asceticism. For a discussion of which see Elkins (1988), or, with respect to food restriction specifically, Bynum (1987).

[10] Though, unlike Julian, also a saint.

[11] In this affinity for pain, Julian and Catherine represent a litany of late Medieval thinkers and ascetics. Suffering was a key component of theologies and practices, as people all over Europe beat themselves and endured great privation, often in formulations of torture, discipline, and power (see Asad 1993: 83-165). Mitchell Merback suggests that "the religious consciousness of the late Middle Ages" might "uncover the very foundation of human community in the shared realisation that we can, and do, all suffer" (1999: 150). That is, suffering is universal, and it was most certainly as such in the Middle ages when diseases such as the plague were rampant. "In an age where there was often nothing to alleviate sickness and injury," writes Merback, "when death rates were extremely high and when physical suffering was seen and accepted as part of fate…pain [could] have provided an element of cultural cohesion, in a way that we cannot help but misunderstand from the vantage point of a culture bent on pain's elimination" (150). Bynum writes of this as well: "[w]e cannot understand medieval religiosity until we realise how different such probing and

From about age sixteen, Catherine slowly starved herself to death over the course of seventeen years. Catherine subsisted on bread, water, and raw vegetables for the entirety of that time. From about twenty-three she then also gave up bread, surviving then only on the Eucharist, cold water, and bits of food that were mostly bitter herbs. These bits of food she did not usually ingest in full but "sucked and then spit out or swallowed and vomited up" (Bynum 1987: 169). Ten years later In January of 1380, when Catherine was about thirty-three years old, she reportedly gave up water for an entire month. She did this as an offering as expiation for the crisis of the church in Italy (169). While today we have the scientific knowledge that surviving thirty days or even a week without water is physically impossible, and therefore either an exaggeration or a feint, Catherine still deprived herself so severely during this time that although she ended this fast in February of 1380, she died two months later on 29 April 1380, "emaciated and wracked by stomach pains" (169).[12]

embracing of body as pain-pleasure is from most modern notions of the body, in which pleasure and pain area seen as opposites and the cultivation of pain is rejected as pathological. In understanding this difference it is helpful to remember how little medieval people could do to mitigate discomfort of any kind" (1987: 245). Today we tend to forget how very present and normal suffering has often been in human history.

[12] It is important to consider the possibility that Catherine and other women who restricted their intake of food in the medieval period were affected by complex problems influenced by biochemistry such as anorexia nervosa. For example, Rudolph Bell published a careful and detailed study of anorexia among Italian women from the eleventh to the seventeenth century (1985). Bynum argues however that medieval people tended to think of fasting in a variety of ways, largely categorisable into choosing to renounce food—a "pleasure" of civilization—and "being in the throes of a behaviour pattern that made eating impossible" (Bynum 1987: 197). They may have been able to recognise differences in behaviour or at least when considering figures as famous as Catherine debate which was taking place. Whatever the case may have been for Catherine or other medieval women, it remains true that the religious affects they experienced in response to their physical acts of starvation were real. Catherine wrote ardently about her guilt, begging for expiation of her sins through suffering; in this sense, even if she *did* suffer from a specific biochemical problem that made it difficult for her to eat, she appears to have welcomed it (Bynum 1987: 200).

Throughout her life, Catherine engaged in a slew of other unhealthy and disturbing practices around food, such as "shoving twigs down her throat to bring up the food she could not bear to have in her stomach" (Bynum 1987:169), eating the "filth" and pus of the sick people she attended (165), and twice "[thrusting] her mouth into the putrefying breast of a dying woman" (172). Catherine enacted these deeply painful experiences at least in part because she sought them as salvation.[13] In Bynum's words, she "felt that it was in the excruciating pain of more than earthly hunger that [she] fused with the agony of Christ on the cross and offered up such agony" for the salvation of herself and the world (1987: 165). She craved suffering and begged for it. Catherine for example prays to Jesus: "[s]ince I by my sins am the cause of the sufferings my neighbours must endure, I beg you in mercy to punish me for them" (Catherine of Siena 1980: 27). Catherine's writing is full of pleas for punishment and pain.

Catherine felt that she must suffer; indeed, in her words, she needed to endure wounds of "torment and terror" in order to be cleansed of sin (Catherine of Siena 1980: 81). Minore uses a model of theological pain developed by Rachel Fulton (2002)[14] to argue that Catherine did this because she practiced late medieval theology of atonement. She sought penance. Christ, for

[13] Bynum elevates Catherine as an exemplar of a woman driven to fast by a multiplicity of reasons including familial and cultural power struggles. If Raymond's account of her life is to be trusted, Catherine was her mother's twenty-third child, and she initially had a twin sister, who was the twenty-fourth. Catherine's mother nursed Catherine herself and sent her twin off to a wet nurse. The twin died. Writes Bynum: "[n]o particularly subtle psychological analysis is necessary to suggest that such a configuration of events…might precondition a favoured girl-child to guilt—and guilt associated with food and nursing" (1987: 167). Another major potential influence on Catherine was the behaviour of her older sister Bonaventura, who starved herself after marriage in order to reform her husband. Bonaventura soon after died in childbirth. Catherine witnessed in Bonaventura both the dangers of marriage and pregnancy and also the success that fasting could achieve in manipulating familial and political issues. Clearly, many potent cultural factors were at play in Catherine's life and choices.

[14] Fulton presents two models of Medieval interpretations of the crucifix—one represented by Peter Damian (ca. 1007-1072) and which is based on fear and penance, and one represented by John of Fecamp (1028-1078) which is based more on co-suffering. For a thorough discussion of this model of medieval pain, see Fulton's book *From Judgment to Passion; Devotion to Christ and the Virgin Mary, 800-1200* (2000).

Catherine, was a judge, and she was inescapably a sinner. “The individual owes a debt that he or she must pay. God will save one, but God will not save one without one’s help” (Minore 2014: 51-52). Essentially, Catherine had to help God’s grace by pursuing her own punishment and suffering. In order to be saved, “one must become another Christ” (Minore 2014: 52). This means taking on as cruel a punishment as possible; it means demonstrating one’s utmost commitment to expiation, no matter the costs. Catherine starved herself in great torturous efforts that eventually led to her death.

The remarkable thing about this choice to suffer however is that Catherine’s suffering was never *just* suffering. It was also a profound source of meaning, even of ecstasy. The same was the case for Julian. Neither Catherine nor Julian wanted to escape pain. They actually ran *towards* it, and eagerly, finding pain to be deeply, richly satisfying all the while at the same time *actually* killing them. Catherine for example undertook severe discipline with great passion, commitment, and endlessly renewing cycles of satisfaction and craving more. She would starve herself to great lengths, then feel a rush of satisfaction and commit herself to even greater privation (Minore 2014: 52-54). In her own revealing words, Catherine wrote of her hunger and starvation that “[t]his is not a pain that troubles or shrivels up the soul” (1980: 30). Instead, it makes the soul “grow fat” (30)—a fascinating and important contrast to the ways in which she starved her physical body. Physical deprivation led to spiritual fullness. Pain led to satisfaction. Ascetic suffering led to Christ, and ecstasy in union.

For Julian, the pain was much the same, insofar as it brought her closer to Christ. As guides to anchoritism throughout the twelfth century put it, the whole point of anchoritism was to experience a kind of death-while-alive, so that one could be closer to Christ in his suffering and

death. She had once experienced mystical visions and closeness with Christ while she was deathly ill, and so, in seeking to re-enact this experience, she would feel herself once again close to him (Minore 2014: 47, 50). In Laura Saetveit Miles's words, anchoritism enabled Julian to have "one foot in the grave" and therefore be "one step closer to heaven" (2008: 163). According to Mari Hughes-Edwards, there was even comfort in the torments of Julian's anchoritism. This comfort came from "the God-given grace required to make it bearable" (Hughes-Edwards 2012: 8). God's presence and grace in Julian's life—and therefore her spiritual satisfaction—were one and the same. Her joy and her pain were deeply inseparable.

Both Catherine and Julian, writes Minore, "sought to join Christ in his pain, asking for more pain than they already felt in their daily lives" (2014: 50). They both experienced profound joy and meaning in their suffering. Importantly, their experiences of meaning and joy were not *in spite* of but *because* of their suffering. Their joy was *dependent* on experiencing extreme suffering, and ultimately their deaths. We ordinarily think of pain as something that is antithetical to joy. Pain is on one hand and joy is on the other. So how can we make sense of the fact that these two mystics experienced suffering and joy coterminously? How do we make sense of exultation that literally led to their deaths?

Antonio Damasio's Spinozist Heritage and *Telic* Affects

We might try to account for the sufferings and joys of Julian and Catherine with the affective neuroscience of Antonio Damasio, which focuses on the importance of affectivity for human experience. Damasio has achieved significant fame—as a best-selling author who has won several awards for his series of popular neuroscience books—as a result of his successes integrating the

study of affects into neuroscience. Damasio has actually been a significant figure in revitalising interest in emotion and affectivity in neuroscience, a field typically concerned with thoughts and cognition. In his words, he "revives" the emotional, which "accomplishes a number of important tasks in biology" (Damasio 2003: 148). Damasio argues that affects are the forces that compel human beings to action, an important aspect of his work that renders it a significant contender for explaining how and why it is Julian and Catherine did what they did (and how and it is why we do what we do).[15]

The story of Damasio's commitment to affects and his potential to explain the behaviour of Julian and Catherine begins with Baruch Spinoza, who is one of Damasio's personal heroes. Damasio in fact attributes so much of his own perspective to Spinoza that he published a whole text—appropriately titled *Looking for Spinoza* (2003)—devoted to exploring Spinoza's views from the perspective of affective neuroscience. The reason he did so search for Spinoza, and then write a book, he says, is because Spinoza "made lasting impressions" on him as an adolescent. Damasio developed "reverence" for Spinoza, whom he found "both fascinating and forbidding" (2003: 10). Throughout the book Damasio advocates several positions which he relates to and derives from Spinoza, the most notable and relevant for our purposes of which is Spinoza's view that organisms strive to persevere in their own being (13).[16] The foundational insight of Spinoza's that undergirds all of Damasio's work is that the pursuit of unambiguous joy is the natural inclination of human beings.

[15] Affect is for Damasio technically divisible into emotions and feelings; emotions are "actions or movements, many of them public, visible to others as they occur in the face, in the voice, in specific behaviours…emotions play out in the theatre of the body." Feelings "are always hidden, like all mental images necessarily are, unseen to anyone other than their rightful owner…Feelings play out in the theatre of the mind." Emotions and "related phenomena" precede, or are the foundation for, feelings, which are mental events that "form the bedrock of our minds and whose nature we wish to elucidate" (2003: 40).
[16] For more on Spinoza's prescription of "striving to persevere" see LeBuffe 2004.

Spinoza viewed the human and indeed the whole cosmos in a way that was uniquely naturalistic for his time. In Steven Nadler's words, he had "extremely naturalistic views on God, the world, the human being, and knowledge" (2016). Spinoza is often said to have been a pantheist in the most true sense of the word: he identified existence with God (Melamed 2013).[17] The status of God, then, being wholly rational and comprehensible, renders all of nature, including human beings, wholly rational and comprehensible, too. This means humans have the capacity to discern things as they actually are. The senses "present things as they appear from a given perspective at a given moment in time" (Nadler 2016). The emotions, and affects, are a part of this sensing. Reason ties all of it together and forms what Spinoza calls an "adequate idea." These adequate ideas "perceive this necessity of things truly, i.e., as it is in itself" (Spinoza 2016: II, 44). Thus we find that human Reason can perceive the reality of the cosmos, in all of its aspects, from God to one's own emotions.[18]

Spinoza's intense naturalism meant he believed it was important to arrive at a comprehensive understanding not just of human thought but also human emotion, an emphasis on emotions that was distinctive for his day. One of Spinoza's more famous ideas is that the human being is a *conatus* (Latin for "effort"). The defining feature of a *conatus* is that it strives to persevere in its own being (Spinoza 2016: III, 9; see also LeBuffe 2004). That is, a *conatus* strives to continue within and enhance its ability to *be.* Emotions are an important part of this striving because they

[17] Spinoza famously wrote "Deus, sive Natura" (God, or Nature) in the preface to Part IV of the *Ethics.* Many scholars assert Spinoza's pantheism; others call him a panentheist. This debate revolves around several questions. One is: if a "thing" is a "property" of God—does this make it God, or does it make it a part of God? Another: is God identifiable solely with *natura naturans,* or also with *natura naturata*? For a full exploration of the debate and bibliography on the topic see Kazim Arican 2013.

[18] This is why Steven Nadler diagnoses Spinoza as having "unrivalled optimism" about the powers of human cognition (Nadler 2016), and Michael Della Rocca says Spinoza's rationalism is "run amok" (2008).

are guideposts, or lures of a sort, that compel a *conatus* towards more or more seamless *being.* According to Spinoza, any increase in a *conatus*'s experience of *being*—so, more ease, more power, more autonomy—gives rise to the experience of "joy." This joy—the Latin *laetitiae*—is an interesting concept. Sometimes it is translated as "joy." Other times it is translated simply as pleasure, or just feeling good, without hindrance (Nadler 2016). Basically, Spinoza here is articulating the belief that it is natural to seek more *being* in part because it feels better. [19]

The opposite of joy for Spinoza is "sadness"—the Latin *tristitia*—or "pain." Being opposite to joy and the natural inclination to persevere and enhance one's own power, pain is in a sense *unnatural.* It comes from external sources, and is not a part of our natural striving to persevere in our own beings (Spinoza 2016: III, 28). Michael LeBuffe summarizes the idea well when he says, "[w]henever we imagine that a thing will bring *laetitia*, we strive for that thing, and whenever we imagine that a thing will bring the opposite of *laetitia, tristitia,* we are averse to that thing" (2014: 137). Pain is a negative thing that impacts us from the outside, and we naturally avoid it. This is the crux of what Damasio takes from Spinoza. It is, essentially, the *telic* view of affects. Humans, say Spinoza and Damasio, are naturally inclined to avoid pain and to enhance our own being, which they both call our "joy."

[19] Spinoza explores the concept of a *conatus* in *Ethics Part III* (2016). Here Spinoza deploys the term both in a physical sense in his exposition of Descartes's *Principles of Philosophy* and also in a sense more than just physical, as he uses it to describe the essence of human beings. The lineage of this usage extends far back in history. In fact, according to Michael LeBuffe, "Cicero uses the term in *De Natura Deorum* (and other Roman and Greek Stoics use close cognates) in a psychological sense." They refer to human desire. Hobbes "later in his physiology uses the term to refer to the physical causes of human desire" (Lebuffe 2015 regarding *Leviathan* VI; see Hobbes 1998). So," writes LeBuffe, "'*conatus*' has both broad, physical, and specifically human, psychological connotations" for Spinoza (LeBuffe 2015). See also Don Garrett's article "Spinoza's *Conatus* Argument" (2002).

Damasio re-articulates this argument in a scientific way with his Somatic Marker Hypothesis. According to this hypothesis, bodies learn signals, or somatic markers. Any time an event transpires, the body "marks" the situation with relevant affects, depending on whether the event is deemed positive or negative. If similar circumstances arise again, then the body responds with an affect that will help it react appropriately. "When the signal is overt," writes Damasio, "it produces automated alarm signals relative to option that are likely to lead to negative choice that, in the past, has led to negative consequences" (Damasio 2003: 147). The same goes for a positive stimulus: "the emotional signal can…urge the rapid endorsement of a certain option because, in the system's history, it has been associated with a positive outcome" (148). Importantly, this "choice" can happen consciously, but more importantly often happens "entirely under the radar of consciousness" (149). That is, the body learns which experiences it enjoys and are good for it, and which are not.

This is important because somatic markers help regulate behaviour, a cornerstone of Damasio's approach that derives directly from Spinoza's ideas about the natural inclination of the *conatus*. Somatic markers, along with evolutionary modules, instincts, and tendencies, guide the organism towards survival—marked by "joy" or "fluidity" in the life state, and away from illness and death—marked by "sorrow" or "strain." Damasio's *conatus* naturally pursues the enhanced power of fluid states, which are characterised by "the regulation of life processes being efficient, or even optimal, free-flowing, and easy." They are not just free of pain but are also marked by "varieties of pleasure"—distinctly resonant with Spinoza's *Laetitiae.* Joy for Damasio signifies "states of equilibrium for the organism." They "not only are conducive to survival but to survival with well-being." Nearly exactly like Spinoza, they do in fact cause states of "greater functional harmony," "power," and "the freedom to act" (Damasio 2003: 137). The opposite of fluidity is

strain. Strained states are characterised by varieties of pain, which inhibit functioning and make life difficult (132). They are symbolised by sorrow, and, if unchecked, these situations will be "conducive to disease and death" (138).

The relationship between the organism and these life states for Damasio is linear, even simple. Fluid life states are "naturally preferred" by the organism. Humans naturally "gravitate toward them." Strained life states on the other hand are "naturally avoided" (Damasio 2003: 132). "We stay away," he says. We learn to do so through the intersection of evolved tendencies with affective experience, conscious reflection, and the accumulation of somatic markers. Importantly, this whole system is one that evolved to operate homeostatically—that is, to regulate itself. Damasio never goes so far so as to assert that humans naturally gravitate towards happiness. But he does argue that we naturally find, through this regulatory system, some degree of neutral balance, one that errs marginally on the side of the more fluid and the happy. "Nature seems to have had a nice afterthought," Damasio writes. "[T]he goal of the homeostatic endeavour is to provide a better than neutral life state, what we as thinking and affluent creatures identify as wellness and well-being" (35).

Our bodies as such have a way to push us towards what is best and most pleasurable for us. They at least *incline* us to seek out fluidity, power, pleasure, joy, and perseverance in our being. Damasio adds evolutionary and neuroscientific detail to Spinoza's model, but the underlying nature of the *conatus* remains much the same. It seeks its own fluidity as a part of an evolved process. It has an inborn ability to learn and to seek out what kinds of environments and actions it prefers. It has an intrinsic, evolutionary, homeostatic inclination. This is, then, the *telic* view: there is a fluidity-oriented *telos* to each affect that we experience. Affects act according to an

evolutionary calculus. Affects act according to a body's somatic, affective, learned, and evolutionary data, seeking fluidity.

Do these homeostatic mechanisms ever misfire according to this perspective? Do people ever move towards strain and away from fluidity? Yes, says Damasio, but only in two specific circumstances: in the cases of drugs or of depression. Both of these phenomena, but no others, "corrupt the fidelity of the revelation" (Damasio 2003: 140). In the case of drugs, "maps of joy can be falsified by a host of drugs and thus fail to reflect the actual state of the organism" (138). In the case of depression, it can act as a part of a "sickness syndrome" that kills the drive to be well. "The power and freedom to act are diminished" in depression, and the organism loses its "tendency for self-preservation" (138). Damasio elevates these two phenomena as problematic not necessarily because the experience of them is so negative in and of itself, but because they are biochemical wrenches thrown into the gears of homeostasis. They cut off the organism from the wisdom of the *conatus*.

Damasio's account of homeostatic misfiring has important implications for Julian, Catherine, and accounting for behaviour in general. We can reasonably presume that Julian, Catherine, and the many other people in the late Middle Ages who sought out suffering (see footnote 11 to this chapter on 97-98) were not on drugs, at least not as we know them today. Were they depressed? Given the binary choice that Damasio gives us, it seems we would have to answer in the affirmative. Or, at the very least, we would have to assume that they were some kind of clinically unwell, in order to account for their affinities for suffering, pain, strain, and death. But there is something off in this account. Damasio's homeostatic mechanism exists along a somewhat linear spectrum: strain is on one end, and joy is on the other. Healthfully functioning humans move, if

unevenly, from the side of strain to the side of joy. Unhealthy humans, says Damasio, move from the side of joy to the side of strain. They are incapable of moving toward joy. But what if humans experience—as it appears Julian and Catherine do—a mixture of joy and strain? What if joy and strain necessarily co-exist? What if people can find joy *in* strain?

This is where Damasio's model falls short. Damasio is correct that there is evolutionary purpose to affectivity; it *does* perform functions that are more or less oriented toward survival and reproduction. But given what we know of Julian and Catherine's experiences, we cannot assume that they always function according to an evolutionary *telos*, or any kind of neat calculus. We cannot assume that mentally healthy humans always move away from strain and towards joy, or even that strain and joy can be parsed apart from one another in such a simplified fashion. Julian and Catherine demonstrate that it is eminently possible, if not downright common, for experiences that provide meaning and positive affects to also be ones that are deeply painful, even driving people towards self-destruction and death. We can hunger for experiences that contradict fluidity, and we can become addicted to patterns or behaviours that hurt us, satisfaction and pain deeply intermixed.

How do we account for this apparently queer nature of affectivity that was once by Spinoza and is today by Damasio viewed in a linear and homeostatic way? We embrace it. In the previous chapter I argued that our rational, scientific culture tends to overestimate the ability of evolution to yield tidy explanations for complex problems. I used Schaefer's read of Jacques Derrida's *carno-phallogocentrism* to illustrate the point (this thesis: 75-76). Understood with this in mind, Damasio's position is altogether too *carno-phallogocentric*. It is too binary, too linear, too neat. It imposes a *telic* homeostasis on human beings that does not accord with observation and reality.

Humans do still of course seek comfort. We do often like ease. But we must be attentive to the ways in which affects are *autotelic* and can compel us in any direction. Affects are not hooked to specific homeostatic purposes, but rather have what Schaefer calls their own "bullying agency" (2015: 106). In order to make sense of this, we turn to affect theory.

Affect Theory

Starting in 1995, the literary critic Eve Kosofsky Sedgwick accelerated a "turn to affect" in the humanities by drawing the attention of scholars to the work of psychologist Silvan S. Tomkins (Leys 2017: 2). Tomkins was a Princeton psychologist who had, on evolutionary grounds, posited the existence of a limited number of primary, or "basic," emotions (shame, interest, surprise, joy, anger, fear, distress, disgust, and contempt [Sedgwick and Frank 2003: 93]).[20] While this kind of discrete accounting of human nature may sit somewhat uneasily in the humanities, Sedgwick actually saw in Tomkins's work four ways to contribute to the humanities: 1) bridge the distance between biology and history, 2) disrupt the centrality of language in modern theory, 3) dismantle the isolation of the self, and 4) dissolve structuralist binarisms—"presence/absence, lack/plenitude, nature/culture, repression/liberation, and subversive/hegemonic" (94). Tomkins's perspective could do these things because his accounting of basic emotions does not preclude their complexification in cultural context. Tomkins views the human as simultaneously natural and cultural, instinctive and cogitating, what Sedgwick and Frank call digital and analog (103).

[20] This is an idea as old as Darwin, though hotly debated throughout the centuries. Tomkins was a major influence on Paul Ekman, who went on to become famous for his arguments for six basic emotions (the ones that Darwin identified; see Ekman 1992): anger, disgust, fear, happiness, sadness, and surprise. (Leys 2017: 2).

To be both digital and analog, natural and cultural means that Tomkins sees humans as material*, reactive* bodies as much as he does as thinking persons. Against the cognitivist and linguistic supposition that cognition is required for emotion (Leys 2017: 3), Tomkins's writing persuaded Sedgwick that affective experience is pre-linguistic, thus making it a powerful influence on our ways of being and acting. Sedgwick and Frank, in their essay on Tomkins, offer waking up in the middle night as an example of pre-linguistic power:

> How long does it take you after being awakened in the night by (a) a sudden loud noise or (b) gradual sexual arousal to cognitively 'analyse' and 'appraise' 'the current state of affairs' well enough to assign the appropriate quale to your emotion? That is, what is the temporal lag from the moment of sleep interruption to the ('subsequent') moment when you can judge whether what you're experiencing is luxuriation or terror?

They answer their own query: "[n]o, it doesn't take either of us very long, either" (1995: 113). We don't have to think in order to feel—in order to be *affected* by our surroundings.

Affect theorists as a whole differ in many ways, though the group is united by its interest—by the interest Sedgwick takes—in affect as a material-cultural form of pre-linguistic power. Gregory J. Seigworth and Melissa Gregg identify affect as "in many ways synonymous with *force* or *forces of encounter*" (emphasis theirs, 2010: 2).[21] This is not to say that affects are violent or especially forceful; rather, they vary. The majority of them occur minutely, "within and across" "the subtlest of shuttling intensities: all the minuscule or molecular events of the unnoticed. The ordinary and its extra-" (2). Affect is our way of existing within environments, of being impacted by them. Examples vary from the flickering of fluorescent lights impacting your focus, to the waning of your energy as you finish the end of a dense philosophical book, to the still sluggish heaviness on your

[21] For further evidence of Sedgwick's impact on the development of affect theory, note that Seigworth and Gregg devoted *Affect Theory Reader* to the memory of Sedgwick (2010: v).

shoulders from a break up that happened weeks ago. “Power,” writes Kathleen Stewart, “is a thing of the senses” (2007: 84). Power is *felt.* Affect is a material reaction and a material action; affect is the power of everything we experience as embodied beings.[22]

This power is always in flux and motion. In Seigworth’s and Gregg’s words, affect is “born in *in-between-ness* and resides as accumulative *beside-ness*” (emphasis theirs, 2010: 2). Ann Pellegrini suggests we think of affects as always in transit: “something moves between people and with material effects” (2011: 69). Sights, sounds, words in our environments circulate amongst us, inhabiting, animating, stimulating, manipulating, transforming bodies. One of the most important qualities of affect as a form of pre-linguistic power is that it is shared, constantly circulating among people and things. Sara Ahmed suggests that we think about emotions in terms of economies—as public phenomena. Emotions, argues Ahmed, do not bubble up from within self-contained subjects like those of William James’s vision, but instead work socially on us from the top down. “Rather than seeing emotions as psychological dispositions,” she writes, “we need to consider how they work, in concrete and particular ways, to mediate the relationship between the psychic and the social, between the individual and the collective” (2004b: 120). Affects make impressions on us and transform us all while we exist in public relation with others. Affects swirl in uncontainable eddies; we are less their masters and more their marionettes.

[22] Some affect theorists, especially the Deleuzian, differentiate between “affect” and “emotion.” Affect is a “precognitive sensory experience and relations to surroundings”, and emotion is “cultural constructs and conscious processes that emerge from them, such as anger, fear, or joy” (Cvetkovich 2012: 4). I however follow Cvetkovich who includes all “emotion, feeling….impulses, desires” in her concept of affectivity (4). This enables me to emphasise the deeply *felt, impacted* nature of experience and to emphasise the precognitive by folding the cognitive into it instead of holding it separate.

The self, in Kathleen Stewart's words, "is no match for all of this" (2007: 58). This isn't to say that the self doesn't have autonomy, but rather that it is deeply embedded within felt material matrices. One way to understand the affect theorist's take on subjectivity is to consider the language Jane Bennett uses to describe material objects. Deriving this perspective from the work and language of Bruno Latour, she calls them *actants* (see Latour 2004: 75). One example she provides of *actants* is food, which operates "inside and alongside humankind, exerting influence on moods, dispositions, and decisions" (Bennett 2010: xvii). She suggests we consider the example of eating chips: she personally cannot help but eat more than one because they are so compulsively delicious (40). She also points to the power of omega-3 fatty acids to help alleviate anxiety and depression (41). *This,* for Bennett, is power. Here, food as a *material actant* has a powerful impact on the affective experiences, decisions, and behaviours of human beings. So do all elements of our environments.

Affect theorists differ, however, on the way in which affects function within and across bodies. Schaefer argues that affect theorists can be divided into two reasonably distinct camps. One branch is what Schaefer calls Spinozistic[23] or Deleuzian: it is composed of theorists such as Brian Massumi (2002) and William Connolly (2008). These thinkers underline "plasticity" and "the fundamental re-configurability of bodies under the influence of the overlapping systems of forces within which they are embedded" (Schaefer 2015: 13). This branch of affect theory regards affect as an "intensity" that laces between bodies—bodies which are in Schaefer's words "carvings pared out of formless blocks" or "plastic shapes created *ex nihilo*" (13).

[23] "Spinozistic" not because Spinoza was necessarily or even anachronistically a part of this camp, but rather because of Deleuze's reliance on and interpretation of Spinoza in his own polemics about affect theory. See Deleuze 1988.

The great flaw with this perspective is that it considers bodies to be "blank slates without pre-existing affective dispositions" (Schaefer 2015: 37). It ignores the embodied histories of individuals not just in their personal lives but in their genealogies—in their origins and natures as human beings (or any other species). Sara Ahmed levels a trenchant criticism against this version of affect theory when she writes that the "analytic distinction between affect [in the singular], and emotion risks cutting emotions off from the *lived experience* of being and having a body" (2004a: 39). This branch of affect theory considers affect to be materially compulsory, but it "has no satisfactory answer to the question of by which mechanism" (39). Affects are embodied, according to Deleuzian theorists, but not in a way that allows for evolutionary or cultural history to leave its mark.

The opposing view, phenomenological affect theory, is able to provide a satisfactory answer by jettisoning the notion of blank slates. Like Damasio and other scientists, phenomenological affect theory embraces biological inheritances and tendencies. It accepts the evolved animality of human beings. To capture this quality Schaefer coins the notion of "intransigence," which denotes "the chunky genealogies, bricolages of existing forms, that compose each individual body" (2015: 13). Bodies are predisposed to feel, act, and exist in particular ways given their inherited, evolutionary lineage, as well as because of their personal history. Yet it is important to emphasise that none of these inheritances or predispositions are rules; there is nothing that says a creature must respond in a particular way to a given stimulus. Intransigent structures, "are susceptible to reconfiguration without being so flexible as to lack consistency" (37). In this way, intransigence embraces evolutionary embodiment while simultaneously placing great stock in the relevance of learning and culture. In Schaefer's words, intransigence

> provides a new way of thinking about the relationship between power and history. This means looking not only at the history of language systems within which a body emerges, but at embodied history—a lineage of intransigent, semistable forms emerging out of an evolutionary history and a local confluence of social, political, economic, and cultural contexts (2015: 13).[24]

Affect, in the phenomenological conception, is most certainly a result of evolution. As affects trickle down throughout the ages in the form of embodied bricolages, they animate and compel bodies according to evolutionary tendencies. Affective neuroscientist Jaak Panksepp describes affects as "ancestral memories of how effectively we play the game of survival and reproduction; these memories are passed down through the collected mindless 'wisdom' of our genetic code" (Panksepp 2011: 23). Now, Panksepp's writing here does tend towards the adaptationistic. It does ring of homeostatic mechanisms and precise evolutionary strategies, the "wisdom" of "codes"—a perspective I am working to modify in this thesis. But Panksepp's core point about evolution being the force which gives rise to affects and tendencies remains valid. Panksepp and Damasio are right about the fact that affects exist precisely in order to "feel good or bad in a variety of ways" (Panksepp 2011: 23; see also Damasio 2003: 13, 30, 38). Feelings do encourage bodies to "approach" or to "avoid" different stimuli; feelings do "provide guidance for living due to the survival-enhancing advantages each of them has conferred over the course of evolution"(Panksepp 2011: 23). There *is* a real evolutionary history and heritage to affect.

But just because affects lure and compel us and are often in accordance with evolutionary tendencies does not mean they are limited to this scope. Where phenomenological affect theory splits from Damasio and Panksepp is in its understanding of affects not as chained to certain

[24] Importantly, language doesn't lose its importance or power in phenomenological affect theory. It is, simply, subsumed under the broader category of human affects. Schaefer writes of this that: affect "saturates experience, cognition, and behaviour at every level. Language never even begins to diverge from the liquid seams of affect that stick meaning to words" (2015: 45).

purposes, but rather as untethered and powerful in their multitudes. I previously labelled Damasio's affects as *telic* because they evolved according to a specific homeostatic function, steering us towards more fluid life states. According to phenomenological affect theorists, on the other hand, affects are *autotelic.* Schaefer calls them *terminal,* meaning they have their own ends. For theorists such as Sedgwick and Schaefer, affects "[drive] embodied life" but "without seeking a higher purpose" (Schaefer 2018: 80). They are not restricted to specific evolutionary functions, but instead a quality of our experience that can steer us in any number of ways.

Tomkins takes this view in part because he contrasts affects with drives. Drives are always instrumental: to eat, to procreate, to sleep. Affects, on the other hand, have no clear, discretely allocated reward. He writes: "[t]here is no strict analog in the affect system for the rewarding effect of drive consummation" (Tomkins 2008: 77; for the evolution of which see 79-84). In an illustrative example of the *autotelicity* of affects, Tomkins explores the drives and affects involved in an infant crying. The infant may cry in distress if it is hungry, cold, wet, in pain, or a slew of various other states, some of which are drives, some of which are not. The child may even learn to cry "at stimuli for which there are no inherent releasers" (13)—that is, as a sort of somatic marker. The infant may also stop crying—or alleviate the drive compelling him to cry—as a result of a variety of different strategies—feeding, cuddling, cleaning, removing the source of pain—or, again, as a learned response. Tomkins calls this a "many-one" instigation and "one-many" reduction of affect (13). There is a near infinite flexibility in the relationship between various affects and related causes, reactions, or salves. Affects help us orient ourselves in the world, but they are not clearly delineated, bound in discrete allocation to evolutionary purposes.

Schaefer arrives at the same conclusion about *autotelicity* as Tomkins via his Derridean deconstruction of evolutionary forms (this thesis: 75-76). He does not see a reason to—in fact, he actively sees a reason *not* to—find specific functions for the experience of various affects. Instead, he sees the endpoints of affective experience, the *telos* of affects, as "embedded" inside them. Damasio sees affects as a means to an end, or, at least as oriented in a specific direction, propelling the organism to fluidity; Schaefer, Tomkins, and Sedgwick see affects as the goal, the "*endpoint* of *both* thought and behaviour" (emphasis his, Schaefer 2018: 80). Affects are the ways in which we feel things—all of which are to some degree shaded by our biology and our evolutionary tendencies—but they do not function according to discrete rewards or any kind of precise calculus. The price paid for this flexibility, says Tomkins, is "ambiguity." The affect system is not simple. We are "motivated" to pursue affects if they lure us on (2008: 13) or promise satisfaction of some sort. That which stimulates motivation can become motivational itself, tracing nearly endless, contagious paths of motivation throughout our relational landscapes.

Schaefer offers up horror movies as an example of the *autotelic* quality of affects. He writes: "ask anyone and they will tell you fear is a 'bad' emotion. And yet we line up and pay to be scared or saddened or repulsed" (2018: 80). If fear did operate according to a specific evolutionary mechanism, it would compel us to avoid the stimuli that caused it. And yet movie studios continue to produce horrifying blockbuster hits. Someone with a linear evolutionary view might propose to account for this behaviour by saying that fear is healthy, as it keeps us alive. Or maybe we enjoy fear because it stimulates adrenaline, and adrenaline feeling good is a part of an evolutionary mechanism of diminishing pain and increasing energy and awareness in times of stress. But this is exactly the point: just because it feels good—*or just because any affect feels*

satisfying for whatever reason—does not mean that it *is* good, in terms of health or fluidity or any other category.

Excess fear is actually not good, at least when it comes to physical health: adrenaline suppresses the immune system (Sivamani et al 2009), impairs fertility (De Rensis and Scaramuzzi 2003), and can cause disruptions in mental health (Esler et al 2008), to name just a few examples. Chronic adrenaline production can be even more troubling, turning a short term shock into a long, on-going event (see again Esler et al 2008). Something adrenaline *does* do for us is give us a rush. It pulls us in and teases us on. It entices us to seek more of the same. This is not an evolutionary purpose or homeostatic drive. This is affect in all its potent glory.

Horror movies raise a potent question: are there "good" affects that lead to fluidity, reproduction, and survival, and "bad" affects that lead us away from strain, impotence, and death? We might immediately think yes, like Damasio does, because we tend to see things like happiness as "good" and leading to good things and things like sadness as "bad" and leading to bad things. But just because affects can be generally classified as feeling positive and feeling negative based on the phenomenology of their experience (Tomkins 2008: xiii, 14-15) does not mean they operate in a special way that directs organisms towards good or away from bad things, or that the bad things cannot in themselves entail some kind of satisfaction. Perhaps our understanding of affects cannot be so linear. Perhaps it must be queered.

Damasio's homeostatic mechanism relies on a binary assessment of affects associated with "joy" and those with "strain" that guide the organism in specific directions. Yet in her book *Depression: A Public Feeling* (2012), Ann Cvetkovich demonstrates that it cannot possibly be so simple. Affects

cannot be so easily categorised, so easily allocated a spot on a good-bad/joy-sorrow/fluidity-strain continuum. Affects are *queer,* insofar as they compel us without clear, evolutionarily given trajectories. Cvetkovich's book is part autobiography and part political treatise in which she explores depression as a cultural and social phenomenon rather than as a medical disease.[25] In Cvetkovich's words, this involves "[rethinking] distinctions between positive and negative feelings so as to not presume that they are separate from one another or that happiness or pleasure constitutes the absence or elimination of negative feeling" (2012: 6). That is, if depression is not medicalised only as a biochemical problem, it is easier to see how it may be variously networked within one's lived experience. Positive and negative feelings are not always altogether separate; in fact, they often co-occur.[26]

There are, says Cvetkovich, "qualitative nuances of feeling" that are only "crudely captured" by binary divisions between positive and negative affect (2012: 6). They are captured, surely, *to an extent*, but it is a cheap move to disregard the delicate ways in which, for example, melancholy throughout history has been viewed as "normative [parts] of cultural experience," as "a creative force," as a source of enlightenment (107), and as a "foundation for new kinds of attachment or affiliation" (6). These are all things that typically entail positive affects, though by no means unambiguously so. Can we really so easily parse the positive from the negative? Or assume that we always pursue that which is purely good for us, even if such a concept of "purely good" existed? Cvetkovich invites us to "tarry with the negative as a part of daily practice" (3), as it may

[25] Depression, for Cvetkovich, is a "category that manages and medicalises the affects associated with keeping up with corporate culture and the market economy, or with being completely neglected by it" (2012: 12). This aligns with Alain Ehrenberg's work suggesting that depression is a result of imperatives that the self be sovereign and productive (Ehrenberg: 2010).
[26] For more on which consult literature on queer utopianism, such as that of José Muñoz (2009).

open space for positive affects such as hope or positive outcomes such as creativity (190-191) to coincide with it.

Cvetkovich's invitation provides a way to think through affect without slicing it along specific homeostatic lines. In this thesis I construct a notion of salvation that does utilise concepts of positive and negative affect—so I clearly do not believe that we cannot generalise about less pleasant and more pleasant affective experiences. We can, by simply following Tomkins in allowing for that which is phenomenologically positive be deemed positive, and negative if negative (2008: xiii). These are loosely those which Damasio associates with fluidity and strain. What is important to take away from the queer critique of affect however is two-fold. For one thing, positive affects don't lead us necessarily to good things, and negative affects don't lead us necessarily away from bad things. There isn't a linear spectrum along which our affects push us forward. Second, and crucially, positive and negative affects cannot necessarily be disentangled. They so frequently occur twisted among one another that they are even perhaps coterminous. Positive and negative affect cannot possibly be said to clearly delineate which paths are best or most fluid to take.

Without clear binaries dictating that which is good and that which is bad, we can finally then arrive at an understanding of affect that is powerful and compulsive, but which does not operate along linear trajectories. One significant means by which to thematise this quality of affective power is found in the work of Lauren Berlant. Berlant investigates attachment. Specifically, she investigates the ways in which people become attached to objects, persons, ideas, and even affects themselves as a means by which to sustain a way of being in the world—to materially sustain our ability to be *in* the world. Because of our inherent, ineluctable affectivity, we are

always susceptible, even eager, to form attachments to objects, persons, environments, ideas, affects. Berlant sees the human as an animal that forms attachments in order to "keep on living and look forwarding to being in the world" (Berlant 2010: 94). In Schaefer's interpretation of Berlant's concept, we are "anticipating bodies" (2015: 105). We sniff and we seek, constantly pulled along by the potency of our affective milieus.

Objects contain in them hints of affective promises. They tantalise us with affects that we may experience now or at any point in the future. Attachment as such "provides something of the continuity of the subject's sense of what it means to keep on living on and to look forward to being in the world" (Berlant 2010: 94). We are dependent upon, compelled by, attached to the things in our environment because they hold some sort of potential or promise. There is a *structure* to our attachment (Berlant 2010: 13), and it is what Berlant calls optimistic. This optimism is not something that necessarily feels good. Optimism is about anticipation, the act of seeking *more*. Optimistic attachment is a promise of *something,* of some sort, that may be slaked momentarily but which yields another longing, another affect to be addicting—pursued, snagged, grasped, lived, lost. This is precisely how people can be pulled along by an affective soup that is some parts good, some parts bad—maybe many or all parts bad. We can be seduced by nearly anything because of the promise of some *satisfaction.* We are constantly juggling and being juggled by attachments. It is because affects are *autotelic*.

Berlant sometimes calls the optimism we carry with respect to our attachments cruel: cruel because it doesn't necessarily lead us towards satisfaction, happiness, fluidity, or goodness. A cruel optimism is an attachment in which "conditions of possibility whose realisation is discovered either to be *im*possible, sheer fantasy, or *too* possible, and toxic" (emphasis hers, Berlant 2010:

94). Ahmed describes the same quality of optimistic yearning with the language of happiness: "[h]appiness," she writes, "becomes a question of following rather than finding." Happiness is "*whatever*" is pursued, and "hence achieves its affectivity by not being given or found" (Ahmed 2010: 33). The concept of happiness is actually so potent, says Ahmed, precisely because it is never quite achieved. Indeed, especially knowing how positive and negative affects can intertwine and without homeostatic linearity, unhappiness—or cruelty—to at least some degree is nearly guaranteed. We are necessarily sustained by our yearning and attachment to objects by the ways in which they lure us or promise some kind of satisfaction or fulfilment or *salvation*, even while the paths down which they lead may be all shadowed and dark.

Affect and Medieval Pain

It is in this queer and cruelly affective sense that we can most fully account for the behaviours of Julian of Norwich and Catherine of Siena. Both of these women sought out great suffering in their lives. Damasio might attempt to explain their behaviour with some kind of unwellness; he might say that for some reason or another their homeostatic mechanisms malfunctioned. Yet what if what Julian and Catherine experienced was actually not a disorder, or actually not an aberration from how human affectivity works? What if it was instead simply a complex series of severely cruel optimisms?

According to a queer and cruel accounting, Julian and Catherine were compelled by the worlds they inhabited and the ideas they encountered to become attached to negative affects. They sought satisfaction in suffering and pain. The difference between Damasio's view and this one is subtle, but important. In Damasio's accounting, affects function according to a homeostatic

mechanism; they lead us towards more fluid life states. He would presumably account for Julian and Catherine's behaviour by saying they tried to move towards more fluid states but failed. In a phenomenologically affective accounting, on the other hand, there is no need to say that Julian's and Catherine's homeostatic mechanisms malfunctioned. It is enough to say that these women were compelled by affects that were *autotelic*. The promises they sniffed out didn't necessarily lead them anywhere but where they happened to go. We are all evolved animals, but animals that function embedded within and at the mercy of deeply felt lifeworlds.[27] Julian and Catherine did not exhibit aberrations of human functioning but simply human functioning.

Consider the circumstances of their cruel optimisms. For Julian, living on the brink of death was appealing. It was, in a sense, enchanting. It allured her and promised some kind of deep religious meaning and satisfaction, after having already provided her with that when she was ill. Anchoritism involved significant privation, yet she craved it and embraced it because of its comforts and promises. It would be counterproductive to try to detangle the "good" from the "bad" in Julian's experience. We could generally describe the feelings of salvation she had, the exuberance in her mystic visions, and any satisfaction she felt from her love in union with Christ as positive affective experiences. But they *required* suffering first with illness and then with her literal entombment. Damasio slices affects along good/fluid bad/strained lines. Julian's experience demonstrates that the queer affect theorists tell a more complete story: affects are powerful, and never in ways that follow discrete binary instructions.

[27] For a discussion of the concept of lifeworld—or in the original German, *umwelt*—as it applies phenomenologically to the subjective experience of all organisms, see the pioneering work of Jakob von Uexküll (1934).

The circumstances are similar for Catherine. Catherine was a deeply emotional human being from a young age. She was wracked by guilt over her twin's death, and she was deeply taken with the idea that all humans are sinners (Bynum 1987: 167; E. Gardner 2009). She was compelled to repent. And yet as much penance as she extracted from herself, she never satisfied it in a way that led to fluidity. She never "overcame" her guilt; the guilt chewed her up and swallowed her. She exulted in this. This wasn't because, as Damasio might argue, her homeostatic chemistry was broken. It was because she saw a promise in pain. This pain did ultimately kill her, but it also brought her some kind of satisfaction. This, then, is textbook cruel optimism: there was a promise of salvation in Catherine's suffering, and she was never released from the compulsion. The answer was only to dive into the depths of suffering, to seek increasingly extreme penance, and eventually to follow this path to her death.

Affect Theory and Salvation in this Thesis

Over the last few decades affect theory has become a potent means by which scholars in the humanities have been able to theorise about society and different components of experience while simultaneously collapsing the nature-culture distinction. For those who follow the phenomenological branch, it has even been one in which theories could develop about humanity as simultaneously evolutionary and cultural. In this chapter, affect theory has provided a bridge from the scientific concepts I explored in the previous chapter to my concept of salvation. This concept of salvation is thoroughly deconstructed and reconstructed. It is natural, cultural, evolutionary, interactional, non-homogenising, nonlinear but still positively oriented, and as loyal as possible to the complex multiplicity in which humans operate. It can be as such because it is grounded in affect theory.

The next chapter is concerned primarily with exploring this concept of salvation, and the final half of this thesis is concerned primarily with exploring case studies of salvation as it relates to science. It is important to note the role of Julian and Catherine in this picture. Julian and Catherine have provided here a means by which to disrupt linear thinking about what it means to be a human animal, and have also provided a means by which to disrupt binary conceptions of affective experience. These mystics have been examples of the ways in which suffering can be deeply compelling. But they are not representative of all of the ways in which one can experience salvation. In fact, they are far from it.

One major difference between Julian and Catherine and the forthcoming case studies is their pain. In the case studies that I have chosen, there is not much pain intertwined with salvation. There is not so much ambiguity about what is phenomenologically "good" and what is "bad." Ursula Goodenough and E.O. Wilson exemplify salvation that is more or less straightforwardly positive. Their cases are comparatively simple—even seemingly linear—in which negative affects and positive affects point in generally opposite directions. Sam Harris on the other hand—while not nearly as extreme and Julian and Catherine—does exhibit some of the queer coupling of positive and negative affects we've covered in this chapter, as the salvation he experiences is full of positive affect but is also partnered with rage. For this reason, Julian and Catherine have been my outstanding cases of intensely cruel optimism; they have enabled me to showcase a wide variety of potential qualities of salvation. What follows is simply more sampling and of a more mainstream flavour, including both Harris's that is twisted up with negative affects, and also the more straightforward salvations present in Goodenough and Wilson.

There are key aspects of affect theory discussed in this chapter that are highly relevant moving forward. We have here explored at length the idea that human beings do not function in a homeostatic manner or according to a precise evolutionary calculus. This is relevant. We have also discussed how positive and negative affects may be deeply intertwined, and that we follow affects according to their *autotelic* allure, sometimes with a desire for satisfaction—an optimism—that is deeply cruel. This is also relevant. Yet perhaps most relevant is the underlying premises of affect theory that make these things possible: the fact that we are compelled animals, networked within material worlds, and not discrete pockets of autonomous will but bodies that swarm, gaze, sniff, and follow affective trails, very much at the mercy of our environments. This is not to say that we cannot behave in rational manners or that our careful thinking and planning is all a waste. But it is to say that these things, too, are a part of our affective matrices and the deeply felt way in which we inhabit our lifeworlds. This potent affectivity is the cornerstone of the existential phenomenology of salvation I construct in the next chapter.

III: WHAT DOES IT MEAN TO BE SAVED?

"Political action has come to be surrogate for salvation;
but no political project can deliver humanity from its natural condition."
John Gray[1]

The first chapter of this thesis explored the promise of scientific perspectives for studying religion and religion-like things such as salvation. The second chapter built upon those insights and developed an affective understanding of human beings as material, evolved, and deeply embedded animals. This chapter is the third and final rung on the constructive ladder: I present a concept of salvation grounded in scientific perspective and affect theory. This salvation is also existential and richly textured as a material process, facets which I explore in this chapter at length. I build the concept in a subject-oriented, phenomenological (by which I mean, experiential) way. In doing so I demonstrate how salvation can be understood not so much as a set of doctrines, ideas, or experiences exclusive to religion, but rather as an affective compulsion deeply embedded in human experience.

Salvation is so closely associated with religion in scholarship that it has often been identified as the primary concern of—or even as coterminous with—religion. This perspective has been prominent in the study of religion in the sense that psychological functionality has been centre

[1] This quote is only found in the foreword to the paperback edition of *Straw Dogs* (2003).

stage in several models of religion throughout history such as Bronislaw Malinowski's (discussed below). This is however a problematic stance once one realises how many ways in which religion can actually cause psychological distress, as is the case when one for example frets over hell, angers a God or spirit, or is forced to make sacrifices. I have spent a significant amount of time in this thesis analysing the category of religion; in this chapter the Foucauldian perspective on power that Donovan Schaefer applies to religion, broadly construed, helps shed further light on how what we traditionally perceive of as religion functions according not just to our hopes but also to our fears. Religion is not coterminous with salvation or any kind of psychological functionality.

Salvation has also closely been associated with the category of religion from within Christianity, a fact that stems from the rich history of salvation as a component of Christian doctrine and experience. For Augustine of Hippo, for example, salvation is one of the central themes of religion. Human beings are saved from ineluctable sinfulness by the power and grace of an omnibenevolent God. Augustine has said, for a few examples of many: God "[cuts] away in men whatever He knows to be putrid so that they may attain salvation" (*Sermon Denis* 24.13 quoted in Arbesmann 1954: 25)[2]; "[i]n this sacrament…lies the salvation of all who believe, hope, and love" (*The Trinity* Book IV 1991: 181 in A. Fitzgerald 1999: 158)[3]; and "no man can find salvation except in the Catholic Church" (sermon quoted in Merdinger 2014).[4] In different ways each of these statements asserts the relevance of a Christian God and the Church to salvation. Making God, the

[2] See the entirety of Rudolph Arbesmann's essay titled "The concept of '*Christus Medicus'* in St. Augustine" (1954) for a thorough accounting of the history of the concept and presentation in Augustine's works.
[3]This fundamental idea is asserted ubiquitously; for example, in *De vera religione* 17.33, *De doctrina Christiana* 3.6-8, 3.9.13, 2.10.14-3.12.20; for these selections and more on which see A. Fitzgerald 1999: 158. (Note: All other references to Fitzgerald throughout this thesis are to Timothy Fitzgerald unless otherwise stated.)
[4] This is in particular an excerpt from a sermon: *Sermo ad Caesariensis Ecclesia plebem.* See the online version of the extensive volume *The Oxford Guide to the Historical Reception of Augustine* and search the entry for this title (by Jane Merdinger, edited by Karla Pollman and Willemiem Otten) for more. See also Aers 2009: 18-44.

sacraments, and the Church so intensely and exclusively salvific yokes the two phenomena to one another; salvation becomes the domain of religion and religion in a sense becomes the domain of salvation.

But even Augustine suggests that "true religion," or rather, "true *religio*"—by which he means true piety, or true worship (see Harrison 2015: 8-12)—can exist outside of the church. He does of course say that "true religion is found only in the Catholic Church" (*De vera religione IV* PL 34 column 0127 on Harrison 2015: 9). But in the *Retractions* he also suggests that "even while Christian religion is *a* form of true religion, it is not to be identified as *the* true religion" (emphasis his, Harrison 2015: 9). Augustine believes this because he sees true religion as existing since the beginning of history and therefore Christianity; true religion—as piety, worship, sacredness—can occur outside of the Church. He writes: "it makes no difference that people worship with different ceremonies in accord with the different requirements of times and places, if what is worshipped is holy" (Augustine 1991 vol. 2: 25-26). The truly religious is "invisible and spiritual virtue" (Augustine 1991 vol. 3: 266). The important thing here is the virtue, the transformation, and the wisdom and experience. There is at least a *sense* in which, for Augustine, salvation transcends the category of religion as we know it today and is best understood as a subjective experience.

Of course, I take no issue with people of particular faiths continuing to use the language of salvation to describe specific tenets, ideas, or experiences that belong exclusively to the concept of salvation as they have historically understood it. There is a rich history in many religious traditions in which the word "salvation" has a specific meaning that merits preservation. But I am interested in the concept of salvation as it may be useful to our theoretical discourse and understandings of human experience as we move into Taylor's secular age. If we unhook salvation

from the category of religion we can develop significant analytical tools. If one is at all interested in a) understanding ways in which the modern religious landscape is changing or in b) conducting phenomenological comparisons across categorical lines, understanding salvation as a subjective experience entirely independent from (though often experienced within) religion becomes extremely theoretically useful.

This chapter as such unfolds in two key steps. First, I construct the concept of salvation. I begin by exploring the negative existential affects from which humans can be saved, which I conceptualise as existential anxieties, derived from the existentialist tradition and specifically the work of theologian Paul Tillich. But this existentialist understanding must be re-moulded and enfolded into a material, embodied framework, so I reformulate it with two analytical tools. First, I elucidate its evolutionary origins via the work on existential anxiety conducted by evolutionary anthropologist Scott Atran. Second, I enrich it with a layer of embodied experience with insights from Thomas Tweed. The result is what I call a *phenomenology of existential anxiety*.[5] Salvation is the experience of some degree of relief or remediation of existential anxiety, which is characterised by affectivity, non-linearity, and material potency that is not a genetic imperative but a tendency often manifest in the modern West.

[5]Invoking "phenomenology," I do not intend to invoke any specific branch of or thinkers within the study of religions, nor to embrace the *sui generis* connotations of phenomenology that Russell McCutcheon identifies in *Manufacturing Religion* (1997) and especially *The Discipline of Religion,* chapters 2-3 (2003). In other words, I do not consider phenomenology in the disembodied terms sometimes common in the study of religion, as Vásquez describes: "the flight from the body and its situated practices in religious studies," he writes, "results from the appropriation of an idealist, subjectivist, and transcendentalist version of phenomenology that has failed to take seriously our embeddedness in the life-world… the contradictions of this idealist appropriation of phenomenology have been aggravated by modern hermeneutics" (2011: 12). By "phenomenology" throughout the entirety of this chapter I mean *experience* "directed toward" something, and emplant it firmly in embodied context (see Smith's "Phenomenology" in the *Stanford Encyclopaedia of Philosophy* [2013]).

After arriving at this newly constructed, embodied and phenomenologically rich concept of existential anxiety, I explore the concept of salvation as it pertains to the study of religion. Specifically, I explore the notion that religion *is* salvation, or at least primarily concerned with salvation. It cannot however be defined as such, not the least because religion can often exacerbate existential anxieties. Salvation is then best theoretically understood as a phenomenon that is not exclusively religious. To conclude the chapter I take a brief tour in the affective experiences of salvation of Augustine. I close the chapter with an exploration of Augustine's salvation both within his experience of the Christian Church and also outside of it, specifically with friendship and wisdom. Salvation cuts across all spheres of life and experience and is found wherever one experiences relief or remediation of the limitations of embodied existence.[6] To arrive at this this conclusion I begin with the existentialists, who blazed for us a path of deep and rigorous thinking about the intrinsic limit conditions of human existence.

Existential Anxiety and the Existentialists

The concept of existential anxiety originates with thinkers we now identify with existentialism, finding its earliest roots in the work of Søren Kierkegaard. Kierkegaard used it primarily in the form of the Danish, Norwegian, and Dutch word "angest," which has been translated both as "dread" and as "anxiety" and has the Latinate equivalent "anguish." Says the Online Etymology Dictionary, "[a]ngst is from German, meaning "neurotic fear, anxiety, guilt, remorse," from Old High German *angust,* from the root of *anger.* George Eliot used it (in German) in 1849, and it was

[6] It is very much worth noting that the title of this thesis "Salvation through Science Alone" is more in the line of rhetorical play on the idea popularised by Luther of *sola fide* (commonly translated as "salvation through faith alone"—see Schreiner 2015) than it is an assertion about the nature of salvation. Salvation is various and affectively meandering, and I would not say it must be—or even often is—through one phenomenon "alone."

popularised in English by translations of Freud's work (Harper 2016). According to Walter Lowrie, in the first translations of passages from Kierkegaard's writings that were published in 1924 by Hollander, the term *angest* was translated as "dread." Lowrie variously translates *angest* himself with five different translations: dread, anguish, foreboding, agony—and anxiety (Kierkegaard 1957 [translated by Lowrie]: 109, 228, 240, 289, 203).

Kierkegaard deploys the concept in many works, including *Sickness unto Death,* yet he explores the idea most thoroughly in *The Concept of Anxiety* (or *The Concept of Dread* [1957]). In this text, *angst* describes a profound and deep-seated universal condition rooted in the tension between freedom and sin (Grøn 2008; Beabout 1996). "Anxiety may be compared with dizziness," writes Kierkegaard. "He whose eye happens to look down into the yawning abyss becomes dizzy. But what is the reason for this? It is just as much in his own eyes as in the abyss…hence, anxiety is the dizziness of freedom" (Kierkegaard 1967: 38). Kierkegaard's anxiety is in part predicated on original or what he calls hereditary sin. In this sense anxiety is ineluctable, and inherent to what it means to be human. It is to be free but also to know that in that freedom there is always sin. Anxiety is the anguish one feels at the impossibility of that situation, and there is no human being who is completely free of anxiety.[7]

Later existentialist thinkers delve more deeply into the concept of anxiety. Notable among them is Martin Heidegger, whom Francesca Brencio identifies as "the first philosopher to assign to anxiety a pivotal role in the understanding of the authenticity of human life and of our choices, widening

[7] Kierkegaard writes for example in *Sickness Unto Death:* "[j]ust as a physician might say that there very likely is not one single living human being who is completely healthy, so anyone who really knows mankind might say that there is not one single living human being who does not despair a little, who does not secretly harbour an unrest, an inner strife, a disharmony, an anxiety about an unknown something or something he does not even dare to try to know" (2004: 357).

Kierkegaard's premises" (2014: 299).[8] This is because *Dasein*, Heidegger's *being-there* term for the human subject,[9] does not just anticipate but is shaped by death. In Zohreh Shariatinia's words, "death is not an event that may occur in the future but rather is the fundamental structure of the universe…death is not the end of our existence or an event that we prepare for but rather the internal structure and consistency of our existence" (2015: 95). We make all of our decisions and experience all of our emotions due to the fact that *Dasein* ends. Heidegger writes that "the 'end' that belongs to existence limits and defines the whole of Existence" (2014: 302). This is why anxiety is a, if not *the*, fundamental quality of *Dasein*: "anxiety in the face of death," says Heidegger, "[is] found from the stem of Existence" (324). The essence of human life is to be poised on the edge of material end and the void of nothingness, in a mood of anxiety (see also Magrini 2006: 77-80).

Yet the existentialist thinker who most explicitly develops the concept of existential anxiety as it relates to our purposes here is Paul Tillich,[10] who elaborates Heidegger's thoughts about finitude

[8]Both in *Being and Time* (1967) and in *What is Metaphysics?* (2014) Heidegger identifies anxiety as a mode of being (*Seinsweise*) of *Dasein* (which constitutes the human being and the mode of being that humans have). Anxiety is a characteristic ontological feature of human existence. This is because of the "being-there" quality of *Dasein. Dasein* is essentially "in the world'; *Dasein* is "essentially temporal"; *Dasein* "looks ahead to its own death, and it surveys its life as a whole" (Inwood 2000: 10). Human beings are essentially anxious because we are finite. Inwood writes that "Dasein's awareness that it will die, that it may die at any moment, means that 'dying', its attitude to or 'being towards' its own death, pervades, and shapes its whole life" (67). *Dasein* has a forthcoming end, and all of its existence is shaped by it.

[9] Heidegger's choice of the term Dasein and his ontological framework of ways of being-in-the-world are intended to extend us beyond the idea of us as subjects, separated from a world of objects. Instead, he insists that we are not isolated from the world, but inextricably connected to our surroundings; through our being-in-the-world we are part of the larger fabric of existence; Robert Brandom calls this a distinctive *mode* of Being realised by human beings (2002: 325); Michael Wheeler calls *Dasein* an *entity* for the sake of keeping it "on the right side of the ontological difference" which he says "probably deserves to be called the standard view in the secondary literature" (Wheeler 2017).

[10] There is no doubt that Tillich's Christianity was central to his views. Tillich however attempted to, in his words, help Christianity break through its "particularity" and be open to "criticism"; he wished to be as universally applicable and open as possible. For more on which see his lecture series "Christianity and the Encounter of World Religions" (1994a).

and nothingness into a "significantly Heideggerian"[11] understanding of the human condition as essentially anxious in its proximity to nonbeing (Chi 2013: 270). Nonbeing is for Tillich "the real and ultimate object of fear from which all other fears derive their power" (Tillich 1948: 170). This is why the human being is one that is existentially anxious at its core. Anxiety defines our existence because our lives—our being—are defined necessarily in contrast to their opposite—our death and other forms of nonbeing.

This polarity, and our awareness of it, is the fundamental characteristic of our experiences of life. "The words for life," writes Tillich, "first arose through the experience of death. In any case, the polarity of life and death has always coloured the word 'life'" (Tillich 1963: 11). Tillich readily cedes that we know nothing about death, calling it "the absolutely unknown." This unknowing however does not preclude our guessing, or surmising, however, which is what Tillich does when he describes death as "the darkness in which there is no light at all" (Tillich 1948: 170). Both of these phenomena—the uncertainty and the suspicion—are problematic. They render death a potential threat to us with much at stake: our conscious experience, our memories, our selfhood, our being. The high-stakes nature of the polarity and death awareness generates in us the mother of all anxiety: existential anxiety.

The primary distinguishing characteristic between the existential anxiety of Tillich and that of Heidegger is the systematic fashion in which Tillich elaborates existential anxieties beyond those specifically related to death. Anxiety is not strictly bound to death, for Heidegger, as *thrownness*

[11] Tillich is explicit about the Heideggerian core of his existential anxiety. He writes, "Heidegger's ''annihilating nothingness' describes man's situation of being threatened by nonbeing in an ultimately inescapable way, that is, by death. The anticipation of nothingness at death gives human existence its existential character" (Tillich 1951: 189).

and guilt play roles in the anxious mood of *Dasein* (Magrini 2006: 79), yet Tillich explicitly explores how the threat of annihilation—or nonbeing—can be shaded into specific hues. It's not just material finitude and nothingness but a wider selection of "threats to being" that constitute existential anxiety. According to Tillich, "nonbeing threatens being" (Tillich 2000: 41) in three ways. One of these ways is death (or fate), which is an "ontic" threat of nonbeing; a second way is the moral threat of guilt (sin), which threatens condemnation;[12] the third way is an anxiety of emptiness or meaninglessness, which "threatens man's spiritual self-affirmation" (41). In each way these existential anxieties arise from nonbeing, and are equal in their ability to affect us, if unevenly depending upon personal and cultural circumstance (41-42).

The threats of nonbeing are different in each of these three cases. The existential anxiety of fate (death) is about material nonbeing, and it is "most basic, most universal, and inescapable" (Tillich 2000: 42). The existential anxiety of guilt arises from the fundamental ambiguity of morality, wherein self-affirmation is threatened by nonbeing. Without moral clarity—which, to be clear, one *cannot* have—one intrinsically experiences the anxiety of condemnation, even if unknowingly: "[a] profound ambiguity between good and evil permeates everything he does…the awareness of this ambiguity is the feeling of guilt" (52). This results in self-negation and non-being. Finally, the existential anxiety of meaninglessness also arises from self-negation but in an explicitly spiritual sense (46); "the anxiety about meaninglessness is about the loss of an ultimate concern, of a meaning which gives meaning to all meanings" (47). Meaninglessness is the loss of a spiritual centre, having no means by which to ground oneself amidst the "despair" (51) of

[12]Though, importantly, guilt is also important to Heidegger. He writes, for example, that "[i]n *Dasein* there is undeniably a constant 'lack of totality' which finds an end with death" (Heidegger 1967: 286) suggesting that we never live up to our potential—and therefore experience guilt—an experience that is only ended with the finality of death. For more on which see Mulhall 1996.

emptiness. Nonbeing threatens in material, spiritual, and moral senses, and each of them is experienced as an existential anxiety.

Tillich describes the foundational experience of these anxieties (and therefore our existence) as "ontological shock." We are capable of apprehending our being only through the shock of nonbeing—through the realisation that "there might be nothing rather than something" (Chi 2013: 299).The two experiences—being and understanding of nonbeing—are intrinsically interlinked. Tillich writes in full:

> Now I come to the basic question asked by Heidegger again and again, a question asked in many ways and asked differently by him in his different periods, but it is always the same question: *why is there something and not nothing*?...The question...is not a logically answerable question so much as it is an *outcry,* the expression of shock. And this shock is the birthplace of all philosophical thinking; it is the philosophical shock of the individual who, for the first time, has encountered the possibility that there might be nothing (emphasis his, 1994b: 17).

Here, Tillich describes philosophical thought as given by a realisation, as preconditioned by the conscious coming-to of the reality and looming threats nonbeing. It is an *ontological* shock—a *philosophical* shock; it is a specific awareness of reality entering conscious, thinking experience. But that does not mean that it is only a cognitive phenomenon that must be experienced in accord with philosophical musing. Tillich's existential anxiety is actually present and pervasive always, if not consciously so. Existential anxiety is for Tillich "consciously and unconsciously effective in the whole process of living" (Chi 2013: 275). One's "encounter with nothingness" is held by Tillich "to be the source of a basic anxiety which is universally, though not always consciously, present in human being and pervasive of its being" (Martin 1964: 110). We do not always know it, but it lives under our skin, shaping our emotional lives, influencing our

experiences and our actions. In Tillich's words, "[l]ike the beating of the heart, [existential anxiety] is always present, although one is not always aware of it" (Tillich 1957: 67).

It is in this sense that existential anxiety constitutes for Tillich, in Bernard Martin's words, "man's fundamental psychic experience" (1964: 111). It is the core essence of humanity that influences everything we feel and in some sense even gives rise to it. The anxieties of nonbeing, writes Tillich, "overshadows all concrete anxieties and gives them their ultimate seriousness" (Tillich 2000: 43). This is the case because nonbeing is the ultimate determinant and experience of contingency; "we exist in this and no other period of time," he writes, "beginning in a contingent moment, ending in a contingent moment, filled with experiences which are contingent themselves" (44). What we might think of as proximate or more ordinary anxieties have a "certain independence" (43) insofar as they are not, strictly speaking, immediately *about* finitude (41). *But*, they derive from existential anxiety, and they only exist because of the radical contingency upon which all anxiety hangs.

There are three primary elements of Tillich's existential anxiety that I carry forward in this thesis. First and foremost is the ineluctable influence nonbeing has on the experience of life. I embrace Tillich's argument that death and related threats of nonbeing (or what I develop later in this chapter as *embodied limitations*) colour our lives, if on a usually subtle or subconscious level. Second, I embrace Tillich's argument that existential anxiety is not confined solely to the threat of physical nonbeing with death. Third, I do in a *sense* take existential anxiety to be universal like Tillich does, but rather than call it a certain universal, I describe it as a tendency and a potentiality. This is a potentiality that is ripe and common in the modern West because of cultural conditions,

but it may not manifest as clearly, ubiquitously, or hardly at all in other cultures and across time periods.

There is, however, a critical point of divergence between Tillich's (and Kierkegaard's, and Heidegger's) existential anxiety and the way in which I deploy it: embodiment. Tillich views anxiety as originating with the threat of nonbeing, which gives rise to the immediately concerning anxieties of fate, meaninglessness, and condemnation, which then as a group provide the condition for all other types of quotidian anxieties to take place. I however prefer to reverse the order. As my analyses of embodiment and human animality have demonstrated, affective experience—including the experience of existential anxiety, as I show below—derives from evolutionary inheritance. Anxiety as a felt experience is *prior* to cognition. Before humans and proto-humans developed the ability to make inferences—even if subconscious—about the meaning of existence, they experienced anxiety as an affective force that influenced their behaviour and choices. Anxiety is an evolutionary form of embodied power: threatening, influencing, warning, trying to keep us safe.

Humans in fact share the experience of anxiety with a wide array of other animals, if not most of them. As a brief example consider Dorothy Cheney's harrowing recounting of anxious baboons attempting to avoid predators while crossing a river (2007: 41-43).[13] Cheney reports that the baboons she studies are on high alert, even terrorised, as they move and communicate with an intensity that belies their felt experience of the threat of predation. In the terms of affective neuroscientist Jaak Panksepp, anxiety is located within the fear system (2011: xii). This is a system

[13] In the book Cheney quotes Eugene Marais writing in his 1939 book *My Friends the Baboons* saying "[i]t was not long before we came to realise that the life of the baboon is in fact one continual nightmare of anxiety" (in Cheney 2007: 35).

that is in some way or another part of all animals; Panksepp discusses how it influences behaviour and experience in a wide variety of creatures, including, for example, rats (2011: 179). So even while death and other forms of nonbeing may be supremely relevant to our very human experience of anxiety, my understanding of the origin of anxiety is opposite Tillich's. I assert that the animal experience of anxiety comes first, and existential varieties arise within this matrix. Opposite Tillich, I believe existential anxiety derives *from* our abilities to experience proximate anxieties. This is because anxiety is a part of what it means to be an animal—and we may be thinking animals, but we are animals all the same.

It is important to emphasise then that, as embodied creatures with embodied feelings, anxiety is *felt,* or sensed. We have awareness, certainly, but it is an affective experience, and one characterised by material and embodied power. This is not to say that Tillich's anxiety isn't felt. But Tillich's emphasis when he describes existential anxiety is on cognitive acts such as realising and thinking, as demonstrated by his language regarding philosophical and ontological shock. Tillich's anxiety is decidedly *not* grounded—at least in any explicit sense—in Sara Ahmed's lived experience of being and having a body. Thinking is an important part of anxiety. It is a supremely important part of being and having a body. But it must be located within an animal and affective framework, given what we have here explored so far in this thesis regarding evolution, cognition, and affect.

Existential anxiety as the existentialists conceived of it is real and important. Humans do face ontological shock. We do stand naked before our finitude. We do wrestle with threats of nonbeing to our experiences of meaning, morality, and spirituality. This is why I have opened and grounded my exploration of the concept of salvation with Tillich and his forebears. But if we wish

to truly understand the material processes and subjective phenomenology of salvation we must move forward enfolding existential anxiety into an embodied and affective analytic. This is possible if we turn to and develop materialist approaches. I *embody* existential anxiety by locating it in the evolutionary history of Scott Atran and rooting it phenomenologically in the body via the work of Thomas Tweed. I call the result a *phenomenology of existential anxiety*, as it simultaneously honours the existentialist tradition as I've explored it through Tillich,[14] while also describing how existential awareness is experienced in the context of embodied animality and materially felt limitations.

Existential Anxiety in Animal History

Evolutionary anthropologist Scott Atran proffers a biologically grounded concept of existential anxiety, and even uses the phrase "existential anxiety" to describe it. He makes no reference to the existentialist movement when he does this, and the concept itself is not altogether philosophically sophisticated. Atran does not devote any ink to a nuanced scholarly discussion of what he means by "existential anxiety." Yet Atran's usage of existential anxiety in his book *In Gods We Trust* (2004) is relevant because it is concerned with the human animal as it is an evolved,

[14] Tillich's concept of existential anxiety is a thoroughly existentialist one insofar as it is (and explicitly) in the lineage of Kierkegaard's and Heidegger's thoughts about the importance of anxiety to the human condition. It is also thoroughly existentialist insofar as it stems from what scholars of the existentialist movement Jonathan Judaken and Robert Bernasconi identify as a particular "situation"—as the broken quality of the human condition in the modern world. They define existentialism historically as a "quixotic howl in the night—about the extreme situations of modernity" (2012: 10). We have found ourselves in a place in which our Gods have been deconstructed and our systems of meaning have been "broken" by experiences of world wars, totalitarianism, the Holocaust, and the atomic bomb; "traditional systems of thought and politics had crumbled in the trenches or the gas chambers or the mushroom cloud over Hiroshima" (9). Hannah Arendt termed this period the "dark times" of modernity (Luan 1983). W. H. Auden famously called the mid twentieth century the "Age of Anxiety" in his Pulitzer Prize winning long poem *The Age of Anxiety: A Baroque Eclogue* (1946). What Tillich epitomises, as such, is the existentialist understanding of the human condition as stripped bare of its traditional answers and comforts, standing naked in front of the ambiguities and doubts of what it means to be human in the modern world.

biological, and affective being. Atran's discussion of existential anxiety may not be nuanced in philosophical terms, but it is nuanced in biological terms. It is a careful evolutionary hypothesis about the consequences of the development of human affects and cognition.

According to Atran's conception, like Tillich's, existential anxiety is an experience that is unique to humans: it constitutes an awareness of what he identifies as existentially concerning components of the human condition such as death, disease, catastrophe, pain, loneliness, injustice, want, and loss (Atran 2004: 13). It is unique to humans because it arises as a by-product of the higher order (what Jaak Panksepp would call tertiary level [2011: 6, 19, 49]) processing that is distinct among the animal kingdom. Atran divides this "higher order" processing into two distinct but related parts: emotion and cognition. For Atran, evolved emotions and higher order cognition intertwine to create existential anxiety. Such emotions include fear and the desire to stay alive;[15] such cognitions include the ability to track others over time and episodic memory.[16] Feelings and awareness go hand in hand, and are deeply intertwined in the emergence of higher order processing.

Atran explains how cognition and emotions first began to combine to produce anxiety in evolutionary history: once humans developed the cognitive ability to "track the seasons and anticipate that leaves will fall off the tree in autumn and that squirrels will bury nuts" which is an

[15] As briefly mentioned in the previous chapter (footnote 20 on page 109), Ekman famously argues (1992) that there are six basic evolved emotion "families" that all people share: anger, fear, disgust, surprise, sadness, and happiness. Within these families there are identifiable sub-emotions, but these are more context-dependent than the families generally speaking. While this theory has undergone much scrutiny and modification by various researchers over time, its underlying reliance on evolution as a necessary component in the expression of emotions (both in humans and in animals) is key to Atran's work. For a treatment of emotion that focuses on the adaptability of human fear and anxiety see LeDoux 2012.

[16] For episodic memory see Wheeler, Stuss, and Tulving 1997; for the ability to track others over time see Fortunato and Furey 2009 or Suddendorf 1998.

evolved ability, one could not "avoid overwhelming inductive evidence favouring your own death and that of those you are emotionally bonded to."[17] Then, "emotions compel such inductions and make them salient, and terrifying" (Atran 2004: 269). Since the time that humans could make inferences, we have been burdened with existential anxiety. If we did not have the mental ability to infer what events *mean,* say, for example, inferring when our friend dies that we will in the future also die, or inferring from a tornado that we have no real control over the course of our lives, then we would not be existentially anxious. This is why we experience existential anxiety but the rest of the animal kingdom does not:[18] we make inferences that affect us potently (see for example Panksepp 2011: 5). This is not to say that we perform active thinking when this happens. The inferences are automatic.

Importantly, Atran's existential anxiety is the result of an ability to make inferences that arises out of and is never distinct from animal affectivity. This makes it distinct from Tillich's anxiety because it not only roots the experience of existential anxiety in evolutionary history but also foregrounds the importance of emotion as an evolutionary power. Tillich depicts existential anxiety as arising from a cognitive recognition of finitude and nothingness. It can be subconscious, but it is best classified as an awareness alive in and arising out of a distinctly mental space, and it is *this* awareness that makes all other anxieties real. Atran on the other hand, while also viewing existential anxiety as a specifically human awareness that can be subconscious, does not put its

[17] Malinowski provides a meditation on what we might call the immediate affective potency of death: "death, alas, is not vague, or abstract, or difficult to grasp for any human being. It is only too hauntingly real, too concrete, too easy to comprehend for anyone who has had an experience affecting his near relatives or a personal foreboding. If it were vague or unreal, man would have no desire so much as to mention it; but the idea of death is fraught with horror, with a desire to remove its threat, with the vague hope that it may be, not explained, but rather explained away, made unreal, and actually denied" (1944: 110).

[18] Or at least, not nearly as much.

origins it in a special, cogitating mental space. It springs from the body in the co-mingling of emotion and cognition. Atran's existential anxiety emerges out of a material matrix of evolutionary feeling and processes. It arises out of deeply felt, pre-linguistic animal tendencies.

Atran (also like Tillich) argues that existential anxiety is uncompromisingly universal. Before I tweak this stance—and I will—it is worth noting that he does take pains to justify this essentialising claim. He says that even while it is widely known that not all human ruminate on death, destruction, and despair (see for example Damasio 2003: 270-272; Lee 2015: 169),[19] existential anxiety is nevertheless universal because certain inevitable and uncontrollable events erupt into the ordinary pulse of life. Even people who routinely suppress or who do not often feel their existential anxieties cannot help but confront them in the case of "emotionally eruptive events." Emotionally eruptive events punctuate the ordinary hum of life and include "chaotic or chance events (earthquakes, thunderstorms, floods, drought), uncertain events (disease, war, famine, loneliness), and future events that are normally beyond a person's control but that people cannot avoid trying to manage, such as critical periods in the human life cycle (birth, puberty, old age, death)" (Atran and Norenzayan 2004: 66).[20] These events bring forth emotional or existential crises, which must be dealt with, and which may influence people at a later date,

[19] Lois Lee, in her interviews of British "non-religious" people, identifies a group of people she calls the anti-existential. This attitude "primarily involved the rejection of existential philosophies and cultures…some people struggled to understand why anyone would care about theological questions enough to uphold them or dispute them; others resisted thinking about life in terms of implications and meaning" (2015: 169). Lee professes to struggling with the task of characterising and understanding this group, as she notes that people in it do still find value in taking this position, must have some sort of existential claim against religious claims, and most importantly find other ways to cope with life's hardships (169).

[20] Lois Lee writes that experiences of bereavement were at the "fore in several research interviews." These experiences were highly impactful in her interviewee's lives—though they notably did not turn to traditional religious forms for solace. These experiences "emerged as highly creative ones, in which people developed new relationships with people and cultures, deepened existing ones, and cast off others. There was certainly no sense of unidirectional movement towards the religious" (2015: 183).

even if knowledge of them is suppressed (Arndt et al 1997).[21] As events happen and affect us immediately, says Atran, they also have impacts that have downstream effects.

We would be remiss however to assume that existential anxiety as it has emerged in the modern West and as it has been characterised by thinkers such as Tillich and researchers such as Atran is the kind of experience humans at other times and in other cultures have. This carefulness needs to apply to all instances that both Atran and Tillich deem as loci of existential anxiety, such as in response to emotionally eruptive events, in existential awareness, or with any other such existentially concerning phenomenon. We are free and perhaps correct to hypothesise that there is a significant potential or tendency for humans to experience existential anxiety in some form. This is what I assert. But it would be intellectually irresponsible to declare universality across space and time.

This is an important responsibility to note in light of insights about essentialism learned from postmodernism (discussed briefly in this thesis on 7, 30, 60-63). This chapter explores existential anxiety as a potentiality or a tendency within human animals who have evolved higher order cognition and emotions as described by Atran, Damasio, and Panksepp. But, I restrict my analysis (at least for now) to a modern Western experience. Doing so accords with Judaken and Bernasconi's diagnosis of existentialism as a movement embedded within an intensely analytic and deconstructive moment in Western culture; humans may have ubiquitous potential for existential anxiety, but we are today seeing it at a particularly intense moment in time (see footnote 14 to this chapter on 139 and Judaken and Bernasconi 2012), which influences my

[21] This idea is coherent with Damasio's concept of somatic markers (this thesis 104-106), or Sara Ahmed's concept of impressions (this thesis 146).

theories. Moving forward I make my second analytical move to embody Tillich's existential anxiety. I supplement Atran's evolutionary concept with the idea of embodied limitations as put forth by Thomas Tweed, resulting in what I call an affective phenomenology of existential anxiety.

The Affective Phenomenology of Existential Anxiety as an Experience of Embodied Limitations

Thomas Tweed provides a way to conceptualise a phenomenology of existential anxiety (relating to the concept of experience, and in an embodied framework),[22] and how it affects our day to day lives. I construct this phenomenology out of components of his definition of religion and the functions that Tweed believes religion serves. Tweed identifies religion as the acknowledgement and navigation of boundaries—or, as the title of his book *Crossing and Dwelling* suggests, in facilitating "crossing" such boundaries and "dwelling" within them. He also, relevantly, describes these boundaries as limits; we are, he says quoting Richard Kearney, "beings at the limit." What religions do, as "confluences of organic-cultural flows that intensify joy and confront suffering*"* (Tweed 2006: 54) is "confront limit situations of various kinds" (137). Examples of such situations in religion include making sense of natural evils (138), celebrating the birth of an infant (143), marking the passing of the dead (148), and "spiritual homemaking" (152).[23]

[22] To reiterate, by "phenomenology" throughout the entirety of this chapter I mean *experience*—"directed toward" anxiety (see Smith's "Phenomenology" in the *Stanford Encyclopaedia of Philosophy* [2013]). See footnote 5 on 129.

[23] Bronislaw Malinowski, an early twentieth century functional theorist of religion, famously re-cast religion in terms of practical, every day concerns of society as well as the psychological needs of individuals. Tweed's conception of religious functions has many similarities to Malinowski's view of "faith and cult." *"*Faith and cult," Malinowski writes, "spring from the crises of human existence. The great events of life, birth, adolescence, marriage, death...it is about these events that religion largely focuses. The tension of instinctive need and strong emotional experiences lead in some way or other to cult and belief" (Malinowski 1944: 22-23).

Tweed's concept of limits is particularly helpful in that it is explicitly embodied. Existential anxiety is not a simple cognitive behaviour but is a lived reality of being an affective body. It is precisely because of embodiment that humans are limited creatures at all. Tweed writes that one of the main sites of religious function is

> the boundary between the embodied self and the natural world, and encountering that limit can evoke joy or sadness, or a range of other emotions. It is the line where the individual encounters, to use Max Weber's language, the world's perfections and imperfections. It's where the individual meets corporeal limitations (illness and death) and suffers natural disasters (floods and earthquakes). It's where questions mount and answers fail (2006: 137).

In describing the functions of religion, Tweed reveals ways in which we can describe the human condition as bound by limits, specifically limits of embodied existence.

Tweed's idea of limits provides us with a way to add phenomenological depth to Atran's evolutionary account of existential anxiety. With Tweed, Atran's list of existential anxieties need not be solely understood as unfortunate products of evolution, as he describes them. They can instead be described as the negative affective experiences of embodied limitations. Consider the examples of existential anxiety Atran posits of loss, death, disease, and futility.[24] We can understand each of these within Tweed's framework by demonstrating how they are characterised by an embodied limitation: in the case of loss, for example, we appear to be limited by our attachment to others (Tweed addresses mourning practices). In the case of death, we are limited temporally (Tweed addresses beliefs and rituals which mitigate the threat of death). For disease, we are limited in terms of our health, energy, and ability (Tweed addresses making sense of illness). For futility, we are limited in terms of our inability to control events (Tweed addresses

[24] Malinowski similarly calls religion "the confession of human impotence in certain matters" (1944: 19).

making sense of evils) (Tweed 2006: 137-138). For each of Atran's anxieties, embodied limitations provides a correlative *limit* inherent to the materiality of human bodies.

As such, these limits are forever with us. Why? Because even if existential anxiety is often subconscious or at least non-discursive, the body remembers it. When we viscerally encounter our existential limits, or, as Atran might put it, when we experience emotionally eruptive events, existential anxiety thrums in the body. This anxiety leaves its mark. Any time we (to reiterate, as a tendency pronounced in the modern West) encounter an emotionally eruptive event, there is a lasting, as Sara Ahmed might say, "impression" of it. It becomes a part of who we are, of how we operate, and of the ways in which affects steer us along different paths and behaviours.

Ahmed chooses to use the word "impression" to denote the complex interplay between that which is "inside" and that which is "outside" human beings (2004a: 28). Ahmed argues that an impression of an event, person, or sensation "leaves a trace on the surface of one's skin." This impression always involves a "transformation" in some way. This is in stark contrast to the blank slate, remouldable concept of bodies characteristic of the Deleuzian branch of affect theory (this thesis: 112-113). According to Ahmed's phenomenological variety of affect theory, no event occurs in a human being's life, no matter how large or small, that does not transform it—that is, that does not leave an impression in some way or another (Ahmed 2004a: 29). Emotions may be transactional and public, but they also leave impressions on the humans who experience them, altering us for future experiences.

These limitations are not abstract thoughts, aspects of human cognition that people sit and rationally ponder. Tillich's concept of "philosophical shock" is coherent with existential anxiety in

Atran's sense, and we have already noted that it can be subconsciously felt. But we have to be careful to remember to emphasise in our theorising that, as Pascal Boyer argues, most people do not seem to particularly care, and certainly not in an intentionally contemplative sense (Boyer 2001: 206-207). Tweed, reading Tillich as a cognitivist, cedes that some people "might sometimes pose Tillich's ontological question," but he argues that the bulk of existential affectedness takes place within the particular, the lived. "It is more common," he writes, "for individuals to ask positioned and relational questions" than to abstractly theorise (Tweed 2006: 86). Tweed is committed to theorising the role of embodied limitations in human life, but does not require that they be cognised. They are, simply, felt.

As far as Tweed can tell from his studies of Catholic Cuban migrants in southern Florida, devotees at the shrine are not concerned with philosophies of limitation or death. He is sure that this is true of "most people in most cultures," too. They do not seem, he says, "to be consciously aware of metaphysical shock, though they might have a fleeting experience of it, for example when encountering life's painful or joyful boundary moments: disease and death or recovery and birth" (2006: 86). Awareness of limits punctuates, influences experience, but without explicit categorisation. He recounts his experience succinctly, and in doing so conveys how embodied limitations are felt, but not in abstractly theoretical ways. He writes:

> To be precise, none of the hundreds of pilgrims I interviewed at the Miami shrine talked about being-itself. No one told me they wondered why there was something rather than nothing, though it's not the sort of thing that might come up, even when talking to someone who gets paid to think about such things. Almost every day during the five years I did fieldwork at the shrine, however, devotees reminded me in one way or another—a teary story about the hurried journey to South Florida or a ritual expressing longing for an imagined past—that the displacement of transnational migration had disrupted their sense of time and place (86).

These migrants demonstrate to Tweed that they live particular, embodied lives. They don't spend time contemplating existence from afar, mired in philosophical questions about being and nonbeing. But they *do* experience their limitations consistently throughout their lives as they yearn for a feeling of home and comfort. They *do* experience what I call existential anxiety as they ache to repair their "disrupted sense of time and place." They *do* remediate this existential anxiety as they engage each other in community and worship a transplanted Virgin Mary. Thus we find that existential anxiety is not solely an affect of emotionally eruptive events but a power which eddies, swirls, waxes, and wanes throughout people's ordinary lives. Embodied limitations sit within our bones; they affect the ways in which we live, feel, and move about the world, if unevenly so.

Human beings are biological, thriving, dying, embodied creatures. We live particular, complex, social, messy, and very flawed, very bumpy lives. In that very embodiment we encounter our limitations: we are separate from other beings; we are isolated; our physical power is limited; our mental power is limited; we are dependent upon others and the environment in order to survive; we go through illness and disease and discover our fragility; and we die, facing the ultimate boundary. We are, as Atran asserts, capable of being existentially anxious by our evolutionary inheritances. And we are, as Tweed asserts, always experiencing that anxiety in the form of our embodied limitations. Here in our particular context (and in other contexts) we may never experience or be consciously aware that our existential anxieties affect us, and their effects may often seem absent or be vanishingly small. But as they thrum under the surface of our skin, they work through, in, and out of us as we go through our daily lives. As such, we crave their amelioration. It is to this affect—to this *salvation*—which we now turn.

Salvation

We have finally explored all of the concepts we need in order to properly define salvation. Salvation is:

> The remediation of the existential limitations of embodied existence; in other words, the transition from negative to neutral or positive affect with respect to existential anxiety.

Salvation is not religion, and religion is not salvation. Yet, Tweed's concept of religion is useful for my concept of salvation. Tweed's basic perspective on religion is that it performs certain functions: it ameliorates sorrows and fosters joys, insofar as they pertain to the crossing and dwelling of embodied limitations. In essence, Tweed posits that religion is the thing in our lives that facilitates the amelioration of negative existential affect and the cultivation of positive affect. Importantly, for Tweed, embodied limitations are not intrinsically *bad,* or to be avoided (they couldn't be, even if we tried). They are sites of transformation, and the springboard off of which important, meaningful, or joyous experiences can be had. Limitations can be, for some examples, "the bridge to sexual intimacy, where embodied selves meet, and the path to natural wonders, where the self moves outside itself—the meaning of ecstatic—and encounters the world's perfections" (Tweed 2006: 136). Limits are boundary conditions where ultimate concerns are alive and matter.

Limits are naturally occurring zones of affects that are usually experienced as negative. They entail fear, sorrow, longing, hopelessness. And yet they can be ameliorated, blurred, or inverted to create infinitely, transcendently powerful experiences. They are the sites at which remediation—or salvation—becomes possible. The limitation of embodiment is the line that, when engaged, "allows religiously mediated encounters with the natural world that generate delight…the limit is

the zone where theodicies are born and nature mystics exalt" (Tweed 2006: 136). What Tweed describes here as religious functionality is precisely what I mean by salvation. It is the transition from a negative affect concerning the state of our limited existence to a more (though not necessary unequivocally)[25] positive affect such as acceptance, joy, peace, or even, as Tweed argues, ecstasy. This is, then, salvation: the *redeeming* of negative existential affects (here encapsulated by the term "existential anxiety") inherent as a potentiality in the human condition.

Salvation is the amelioration of limits. It is the soothing of the fear of death; it is the mitigation of uncertainty in the face of chaos; it is the calming of the spirit in the tumult of pain, loss, and the unremitting existential limitations of everyday life. It is a transition from anxiety, fear, confusion, and other negative affects to peace, acceptance, solace, joy and delight, or even neutrality, something that just feels *better* than before. Salvation can take place in big, dramatic moments of conversion or confession, but it can also take place throughout the ordinary hum of life, such as in singing or recalling hymns,[26] or feeling more confident in one's faith as a result, even if not knowing precisely why.[27] It can come in the form of explicit supernatural beliefs or in the form of a hug from a friend. One can find it in religion, in yoga, in music, in dance, in meditation, in gardening, or any myriad of ways. Salvation can vary in intensity, efficaciousness, and duration, as all affects do. All that is required is a remediation of existential anxiety.

[25] Recall that in the previous chapter I explored affective experience as arranged without linear constraints; the lines between positive and negative may not be so clear and they may certainly exist alongside each other, even during the experience of salvation.

[26] Research suggests that religious experiences as simple as singing a hymn can engender lasting improvement regarding one's mood, even if suffering from a mood disorder. For example, Nancy Cochran found that when she asked study participants with mood disorders to evaluate their moods at a time apart from regularly scheduled singing of Christian hymns, respondents reported greater positive affect than before beginning the practice (2015).

[27] This idea runs parallel to a theme in Weber's concept of salvation. Salvation practices could be undertaken explicitly in the seeking of salvation, though rituals related to salvation often unfold "almost without thinking about them" (Adair-Toteff 2015: 109).

Is Salvation Religion?

Salvation, as such, is pervasive. It can be anywhere and everywhere (or nowhere). It is in this sense *autotelic,* a concept of Eve Kosofsky Sedgwick and Adam Frank (2003: 19) I used in the last chapter to denote that affects compel without a higher purpose. Salvation does not function according to homeostatic rules. This is why, even though I use Tweed's concepts concerning functions of religion to build my concept of salvation, one thing salvation certainly is not is coterminous with religion. Many diverse thinkers spanning multiple fields such as Damasio (2003), Atran (2004), Martin Riesebrodt (2010), Bronislaw Malinowski (1944) and, notably, Tweed (2006), argue in some way or another that salvation and religion are coterminous. For them, "religion" is the answer to existential anxiety.[28] As an example, Atran argues that existential anxiety is why religion is transmitted and exists at all. He says that religion, as an evolutionary by-product, "survives science and secular ideology not because it is prior to or more primitive than science or secular reasoning, but because of what it affectively and collectively assures for people" (Atran 2004: 17). But what do Atran and the other theorists mean by religion? What exactly is it that they're equating with salvation? For each of these thinkers, religion is defined in part by its psychological functionality.[29]

[28] I select these five to represent the breadth of scholars who think this way, inhabiting, respectively, affective neuroscience, cognitive science of religion and evolutionary anthropology, twenty-first century theory of religion, the early twentieth century functionalist movement, and twenty-first century anthropology of religion.

[29] Functionalism is traditionally understood as a set of sociological theories of religion. Yet especially in the latter half of the twentieth century many thinkers began expanding their functionalist views to include personal, psychological functions within their definitions. Of this trend, Kevin Schilbrack writes: "functionalist or pragmatic approaches to religion focus on what people get out of participating in a religion, the benefit or consequences of religious belief, practice, and belonging" (2013: 298). Functionalist texts of the later twentieth century which were more psychological in nature, include, for example, Yinger 1963, in which the socialised self suffers problems across the material and political spectra, Luckmann 1967, in which individuals undergo the privatization of religious workings into the sphere of one's personal life,

Psychological functionalists conflate religion with salvation as I have defined it here. The two in fact they consider to be much the same thing; religion for a psychological functionalist is typically that which performs psychological functions related to death, to life transitions, to uncertainty, or to evil, to name a few examples (Schilbrack 2013: 299). But to argue that religion is the realm that soothes existential concerns entails a limited view of human beings and their relationship with "religion." Human nature is far too complex for any kind of simple calculus such as *Existential Anxiety + Religion = Salvation* to be entirely truthful to reality. Religion may operate as one obvious realm in which salvation as I have defined it can take place, but it doesn't necessarily always ameliorate anxiety. In fact it can exacerbate it. It can cause extreme emotional and physical suffering to its practitioners. Also, salvation can most certainly take place outside of religion. To that end, taking a moment to explore the views of one thinker who espouses religion as the solution to existential anxiety—Antonio Damasio—and one of his critics—Donovan Schaefer—demonstrates why the simple calculus of *Religion = Salvation* entails an incomplete understanding of humans and religion.

Damasio articulates his own version of existential anxiety; it is what he calls the "tragic dimension to the [human] situation." This dimension is "exclusively human" (Damasio 2003: 170), and has to do with explanation, meaning, and purpose. It is mitigated by *religion*, which for him is a "rational" and "realistic" "means for human salvation" (15). Damasio does not believe that every single person requires this salvation. He acknowledges that "not every human being has needs for

Volker 1980, in which personal functions, interpersonal functions, and transpersonal functions of religion are distinguished, Mol 1977 in which individual, group, and national identities integrate and differentiate, and Mol 1982 in which an individual's identity is sacralising in order to compensate for what I would call existential anxiety. Thus to use the phrase "psychologically functional" is not without an appropriate context.

meaning and purpose. “The needs and wants of human beings,” he writes, “vary to a considerable degree with their personalities, their inquisitiveness, their sociocultural circumstances, and even the time of their lives” (270). But he nonetheless argues that “many human beings require something that involves, at the very least, some clarity about the meaning of one’s life…yearning to know where we come from and where we are going” (270). Damasio believes that humans tend to need to *know.* He believes that due to our cognitive awareness of our existence and the lack of easy answers available regarding our purposes and destinations, what we need—in his words—is “salvation” (270).

Religion, for Damasio, provides this salvation. Religion is the phenomenon in people’s lives that provides the tools necessary to remediate existential anxiety. These strategies constitute rituals, community, and, in large part, beliefs. Beliefs allay an emotional need, turning “a life examined” into a life “contended.” They provide the cognitive solution to the emotional problem. Together with the rituals that enact them and communities which believe them, they constitute a set of strategies for doing away with sorrow and fostering joy. Religion, as salvation, “resists the anguish conjured up by suffering and death, cancels it, and substitutes joy instead” (Damasio 2003: 270). In Damasio’s perspective there is the human tragedy and the need for salvation on one hand, and there is religion, “a set of strategies for achieving homeostatic equilibrium” (Schaefer 2015: 176) on the other. There is sorrow on one side, and joy on the other. There is disharmony on one side, and “an intense experience of harmony” (Damasio 2003: 284) on the other. This is what religion does for Damasio—it provides a set of beliefs and other means by which to mitigate sorrow and replace it with joy.

The Affective Reality of “Religion”

The problem with Damasio's view of religion[30] is that it is altogether too neat. His people are too neat; his tragedy is too neat; his salvation is too neat; and his religion, especially, is too neat. His view of religion and what it does for people is altogether too calculated, too simple, and too strategic. It comprises, in Schaefer's words, a "relentless optimism" that does not adequately account for what people's existential and religious lives are actually like. Much like I observed how Damasio's view of the human condition is too naturally homeostatic to accord with queer affective realities addressed in the previous chapter, so Damasio's concept of religion is too much like an equation to accord with the messy affective reality of ordinary life. In Schaefer's words, Damasio's neat correlation of human tragedy and religion "must be left behind in light of the correlation of affect and accident" (2015: 176). Damasio's view of religion—representing all psychologically functionalist accounts that over-simplify its affective properties—must be jettisoned.

Schaefer argues in his 2015 book *Religious Affects* that it is not autonomous beliefs that make humans religious. It is, instead, power in the form of affect as it compels us often without apparent rhyme or reason, without our awareness or even necessarily our consent. "Religion," argues Schaefer, "is an extraordinarily powerful distribution network through the global nervous system of affect." It is rich with affective potency. But, he says, "this distribution network should not be presupposed to cleanly align with any single snapshot of health and flourishing. The compulsions of affect produce too many collisions for anyone to walk away unscathed" (2015: 176). Basically, the affective potency of religions should not ever be conflated with wellness, joy,

[30] Not unlike his view of affects.

or any other positive affect. Positive affects can and do occur in religion, but they are not necessary.

Religion is not a strategy people elect and use to meet their need for salvation as I here describe it. Religion is not necessarily all warm comforts and joys. Religion has, instead, as complex a relationship with human lives and wellbeing as any other cultural phenomena or institution. In Kathleen Stewart's words, "religion is one of the many little *some*things worth noting in the direct composition of the ordinary" (emphasis hers 2007: 48). It exists within and across affective matrices. Religion can certainly help people, but it can also harm them, and however these effects materialise is determined by "a fluctuating set of awkward compulsions" (Schaefer 2015: 176). We are affective beings and compelled by the power of affects. This makes religion *power,* as it is a rich site of affects both existential and not.

Religion does not always compel us in the direction of joy. Consider perhaps the relationship the pre-Colombian Maya and Mexicans had with their gods. There appears to have been "no entirely benevolent deity, and all were feared to great or lesser degrees for their ability to bring death on almost anyone, almost anywhere" (Atran 2004: 76). The primary lowland Maya deity was the "fearsome male thunder god Chaak," and the dominant Toltec god was Quetzalcoatl (feathered serpent). Both of these gods "required frequent and bloody human sacrifice, which involved opening the victim's chest cavity with an obsidian knife and ripping out the beating heart while they were still alive" (76). Such beliefs and rituals, while clearly leveraging and interacting with existential anxiety, do not unambiguously allay it. Surely they may provide comfort by mitigating the threat of vengeful gods, but there is darkness in it. Even for those who are not victims, their

affective matrices may often contain a sort of electric and existential terror, as juxtaposed as they are to violence and bloody horror.

Consider a more benign—or at least less violent example—such as the threat of hell. How does one know if they are going to hell? Can they avoid it? Must they live on constant alert? Might they dwell in unrelenting terror thinking about it? Sometimes terror is intentionally germinated by religion or religious figures. This is the case with Jonathan Edwards's famous sermon "Sinners in the Hands of an Angry God," in which God "holds you over the pit of hell, much as one holds a spider, or some loathsome insect over the fire, abhors you, and is dreadfully provoked: his wrath towards you burns like fire" (1797: 20-21). Other times terror from religion just settles ominously into the back of one's head. This was the case for a young girl for whom I was once a caretaker; she often cried before sleep because she was so worried about eternal damnation. Religion is no certain salve. In Pascal Boyer's words, "a religious world is often every bit as terrifying as a world without supernatural presence, and many religions create not so much reassurance as a thick pall of gloom" (2001: 20). Religion as a human phenomenon is every bit as complex and affectively ambiguous as human beings.

Schaefer articulates the importance of affective attachment in terms of its disruption of autonomy and Damasio's homeostatic joy-orientation. Affect theory, he writes, "highlights how animal forces disrupt the abstract prerogative of the reasoning, calculating, talkative subject and attach bodies to complex structures of feeling that cut against not only eternal appraisals of the right things for bodies to do, places for them to go, ways for them to believe and feel, but the sovereign self's own assessment of its best course of action" (2015: 105). Damasio envisions a world in which we elect the best path for ourselves—in which we utilise religion to "feel better"—

but Schaefer's affective disruption of Damasio's view demonstrates just what a fantasy that vision is. As demonstrated in the previous chapter, we do not always do what is best for us, and religion is no exception. Damasio's picture of reality cannot account for the real, lived, compelled, sometimes malicious, and sometimes self-destructive behaviour of human beings in religion.

We must as such come to the conclusion that religion is not the neat phenomenon that Damasio imagines. It is affective, messy, and full of "awkward compulsions" (Schaefer 2015: 176). It is not unambiguously joyful. It often causes anxiety, incites people to violence, and can compel its practitioners into being actively self-destructive, such as we saw in the last chapter in the cases of Julian of Norwich and Catherine of Siena.

This does not mean, however, that religion is *necessarily* negative. It is simply as human as any other institution,[31] characterised by affects and power. It can enliven as easily as it can frighten, can save just as much (and arguably more) as it can harm. For centuries, people have characterised religion by its salvific qualities. They have famously praised its forgiveness (Augustine 1991), its hope (Bloch 1986), and its solace (Malinowski 1944). It is not that those who take a psychologically functional view of salvation are wrong. It is simply that they are not completely correct—the picture is messier than that. Salvation as we have defined it most certainly does exist within religion. But it is not confined to the category of religion.

Salvation has historically been associated with religion, but it is extra-religious. It first and foremost resides in the flesh and neuro-circuitry of the human animal. It is enacted according to context, and it is influenced according to powers afloat in culture at large, which can include

[31] For example see Foucault's pioneering insight into prisons (2012).

religion but does not haveto. Consciously or not, human beings affectively enact their own salvation. They can and often do so within the context of religions. But people also find salvation in a wide variety of phenomena—perhaps too wide to even name.[32] To that end—in order to demonstrate how salvation can occur variously within, outside of, and traversing religious bounds—I here take a brief tour in the life of Augustine before moving on to case studies of the soteriological potential of science.

The Salvation of Saint Augustine

Let us start with an example of Augustine's salvation that occurs within religion and which is closely related to the Christian concept of salvation: guilt. Guilt was one of the major existential anxieties with which Augustine wrestled, as evidenced by the tortured meditations on sinfulness in his autobiography *Confessions* (2014). Augustine, by the time of writing the *Confessions,* considered humanity to be inherently sinful. In Augustine's conception, humanity is redeemed from its sins both original and "willed"—and delivered into grace and eternal life—through God's forgiveness. In the words of Augustine scholar John Quinn, as an Adam *redivivus,* Augustine's man "inherits the legacy of wounded humanity" (2002: 33). God is "Augustine's salvation, the donor of

[32] To read about the ambiguities and insufficiencies of the term "secular," see Lee 2015.

grace, through whose justice Augustine can live righteously (P34.5; P142.13)" and thus experience eternal life (Quinn 2002: 25).[33] Humanity requires redemption, and God delivers.

Augustine, having been a troublemaking libertine in his early life, certainly felt he had had plenty from which he needed to be redeemed. In the *Confessions* Augustine provides ample evidence of his own sinfulness. He laments larceny in his youth (Augustine 2014: 2.3.9);[34] he speaks of his adolescence as "unbridled dissoluteness" (2.3.7); he calls himself a "wretch" (2.3.7); he even considers his studies of rhetoric as morally offensive, crass, and irresponsible to the truth (3.3.6). The greatest of these wicked behaviours for Augustine at least in his view is arguably his lust. Alan Soble writes that Augustine was, for this reason, "by his own standards, a failure, and he loudly admits it" (2002: 555-556). Lust is a prominent theme of the *Confessions*; in Joseph McCabe's words, Augustine "used language so vehement and sombre in speaking of his misdeeds, that he is often awarded a larger amount of wickedness than he is probably entitled to" (1903: 39).[35] Augustine considered himself to have been deeply depraved.

Even while Augustine composed the text of the *Confessions* at a much later point in his life, and therefore had the lucidity of hindsight with which to write, not all of his distaste for his youthful depravity was a product of his age. Indeed, he mentions several times throughout the *Confessions* that he had felt shame and displeasure at the time of committing his youthful sins. He writes in book two of the *Confessions* that capitulating to his "physical impulses" had always been touched with "a bitter taste at [his] illicit pleasures." These experiences had always been "spoilt by

[33] All references (P….) refer to the *Psalms of Ascent*; these references can be found in McLarney 2014.
[34] All *Confessions* references (numbers within parentheses) can be found in Augustine 2014 and will henceforth be referred to simply within these parentheses.
[35] For a discussion of the exaggeration of Augustine's "sins" see Soble 2002.

disgust" (2.1.4). His shame had also been tied up with self-destruction. He writes: "I had no motive for my wickedness except wickedness itself. It was foul, and I loved it. I loved the self-destruction, I loved my fall, not the object for which I had fallen but my fall itself. I was seeking not to gain anything by shameful means, but shame for its own sake" (2.3.9).[36] Augustine admitted to a self-defeating tendency, to being self-destructive, to feeling shameful, and to experiencing disgust throughout his young life. He experienced heavy feelings of what Quinn calls a "radical misery" (2002: 4) that begged for remediation.

Coming out of the self-described depraved period in his life, Augustine underwent several steps that brought him closer to embracing Christ fully and experiencing the affective relief of forgiveness. The climax of this journey took place in a garden. Augustine had been wrestling with the divide between the desire for Christ in his heart and the wicked desire for sin in his flesh. In the garden, Augustine began striking his forehead his with hands and beating his knees with locked fingers. Quinn writes of this moment that Augustine's self-abuse was a physical manifestation of his longing "to master his habitual proclivity for carnal union" (2002: 443). Prior to this moment, says Quinn, Augustine had remained "outwardly composed." In the garden however, "he was beside himself, his equipoise in tatters as he cried out his inner turmoil" (445). Augustine finally heard a girl in the garden chanting "pick up and read pick up and read" (*tolle, lege, tolle, lege* in Latin).

By Augustine's account, he then grabbed a nearby Bible and flipped to a random page, landing on Romans 13:13-14. This was significant, as the passage reads: "not in riots and drunken parties, not in eroticism and indecencies, not in strife and rivalry, but put on the Lord Jesus Christ and make

[36] Shame for its own sake is a prime example of the *autotelicity* of affects.

no provision for the flesh in its lusts." Augustine was given the passage that he needed. He writes that in that moment, "I neither wished nor needed to read further. At once, with the last words of this sentence, it was as if a light of relief from all anxiety flooded into my heart. All the shadows of doubt were dispelled" (8.11.29). This is a deeply affective passage, referring to the feelings of relief and joy possible in the experience of forgiveness.

In this sense (though not exclusively), Christian doctrine and faith were intensely salvific for Augustine. He was saved from his guilt and from his sin by the affective potency of Christ's forgiveness. After this dramatic conversion experience, Augustine experienced rejoicing and tears of joy. Reflecting on this phenomenon later,[37] he writes that all sinners coming to Christ, "weep upon [His] bosom after all their arduous journeying" and in doing so "weep even more, and rejoice amid their tears" for God "restores" and "comforts" them (5.2). In Augustine's experience of Christian text and narrative, he was powerfully saved from what Tillich calls the existential anxiety of condemnation.

An example of Augustine experiencing salvation *outside* of his religion, on the other hand, is in his experience of friendship. Augustine once experienced profound loss when a friend, whom he had known his whole life, grew ill with a fever and died. In *Confessions,* Augustine expresses an extreme sense of loss and grief over this death, so much so that his musings over the ordeal span several pages of text. Augustine writes that "all that I had shared with him was without him

[37] Did this really happen? Perhaps not, at least not in this precise way. Pierre Courcelle, the eminent Augustine scholar, argues that while the interior conversion Augustine experienced was unquestionably factual, the scene and its details were constructs of Augustine's literary imagination. For Courcelle's full argument see 1950: 195-96, 299-306; 1952: 165-68. Ferrari 2000 also contributes to Courcelle's case. I write this section inferring from Augustine's writing that his experiences, regardless of their specific nature, were emotionally intense.

transformed into a cruel torrent" (4.6.11). Augustine was so tormented by the death he felt as though he could not go on living. He writes that he no longer wished "to live with only half of [himself]" (4.6.11). His soul "could not endure to be without him" (4.4.7). Nearly suicidal at this existential devastation, Augustine longed for the solace of feeling complete again.

Augustine found salvation in the company of new friends. Augustine writes that "the greatest source of repair and restoration [after the death] was the solace of other friends, with whom I loved what I loved as a substitute for [God]" (4.8.13). This is a poignant comparison:[38] Augustine considered these friends to be such powerful sources of salvation that they felt nearly divine. Moving beyond the death of his dearest friend, he found that in the company of other friends to be light-hearted and kind distractions, replacing his sorrow. He writes: "there were other things which occupied my mind….to make conversation, to share a joke, to perform mutual acts of kindness, to read together well-written books, to share in trifling and in serious matters, to disagree without animosity…to teach each other something or to learn from one another, to long with impatience for those absent, to welcome them with gladness of their arrival" (4.9.14).

But these distractions—as multiple and various as they were—were not *just* distractions to Augustine. They had deep and existential flavour, providing Augustine with the feelings of completeness he lacked. "These and other signs," he writes, referring to the solace of friendship, "come from the heart of those who love." Friends act "as fuel to set our minds on fire and out of many to forge unity" (4.9.14). This unity, he says, "is what we love in friends." The harmony, fellowship, and feelings of unity in friendship saved Augustine, as he loved them as a substitute

[38] For a discussion of whether the love of friendship is so strong as to constitute idolatry for Augustine, see Kyle Hubbard's 2016 paper "Idolatrous Friendship in Augustine's *Confessions*."

for God. God may have later provided Augustine with an even greater sense of unity, but friendship was clearly an important source of solace, completeness, and feeling whole for Augustine at one time.

Augustine's salvation in friendship was outside the strict bounds of religious doctrine. This stands in direct contrast to his experience of being saved by a Bible passage and by Christianity in general. These two experiences demonstrate that salvation can occur both within religion and without it. Yet there is one more relationship salvation can have to the categorical bounds of religion, and that is salvation that traverses the categorical boundary. One phenomenon through which Augustine experienced such a salvation was in his love of contemplation, or truth, or wisdom.

In the search for wisdom, Augustine consistently—both before and after his conversion—sought a certain kind of immortality, a cognitive-spiritual escape from material end. This search changed shape throughout his life and according to his various conversions, but his love for and solace in wisdom were constant. In Brian Stock's words, Augustine constantly "pursued the most elusive of antiquity's philosophical goals—truth and eternal life"—and they were deeply intertwined (1996: 3). It is no stretch for Stock to argue as such. Augustine was obsessed with truth and the powers it had to provide solace, wonder, and a certain kind of transcendence throughout his entire life.

When Augustine was nineteen years old, for example, while studying rhetoric in Carthage, he read the *Hortensius,* a short introduction to philosophy written by Cicero. This book, writes Vernon Bourke, "deeply impressed [Augustine] with a life-long love of wisdom" (1992: 3). As Augustine himself describes the experience in the book *The Happy life,* "I was inflamed by such a great love

of philosophy [by *Hortensius*] that I considered devoting myself to it at once" (Augustine 2008: 46-47). He wrote also in the *Confessions* that "in the regular course of study, I came upon the book of a certain Cicero…that book of his contained an exhortation to philosophy. It was called *Hortensius.* In fact that book changed my mental attitude… I yearned with unbelievable ardour of heart for the immortality of wisdom" (3.4.7). Here, Augustine here identifies wisdom (if metaphorically) as *immortal*. Before his conversion to Christianity, philosophy was a means for Augustine to engage the cosmos meaningfully and arrive at a truth that was rich and fulfilling. It was a means by which to ascend from the mundane drudgery of rhetoric. With the search for truth, Augustine could pursue a quality of immortal sacredness.

Augustine's experience of salvation in the quest for wisdom never faded, even after leaving secular philosophy and rhetoric. It simply changed shape. When Augustine converted to Christianity, his love for wisdom in philosophy transformed into a love for wisdom in God. In the *Confessions* he describes how wisdom is a part of the Trinity. One of God's most wonderful traits, says Augustine, is His unending wisdom: "Wisdom is one of the key names of God in The Trinity" (15.7.12). Augustine also quotes the Bible on Wisdom, saying that "we do not find time before [wisdom], for 'wisdom has been created before all things,' (Ecclesiasticus 1:4)" (15.7.12). God is nearly directly identifiable with wisdom, essentially. Wisdom is at the heart of all of God's plans and Creation; wisdom has the power to save sinners; wisdom can save Augustine and deliver him into God's mercy and eternal life. In this sense, the pursuit of truth for Augustine was first present with him in his early life, and saved him from anxiety and despair. In Christianity in his later years, this attachment transformed into love for God's eternal Truth and unending Wisdom. Augustine's love for truth and its pursuit was consistently salvific throughout his life regardless of his specific religious allegiances and proclivities.

Salvation in the Modern Religious Landscape

This foray I just took into Augustine's life with both religious and non-religious varieties of salvation was all too brief. But it served the important purpose of pointing to a diversity of ways in which human beings can experience salvation inside, outside, and traversing religious bounds (however religion is defined). The possibilities for remediating existential anxiety are nearly infinite. Religion is certainly one realm in which existential anxieties are or at least can be remediated. But people will take remediation where they can find it. I have argued that the potential to experience existential anxiety is constantly with us, humming under the surface of our skin, manifested or triggered by cultural circumstance. As we affectively meander throughout the world, being pulled in this way and that, and choosing to follow the scent of this or that thing, so our existential anxiety seeks remediation in that which it encounters. Religions are not the only things which save.

As the modern religious landscape continues to pluralise, it is becoming increasingly urgent to ask questions about people's qualities and experiences that are not confined to traditional religious bounds. What do people do? How do they affectively relate to phenomena in environments in an existential way? Do they find salvation in things other than religion? If so, what? Why? How? The rest of this thesis explores these questions with relation to science. Why and how is science—a phenomenon I explored in the introduction to this thesis as characterised by its emotionless demands and intellectual rigour—capable of facilitating salvation for people (in the modern West)? I do not have the space to address the nearly infinite ways in which people engage with their environments on an existential level and find remediation for existential anxieties in science.

But I do have the space to delve deeply into three case studies, each of which explores the soteriological potential of science. I begin with a deep look into the salvation of Ursula Goodenough, a famous biologist and leader in the religious naturalist movement who deploys scientific concepts to remediate what she calls “the nihilism that lurks in the infinite and the infinitesimal” (Goodenough 1998: 18).

Part II: Case Studies

IV. EXPLAINING: SCIENCE AS SALVIFIC INTERPRETATION WITH URSULA GOODENOUGH

"Is no one inspired by our present picture of the universe?
This value of science remains unsung by singers….Perhaps one of the reasons for this silence is that you have to know how to read the music."[1]
Richard Feynman

The overarching quest of this thesis is to explore the ways in which humans experience existential anxiety and salvation amidst the modern religious landscape. Throughout Part I, I constructed concepts of existential anxiety and salvation that are sufficient for this analytical task. Doing so involved an exploration of science as it informs our categories and theories, an exploration of affect theory as it provides a means by which to theorise human experience, and an exploration of the possibilities to articulate existential anxiety and salvation in embodied and affective terms across categorical bounds. This has resulted in a concept of salvation that is uniquely comprehensive. It amalgamates the extrinsic and intrinsic, the natural and cultural, and the scientific and scholarly. It is a facet of the existential register of human life, materialising out of evolutionary and cultural history.

[1] In Richard Feynman's "What do you Care What Oher People Think?" (1988: 24).

Beginning with this chapter, I explore how this affective existential register takes shape across our supposedly secular world, and specifically with respect to science. We live within a cultural matrix that traditionally conceives of science as removed from emotion. It is depicted as cold, cognitive, and beyond the tumult of human emotions, especially the "irrational" ones allocated to the realm of the religious. But is that not a flawed perspective? Is science not rich with affective potency, perhaps even the same kind of existential potency that laces through religions? The following three case studies demonstrate the soteriological potential of science, beginning with the salvation of Ursula Goodenough. They provide a window into the ways in which existential anxiety and salvation can materialise across today's supposedly secular landscapes.

In this chapter, I explore Goodenough's salvation amidst the unfolding of a movement known as religious naturalism. I do this for two primary reasons. First, Goodenough has emerged as a key player in this movement, so her experience is highly relevant to the shape that it takes, and vice versa. Second, this movement's efforts to construct religious visions demonstrate the importance of affectivity for both 1) the experience of salvation as well as 2) our attempts to live ethical lives. Religious naturalism is a highly fruitful phenomenon to explore if we wish to fully understand the forces that influence our choices, behaviour, and morality amidst the contemporary spiritual milieu.

The religious naturalism movement emerged progressively throughout the twentieth century as a cumulative effort of a group of scholars to construct religious visions based on naturalistic worldviews. These scholars began doing this following the simultaneous growth of science as a

force for cultural change[2] and the emergence of environmental ethics as an increasingly urgent global concern.[3] They sought to build naturalistic religious visions that were orientated towards environmental responsibility and ethical behaviour. Today, scholars that identify as religious naturalists continue to focus on developing naturalistic religious visions that can both inspire ecological concern and also motivate people to act upon this concern (Hogue 2010: xxii; Drees 2008).

The efforts of religious naturalists to assess the ethical potential of naturalistic worldviews are however incomplete. Religious naturalists are highly concerned with what we might reasonably call metaphysics. They aspire to reconstruct religious worldviews without supernaturalism, so most of the major texts within the movement such as Donald Crosby's *Religion of Nature* (2002), Jerome Stone's *The Minimalist Vision* (1992), John Polkinghorne's *Science and Creation* (1988), Robert Corrington's *Nature's Religion* (1997), Wesley Wildman's *Science and Religious Anthropology* (2009), and more devote a significant portion of their theoretical heft to the construction of systematic naturalistic worldviews. Texts that analyse the movement such as Michael Hogue's *The Promise of Religious Naturalism* (2010) (other such texts include Willem Drees' *Religion, Science, and Naturalism* [1996] and Jerome Stone's *Religious Naturalism Today* [2008]) reflect this quality of the movement, insofar as, for example, Hogue (2010) consistently characterises religious naturalism in terms of its constructive tenets.

[2] "Science" of course has a long and complex history of cultural change**.** The impact of science on culture has increased throughout time as scientific disciplines have multiplied and proliferated. The growing influence of science is well represented by the case of Darwin and evolution. The diverse ways in which Darwin's insights impacted cultures across the world over time is explored at depth in an issue of *Nature* 461 (Maher 2009).

[3] Rachel Carson's *Silent Spring* first published in 1962 is often regarded as the start of widespread environmental concern in the West, though there was a long history of burgeoning environmental interest beginning in the mid-nineteenth century in the wake of the industrial revolution. For more on this history, see Hays 2000 especially the chapter on the "origins of the environmental interest" (35-48).

The perspective of affect theory, however, suggests that if scholars truly wish to understand the ethical potential of any given set of beliefs or phenomena, it is crucial to understand how affective experience shapes behaviour. Affect theorist Jane Bennett has argued at length that what she calls "affective attachment" to the world is necessary in order to inspire dispositions to "ethical generosity" (Bennett 2001: 3). Basically, one needs to feel attachment to or care for the world in order to consistently behave in a caring or helpful way. Codes, obligations, or a set of beliefs as one might find in religious naturalism can be helpful, but they do nothing to actually motivate a person unless they can actually cause her to feel something motivating. Religious naturalist literature is bountiful in ideas about what people should think about nature and a scientific worldview. But what about how they feel?

Of particular note is the extent to which science can impact us—and deeply—on an existential register. Science has the ability to shape existential affects because it can shape how we think about our most ultimate questions and concerns. When experienced in a negative way, the existential potency of science can cause significant distress, as exemplified by Goodenough's anxiety-ridden experiences of first encountering the sciences in college. But when experienced in a positive way, the existential potency of science can be salvific, as exemplified by Goodenough's meditations on science at later points in her life. Goodenough's salvation via science ends up being so powerful and of such a quality that it inspires her to deepen her bonds of attachment to the world. This suggests that Bennett is correct about the relationship between affect and ethical generosity.

But there is a deficiency in Bennett's account. For Bennett, affective attachment to the world is begotten by experiences of surprise and enchantment. This is an important aspect of attachment worth theorising, but it leaves much hanging. Goodenough's science is just as affectively compelling as the experiences Bennett describes, but isn't surprising. What it is is *salvific,* which has its own motivating powers. So I supplement Bennett's account of affective attachment with salvation, which has the dual effect of 1) enriching Bennett's theory and 2) providing religious naturalists with means by which to explore science's soteriological potential.

I begin this chapter with a snapshot of the nihilism Goodenough experiences in her youth, which I proceed to describe as exemplifying the problem of ethical motivation in religious naturalism. I then explore Bennett's work on affect and ethics, including her somewhat incomplete account of the various types of affective experience that may cause one to love and be attached to nature. I then proceed to describe the affects underlying Goodenough's salvation in two parts: first, in the normal affective processes of science, and second as these affects intersect with her existential registers. I conduct a brief analysis of how science helps remediate one of Goodenough's specific existential anxieties—the anxiety of death. I conclude with a discussion of Goodenough's salvation as it relates to her ethical generosity and suggest that religious naturalists integrate the soteriological potential of science into their ethical theorising.

Ursula Goodenough's Nihilistic Experience of Science

Ursula Goodenough is now a world renowned cellular biologist,[4] but her relationship with science was initially embroiled with turmoil and despair. It began when she was in college. Goodenough never tells us what she believed in or how she related to the cosmos before this time, but she is very clear that exploring science in college was deeply distressing. In her words, she developed "a lot of trouble with the universe." It "began soon after [she] was told about it in physics class" (1998: 9). Physics taught her about the "workings" of the cosmos which rendered it mechanical and the "vastness" which rendered it empty. Biology further taught her that the biological world is just as predictable and calculable as the physical world. Biology, she learned, was "obvious, explainable, and thermodynamically inevitable. And relentlessly mechanical. And bluntly deterministic" (46). Once she learned about biology, she began to look in the mirror and "see the mortality" and "find [herself] fearful, yearning for less knowledge, yearning to believe that [she had] a soul that will go to heaven and soar with the angels" (46-47). Biology's blunt *mechanism* stripped Goodenough of the possibility of supernatural consolation.

Goodenough commonly uses the word "nihilism" to describe her feelings after encountering science. Directly referencing the scope of both physics and biology, she writes that "nihilism… lurks in the infinite and the infinitesimal" (1998: 18). She also writes that a first encounter with science can elicit "alienation, anomie, and nihilism" (1998: xxvii). She doesn't describe what she means by the word "nihilism" precisely, but her language suggests she means that putting human experience within the context of the incomprehensible scale (both the very large and the very small) of the cosmos can render life meaningless.

[4] Goodenough was the president of the American society for Cell Biology in 1984-5, and was elected to the Cellular and Developmental biology section of the American Academy of Arts and Sciences in 2009. She has also met with the fourteenth Dalai Lama Tenzin Gyatso to discuss cellular biology. Today she is an emerita professor of microbial biology at Washington University.

One particularly poignant moment of Goodenough's life demonstrates the extent to which science can engender nihilism and other existential anxieties. She was out camping, "perhaps twenty," laying on a sleeping bag looking up at the night sky. This was something she had done many times before. But this time was different. "Before [she] could look around for Orion and the Big Dipper," she writes, "[she] was overwhelmed with terror." She experienced a panic that was so acute she "had to roll over and bury [her] face in [her] pillow" (Goodenough 1998: 9).[5] This was because of the knowledge she had gained through science. She recounts:

> All the stars that I see are part of but one galaxy. There are some 100 billion galaxies in the universe, with perhaps 100 billion stars in each one, occupying magnitudes of space that I cannot begin to imagine. Each star is dying, exploding, accreting, exploding again, splitting atoms and fusing nuclei under enormous temperatures and pressures. Our Sun too will die, frying the Earth to a crisp during its heat-death, spewing its bits and pieces out into the frigid nothingness of curved spacetime. The night sky was ruined. I would never be able to look at it again. I wept into my pillow, the long slow tears of adolescent despair (1998: 9).

The problem here for Goodenough is indifference. It's the mechanical quality of the world. It's the emptiness and meaninglessness. Is this Weber's disenchantment (this thesis: 186-187)? Perhaps. But it would better serve us to analyse Goodenough's experience in terms of existential anxiety, and specifically with Midgley's concept of God surgery. Recall from the introduction to this thesis that, according to Midgley, meaningless is abundant in the modern world because God has been excised from the webs of meaning in Western culture. Goodenough's recounting of her nihilistic realisations appears to be a local representation of this global surgery. Goodenough may not have explicitly believed in a God or in heaven or in supernatural sources of solace before her encounter

[5] For what it's worth, I experience resonance when I read this passage, as it reminds me of the panic attacks that I began having as a child when I realised that death probably meant the end of my existence (see the opening paragraphs of the thesis on 13).

with science (we don't know), but when she engaged the sciences, whatever hope she had for these types of phenomena was decimated. The whole (or at least significant parts of the) web of meaning appears to have collapsed for Goodenough in this moment, leaving her wrought with nihilistic anxiety and despair.

Goodenough carried this newfound sense of nihilism on with her. She recounts that a "bleak emptiness" continued to overtake her "whenever [she] thought about what was really going on out in the cosmos or deep in the atom" (1998: 9). She consistently longed for more; she hoped (and sometimes hopes) for traditional comforts that go beyond the realm of science. "All of us," she writes in the present tense, "and scientists are no exception, are vulnerable to the existential shudder that leaves us wishing that the foundations of life were something other than just so much biochemistry and biophysics" (46). Science however forbade this. Science took away possibilities for solace that can be found in gods or romanticised myths or views of the cosmos.

Goodenough is explicit in stating that it wasn't the immediate experience of nature itself that was the problem, but its rationalised calculability and cold indifference as revealed through science. In the introduction to *Sacred Depths,* she writes that "nature—sunsets, woodlands, fireflies—has elicited religious emotions throughout the ages…it fills us with joy and thanksgiving." *Nature* was always for Goodenough a source of wonder. A personal, embodied encounter with nature inspired gratitude and joy. But, she continues, "our response to the accounts of the *workings* of Nature," that is—science—"on the other hand, is decidedly less positive. The scientific version of how things are, and how they came to be, is much more likely, at first encounter, to elicit alienation, anomie, and nihilism" (1998: xxvii). Encountering nature is a source of solace; *understanding* nature as indifferent and calculable made Goodenough despair. Science

hammered Goodenough with what we might call its existential power, and she was left adrift in existential anxiety. It would take decades of work within the sciences before Goodenough would find her remediation. But find it she eventually would, and she would become one of the leading voices in the religious naturalism movement as a result.

The Ethical Dilemma of Religious Naturalism

Religious naturalism is a movement that attempts to address these kinds of existential concerns in a naturalistic frame. The movement is diverse—at least within the bounds of the academy—and includes various philosophers, theologians, scientists, environmental advocates, and theorists of religion interested in marrying a naturalistic outlook based on science with what we might call typically religious themes: wonder, gratitude, awe, morality. The contemporary movement as it exists today emerged predominantly out of Columbia University in New York (as Santayana was read there, and Woodbridge, Randall, and Dewey taught) and the University of Chicago Divinity School (where Henry Nelson Wieman and others of the Chicago School of Theology such as George Burman Foster, Edward Scribner Ames, and Eustace Haydon taught) (Stone 2008: 5).[6] Each of these figures engaged the spiritual, relational, or ethical import of a scientific worldview, and they gave inspiration to the contemporary figures who are located widely across (predominantly American) seminaries and also to an extent philosophy departments today. The thinkers I listed in the introduction to this chapter—Stone, Peters, Drees, Wildman, Corrington, and many others, including Goodenough—are prominent and active in the field.

[6] Marvin Shaw has referred to or at least implied that there is a difference between "Columbia naturalism" and "Chicago naturalism"—marked by and large by the respective emphases on philosophy and theology (Shaw 1995: 15-18).

The concept of religious naturalism, however, is not an easy one to define. It is, in fact, notoriously difficult to define. This is because it combines two philosophically challenging ideas—"religion" and "naturalism"—and then attempts to construct a coherent worldview out of the result.[7] Scholars who work in the field of religious naturalism spend a significant amount of their time and publications defining the terms[8]—and this results in a great variety of possibilities for definition. Thus we find, for example, that Wesley Wildman has called it, with an ontological focus, a religious orientation to the world in an "anti-supranaturalistic theological" sense (2009: 25). Jerome Stone has called it, emphasising its comparative context, "very close to religious humanism" (2000: 60) in that it "seeks to explore and encourage religious ways of responding to the world or at least ways that are analogous to what we traditionally call religious" (60).[9] Michael Hogue defines religious naturalism in historical context as "a theoretic orientation in religious philosophy and ethics that emerges in the fecund intellectual space of late modernity amidst the transformation of religion and religiosity, the moral challenges of the ecological crisis, and increasingly profound natural scientific interpretations of nature's patterns and processes" (2010: xix-xx).

[7] For an overview of four scholars' (Loyal Rue, Ursula Goodenough, Donald Crosby, and Jerome Stone) views on what is "nature" and what is "religion," see Hogue 2010 (especially 208-211). Hogue writes, in summary, that "as *naturalists*, religious naturalists reject the idea that there is a *super*natural realm; nature is the all-inclusive, unlimited reality. As *religious*, religious naturalists argue that the rejection of *super*naturalism does not entail the rejection of religion or religiosity or the dismissal of the religious categories of the divine, sacred, or transcendence" (emphasis his, 2010: 203).

[8] In a 2000 work concerning religious naturalism, Jerome Stone lists several such thinkers, ranging from poets to theologians. In his list he includes: Thoreau, Spinoza, Whitman, Samuel Alexander, Santayana, Dewey, and Chicago theologians such as Wieman, Meland, and Loomer. As of 2000, William Dean, Willem Drees, Charley Hardwick, Henry Levinson, Karl Peters, Jerome Stone, and Gordon Kaufman were working on the question at length (Stone 2000: 54).

[9] The difference between a religious naturalist and a humanist, says Stone, quoting John Deitrich during the time of the Humanist Controversy of 1933, is "a richer sense of our response to the world" (in Stone 2000: 60). Religious naturalism, Stone writes, "has a greater sense that we are not masters of our fate, that we need to recognise the worth of, to nurture and be nurtured by this-worldly grace and judgment" (63).

The most encompassing definition of religious naturalism comes from philosopher of religion and science Willem Drees. Drees defines religious naturalism by a metaphor: religious naturalism is an "umbrella which covers a variety of dialects" (Drees 2006: 119). Umbrellas come in many different sizes and materials. But they do have a common shape that serves a common purpose. For Drees, the umbrella of religious naturalism includes a spectrum of dialects regarding how indebted they are to the sciences (120-121). On this account, religious naturalism is definable by an inner diversity shaped by various naturalistically construed relationships to traditional religions and religiosities.[10] This core of "naturalistic engagement with religion and religiosity" is analogous to the "structure" of an umbrella. Religious naturalism strives to be religious while maintaining a naturalistic worldview. Beyond this core, according to Drees, the various dialects of religious naturalism also typically share a few common threads: commitments to increasing knowledge, especially but not exclusively knowledge drawn from the natural sciences, an "appreciation of this world" as opposed to some other, an "activist" attitude, and a "universalist" intent (120).[11]

Under Drees' umbrella, there are two main dialects. One of them comprises "revisionary articulations" and the other "purely naturalistic" orientations (2006: 119). The first category, "revisionary articulations" entails varieties of religious naturalism that exist *within* religious traditions. These include, for example, the philosophical Daoism of the fourth century BCE (Hansen 2017), or the naturalistic mysticism of Meister Eckhart (Fanizzi 2000). These varieties

[10]In Hogue's words, "the relationships may be diverse, from revision to rejection, but *religious* naturalism is that form of *naturalism* that can generally be defined as a deliberately *naturalistic engagement with religion and religiosity*" (emphasis his, Hogue 2010: 85).

[11] The activism within religious naturalism stems from the open this-worldliness of religious naturalism and the resultant view that "redemption is not expected to happen to us; improvement is to be brought about by human activity" (Drees 2006: 3). The "universalist" intent within religious naturalism comes from the position that religious naturalism, rooted in the findings and methods of the natural sciences, is taken to be "open in principle to persons from all walks of life, of all cultures, and of all faiths" (Hogue 2010: 86).

have been, if not always popular and even often subversive (Wildman 2018: 123-125),[12] a potent part of religious history (Vale 1990; Berkel and Vanderjagt 2006). Today in the twentieth and twenty-first centuries revisionary articulations are developing more openly and rapidly than they have in the past, as is the case with the Jesusism of theologian Karl Rahner (1983) and philosopher Owen Flanagan (2007), or the process theology of David Ray Griffin (2004).

On the other hand are what Drees calls "purely naturalistic" orientations. Rather than attempt to work within religious traditions, scholars from this camp construct religious visions that are entirely independent of historical or institutionalised faiths. These thinkers, who include Crosby, Stone, Hogue, Loyal Rue, Goodenough, and environmental advocates such as Thomas Berry, devise worldviews that are simultaneously loyal to naturalism (as scientific, empirical, and pragmatic as these thinkers typically are) and rich with what they call religious—or what I am here calling soteriological—potential.[13] The worldviews these scholars depict tend to be highly ecological, highly immanent, and contain a high degree of what Wildman calls "nature romanticism" (Wildman 2016: 194). They do not, of course, ignore the human or the cultural components of the cosmos. But they consider humans and culture a *part* of nature, not outside or above it. They typically craft their religious visions based on human immanence in a completely natural and interdependent world.

[12] Each religious tradition provides "many strands of reflection on the religious and moral significance of nature" (Hogue 2010: 204). However, these traditions are typically "theocentric" and this "[forbids] viewing nature as a *metaphysically ultimate object of religious reverence*" (emphasis his, 2010: 204).
[13] These scholar's conceptions of what it means to be "religious" are diverse, and of only tangential importance to our primary task of analysing the soteriological potential of science. For more on what it means for a religious naturalist to be "religious," see Hogue 2010.

Goodenough, currently the president of the Religious Naturalism Association,[14] is a central figure within the movement. But her personal brand of religious naturalism is distinct: it is located at the extreme end of the spectrum from revisionary articulations to purely naturalistic. Even though she experienced profound anomie, alienation, and nihilism when first encountering the sciences, she persevered in her interest in this calculative endeavour. Then, after decades working within the sciences, she developed a religious vision based on facts she learned about nature through science. Her views are as naturalistic as it is possible to be. And among this group of "purely naturalistic" scholars she is again unique because of the atypically deep emotional investment she places in scientific investigation and ideas. Here I do not mean simply that Goodenough has a vision of nature informed by science—this is present in all of the purely naturalistic religious naturalist's works, including Stone's, Berry's, and Crosby's. I mean Goodenough articulates a vision composed specifically from the calculating processes of science and insights about nature yielded by scientific investigation.

This distinction between investment in nature and investment in science is fine but relevant to the emphasis I place in this chapter on the soteriological potential of science specifically. Take for example the existential anxiety of death, which I revisit later in the chapter. Religious naturalist Donald Crosby alleviates his negative existential affects about death by appreciating his place in the life cycle of all things (2002: 120, 129, 133-135). This is an understanding of nature based on observation, which can in that sense be called scientific. Yet it is primarily motivated by Wildman's nature romanticism, defined as taking a poetic, loving, or romantic view of nature (Wildman 2009: 201; 2016: 194). It can be achieved without investigations we colloquially view as scientific.

[14] As of 1 September 2019.

Goodenough, on the other hand, alleviates her negative existential affects about death by exploring the biochemical differences between prokaryotic life and eukaryotic life.[15] In *The Sacred Depths of Nature,* Goodenough devotes an entire chapter to exploring the science of multicellularity. She ends the chapter with a two-page reflection on how to relate to multicellularity in a salvific way. It helps her replace her fear and anxiety about death with gratitude and appreciation. This entails nature romanticism, but it is also driven, much more so than Crosby's ideas, specifically by scientific discoveries and interpretation.[16] Goodenough is surely a *naturalist,* but more important for her salvation is her life as a *scientist.*

All of this emphasis on science however makes the questions posed by Goodenough's youthful nihilism extremely trenchant. Religious naturalists seek to remediate the problems engendered by the decline of traditional religious forms and to use rather than deny the sciences as a part of their and the world's salvation—yet this is a task far from accomplished. Perhaps most pressing is the quest to forge relations with the world that are simultaneously predicated on science and also effective at motivating environmental concern and ethical behaviour. We are now in what Michael Hogue calls the "heretically immanent post-traditional religious conditions of the

[15] For a discussion of Goodenough's own views on the nature/science distinction see page 301 and footnote 25 on 281. For her, science is a means by which to explore nature, and the insights it unearths are not uniquely "scientific" facts but just facts. This perspective is not contradictory to the distinction I draw here, since I am focusing on interpretations of nature that require scientific investigation. Also, refer to pages 300-302 for a discussion of the importance of exploring cultural understandings of "nature" and "science" in scholarship on the modern spiritual landscape.

[16]Goodenough in fact compares the communities of people and prophets that give rise to religion to communities of scientists. This suggests that she views the body of knowledge produced by science to be comparable to the stories and grounds used by religions. Hogue writes of Goodenough's views that "the sciences can also be interpreted as historically shaped, cultural emergent traditions of knowledge and practice" (2010: 125). Goodenough writes that, analogous to religions, "[w]e can attribute key [scientific] insights to various persons—quantum theory to Bohr, evolution to Darwin, regulated gene expression to Monod—but we all know that these are incomplete attributions, that the 'revelations' experienced by these men emerged from a vast cumulation of understandings"(1998: 105). Science *reveals* in a different but equally potent way as religion does.

ecologically vulnerable moral present" (2010: ix). We can no longer necessarily count on God to tell us what to do; modernity has "profoundly altered religion and religiosity" (xxi) such that one's ethical commitments are less clear. This has happened all the while modernity has also generated what Hogue deems "increasingly challenging demands of living amidst ecological crisis" (xxi). Can an impersonal, scientific worldview measure-up to the level of moral imperative entailed in traditional religious forms? Can it supersede it? Can it meet the ethical challenges posed by an increasingly vulnerable natural world?

Hogue maps the shape of this question for religious naturalism in his book *The Promise of Religious Naturalism* (2010). His approach is to separately analyse the experiential and ethical components of religious naturalism.[17] He does this because "the question at the centre" of religious naturalism is "whether and how religious change might generate new possibilities for addressing the scale and complexity of ecological moral challenges" (2010: xxii). That is: a central concern of religious naturalism, says Hogue, is figuring out how to build "religious" beliefs that results in something *ethical.* Throughout the book Hogue explores the relationship between the "religious" and the moral in the visions of religious naturalism of four theorists including Goodenough. He concludes that their religious and moral commitments are notable in how they "reflect" and "reinforce" one another (216-218).

One problem I discern with religious naturalism generally is its lack of consideration for affectivity and specifically the affective ways in which encountering science is *experienced* and *feels.* When Hogue analyses that which he calls the "religious" components of the visions of Goodenough and

[17] Chapter three is titled "What is *religious* about religious naturalism?" Chapter four is "What is *ethical* about religious naturalism?" (Hogue 2010).

others, he more often than not refers to their metaphysical propositions (2010: e.g. 24, 50, 120). This is not to say that Hogue errs in his assessment; he simply diagnoses what he sees, which is a landscape of views mostly concerned with their metaphysics and how that can build a bridge to ethics. Of course, Hogue and the religious naturalists he assesses are right to presume that beliefs matter. Beliefs are an important thread in the fabric of motivation. But without an understanding of how we relate to beliefs affectively, religious naturalism lacks a truly comprehensive and therefore effective understanding of how humans function and can be ethically motivated.

I therefore propose a new typology for religious naturalism. Drees' typology focuses on the worldview and the metaphysics. It is much like Hogue's analysis, in that sense. Drees asks: how yoked to a tradition is the variety of religious naturalism? How naturalistic is it? These are important questions for understanding the scope of the field. But we should also ask: how much does a given variety of religious naturalism explore or engage what a worldview *feels* like? This is an extremely relevant perspective for exploring the potential of religious naturalism to appeal to people. Can science, as a significant component of religious naturalism, help engender dispositions to ethical generosity? Can it contribute positively to ethical potentialities?

It can. Science, though often seemingly calculative, mundane, and emotionless (this thesis: 19-21), can also be deeply felt, and, notably, on an existential register. As demonstrated by Goodenough's distress in her college science courses, a scientific perspective can be received on an existential level in a deeply troubling way, depending on the circumstances. On the other hand, Goodenough's story also demonstrates how engagement with science can result in the experience of positive affects such as joy, gratitude, solace, and wonder. Science can impact one's apprehension of the world. It can radically change, challenge, or undermine experiences of

meaning or solace. Goodenough's experience demonstrates that when it does this in a positive way, not only can it provides rich existential relief and profound feelings, but it can also cause enough affective attachment to the world that it inspires ethical generosity.

It is precisely within this experience of salvation through science that Goodenough develops ways to become attached to the world and motivated to behave in an ecologically ethical way. In this vein, then, Goodenough's salvation in science provides a robust means by which religious naturalists can explore how a scientifically-grounded vision of the world can be simultaneously something that simply feels good and also something that is ethically motivating. Religious naturalists do of course already understand that Goodenough's ideas and beliefs are interesting and important. But understanding how science's affective potency can intersect with existential registers in Goodenough's work robustly demonstrates how science can be experienced and felt in a way not yet addressed by the religious naturalist literature. To that end, I now turn to an affective account of ethical motivation. Affect theorist Jane Bennett provides a much needed theory of ethical motivation in a naturalistic frame. But she elides the potency of science when it is slow and unsurprising, so Goodenough's experiences do not only provide new theoretical and practical opportunities to proponents of religious naturalism, but also serve as an important supplement to Bennett's account of the affectivity of ethical generosity.

Affect Theory and Ethical Motivation

Affect theory generally holds that non-linguistic forces are at the root of power that courses through bodies. It should come as no surprise then that when posed with one of the great questions of moral philosophy—how can we be ethically motivated?—affect theorists tend to

turn first and foremost to the non-discursive animation of bodies. In her 2001 book *The Enchantment of Modern Life: Attachments, Crossings, and Ethics,* Bennett rejects the idea that moral codes are all we need in order to be ethical, saying the idea makes her "queasy." People must actually *feel* motivated to follow a code, or else they won't do it. Morals without affects are empty. And one needs the *right* affects. Obligation and subscription, Bennett argues, are "not sufficient to the *enactment* of ethical aspirations, which requires bodily movements in space, mobilisations of heat and energy, a series of choreographed gestures, a distinctive assemblage of affective propulsions" (2001: 3). What people require is, she says, *desire.* Or, in another word, love.

The core argument of Bennett's text is that "affective attachment" to the world is necessary in order to foster a spirit of "ethical generosity." Since this affective attachment is oriented towards generosity, the affects she deems appropriately tethering are in the family of love. She writes: "[i]f popular psychological wisdom has it that you have to love yourself before you can love another, my story suggests that you have to love life before you can care about anything" (2001: 4). When one does then experience this love and caring, she feels a desire to protect what she loves. "Presumptive generosity, as well as the will to social justice," Bennett writes, "are sustained by periodic bouts of being enamoured with existence" (12). This makes sense when considered in light of every day experience: often, the more one cares about something, the more she takes care of it.

The writings of other affect theorists corroborate this accounting. Recall for example in previous chapters my exploration of Lauren Berlant's optimistic attachments (this thesis: 120). For Berlant, humans invariably seek satisfaction. In Donovan Schaefer's words, we are "anticipating bodies"

(2015: 105). We are sustained by the promises of some kind of satisfaction we experience in our attachments. This notion supports Bennett's formulation of attachment to the world being affectively motivating because it provides a framework for understanding how and why *love* matters: if one strives to sustain a promise or achieve a satisfaction they have found in attachment to a particular object, idea, or environment, she will be more motivated to care for it. When we feel that upwelling desire for something we cherish to be safe, we are more willing to take action to protect it.

Bennett proposes a specific means by which to cultivate this kind of affective attachment to the world: via the experience of enchantment. Bennett articulates this against the backdrop of Weberian narratives of disenchantment. In the early twentieth century, Max Weber borrowed the phrase *Entzauberung*—usually translated from German as "disenchantment"—from Friedrich Schiller which gave rise to a new, sometimes interpreted as pessimistic,[18] perspective on Western culture (R. Jenkins 2000: 11). In Weber's account of disenchantment, the West continually loses what can also be translated as its "magic." This process is characterised by what he calls "rationalisation," insofar as the world becomes increasingly known, compartmentalised, ordered, predictable. This "intellectualist rationalisation," Weber writes, means that "principally there are no mysterious incalculable forces that come into play, but rather that one can, in principle, master all things by calculation. This means that the world is disenchanted" (2005: 322).

[18] As to whether Weber considered disenchantment a negative phenomenon is ambiguous. For a discussion of the pessimism often discerned or read into Weber's works see the introduction to Andrew Koch's *Romance and Reason: Ontological and Social Sources of Alienation in the Writings of Max Weber* (2006).

The veracity or meaning of Weber's claims notwithstanding,[19] disenchantment has since become a pervasive idea in Western philosophy and culture. Friedrich Schiller, Hans Blumenberg, and Simon Critchley are but a few philosophers to have wrestled with the concept explicitly (Bennett 2001: 65-75; 75-80; 138-44). Ecospiritualists and religious naturalists have created whole genres of writing in part motivated by a desire to "re-enchant" the cosmos (Stone 2008: 3). Generally speaking, the disenchantment narrative "continues to resonate today" since it entails both "the increasing scale, scope, and power of the formal means-ends rationalities of science, bureaucracy, the law, and policy-making," and "secularisation and the decline of magic" (R. Jenkins 2000: 11-12). Basically, the disenchantment thesis encompasses broad cultural and technological changes in the West, as well as the affective experiences of these phenomena. Thinkers who wrestle with these broad sociological and technological trends almost inevitably brush up against disenchantment, either cheering it for the causes of secularism and rationality or decrying it as a force for alienation and meaninglessness.

Enchantment, says Bennett, is an affective experience characterised by the quality of being arrested, exhilarated, and torn out of one's usual sense of time and place. "Enchantment is something we encounter, that hits us," she says (2001: 3); this arresting quality of enchantment is its defining feature. She defines enchantment as such:

> The mood I'm calling enchantment involves…a surprising encounter, a meeting with something that you did not expect and are not fully prepared to engage. Contained within this surprise state are (1) a pleasurable feeling of being charmed by the novel and as yet unprocessed encounter and (2) a more *unheimlich* (uncanny) feeling of being disrupted or torn out of one's default sensory-psychic-intellectual disposition (5).

[19] And there has been much debate. See for example the volume devoted to debating just Weber's perspective on science edited by Peter Lassman, Irving Velody and Herminio Martins (1998).

This is an affective experience in which "[t]houghts, but also limbs…are brought to rest…You notice new colours, discern details previously ignored, hear extraordinary sounds, as familiar landscapes of sense sharpen and intensify" (5). According to Bennett, enchantment in this sense has never died and will never die. It is just as present in the world today as it once was, because the world continues to entail opportunities to surprise and arrest.

This means that the disenchantment thesis, especially when interpreted pessimistically, says Bennett, is in part false. This isn't to say that Bennett views the world as full of supernatural magic and deities. But it is to say that she sees the world as rich with possibilities to experience—or at least feel like one is experiencing—magic. She writes: "enchantment never really left the world, but only changed its forms" (2001: 91). In the disenchantment narrative, there are important truths about the development of the West. The narrative "captures important features of contemporary life" (14). These include its pervasive powers of rationality, calculability, and predictability. To see the potent effect they have had on consumption in the West, one need look no further than a home-order catalogue, a shopping mall, or a McDonald's (Ritzer 2000; 2010).[20] Bennett does not wish to criticise the narrative in terms of the processes it diagnoses as happening in the world. But she does wish to account for means by which to experience enchantment in a world that is continually going through processes of intellectualisation.

Enchantment doesn't die because of calculability, rationality, and science; Bennett demonstrates precisely how phenomena that might have previously or otherwise been discarded as too

[20] George Ritzer's 2000 text is actually titled *The McDonaldisation of Society*. In it, and as well as in *Enchanting a Disenchanted World: Continuity and Change in the Cathedrals of Consumption* (2010), Ritzer describes the ways in which contemporary consumption are marked by rationalisation, calculability, and predictability.

rationalised or calculable can be enchanting. Where some theorists see disenchantment, Bennett sees ample opportunity to enchant. She makes her best effort, she writes, "to come to terms as closely as possible with enchanting events and affects residing within or alongside scientific calculation, instrumental reason, secularism, or disciplinary power"—all things once presumed disenchanted, rendering the world "dead matter" (2001: 14). Bennett believes it is important to seek the wonderment of surprise in both natural and cultural sites, and particularly ones in which the sites intersect, such as in in "sophisticated modes of communication amongst nonhumans" (4) and nanotechnology (84) and Gap commercials (111). Wherever Bennett finds what she considers to have the affective potential to be surprising or wondrous, she plants a flag for enchantment.

Science plays an important role in Bennett's account. Science is a phenomenon traditionally associated with disenchantment; it is too calculable and rationalised to be a part of a magical or enchanted world. Bennett insists however that a world that has become scientifically calculable is still enchanting. This is precisely because science, as an empirical mode of engagement with nature, retains the ability to surprise and arrest. Bennett devotes several pages to chaos theory, for example, in order to explicate the enchanting potency of nature's inherent unpredictability. Classical dynamics in physics presents, in the words of chaos theorists Isabelle Prigogine and Victor Stengers, "a silent world… a dead, passive nature" (Prigogine and Stengers 1984: 6; on Bennett 2001: 101). But contemporary chaos theory has opened up new worlds of surprise and delight. Or it is perhaps better to say that it has revealed an underlying potential for enchantment that has been here all along. Chaos theory reveals the true quirkiness of nature's enchantments, and in doing so is a study rich with enchanting potential. Says Bennett, chaos theorists "study surprises, disturbs, charms, and swerves" (2001: 104) that actually exist in nature. The world is

rich in complexity and unpredictability, and the branches of science that study this can be full of wonder.

Bennett as such makes an important rebuttal to narratives of disenchantment, specifically with respect to the purported disenchanting qualities of science. But because I am interested in exploring all ways in which science can foster dispositions to ethical generosity, we must append Bennett's account. We must look beyond surprise and also investigate the potentialities of science when its practices and what it reveals are predictable, ordinary, stable, and contemplative. Science actually can be these things—it can be quotidian, slow, and predictable—without losing the intensity of its affects. It can yield information about the world that isn't chaotic or surprising. There are affective potencies to science that lie outside surprise, and they can be so rich and powerful that they are relevant to fostering loving bonds of affective attachment to the world. This is especially the case when they intersect with or influence our existential registers.

Science doesn't have to be "exhilarating," "transfixing," or "spellbinding" as Bennett argues (Bennett 2001: 5) in order to foster affective bonds. It can simply be an empirical and methodical approach to the study of nature that, when engaged, or interpreted, performs a binding affective function. Bennett would almost certainly agree that that which isn't surprising about the methods and insights of science can still be affectively rich. But there are aspects of science's affective potency that lie outside of Bennett's analysis and which should be included as motivators of ethical concern: the salvific ones. When science is salvific—even when it is predictable and slow—it has a depth and potency that can foster the kinds of affective attachment to the world Bennett

holds up as ethically transformative.[21] To demonstrate this particular flavour of the soteriological potential of science, I first delve into the affectivity of science when it is a slow, calculable, and methodical endeavour. I then explore the ways in which existential anxiety and hope for remediation mix with this affective lattice to yield Goodenough's salvation.

The Affective Potency of Calculability and Theory

The moments of life in which we are not accosted by wonder are in no way affectively dull. In fact, they are rich with affects. Even when we are at our most calculating, our most logical, our most dry, our most rational, we are ineluctably propelled and compelled by affects. Cognitive scientists have sometimes used the language of "hot" and "cold" cognitions to distinguish between thinking that is primarily motivated by the emotions and thinking that is much more logical and purely calculating. But this distinction has proven itself to be entirely false (Thagard 2006).[22] Affective neuroscientist Antonio Damasio has spent the better part of the last few decades demonstrating this point. In *Descartes' Error: Reason, Emotion, and the Human Brain* (1994), Damasio describes, for example, a patient named Elliot who suffered from a brain injury. Elliott experienced damage to his prefrontal cortex, which prevented signals from his limbic system—typically associated with emotion—to communicate with his executive decision-making modules. Elliot became paralysed in action: without his emotions he could not make decisions (34-43). Reason is as affectively laden as any other process, both in its motivations as well as in its processes and ends.

[21] Of course, being salvific doesn't *necessitate* that science foster loving bonds of attachment to the world. Goodenough is simply one example of when it does.
[22] Paul Thagard's 2006 book *Hot Thought* is devoted to debunking the distinction.

This is not a new idea. Many scholars throughout history have taken note of the relevance of affect—or emotions, or feeling—to even the most rigorously logical philosophy and science. Schaefer offers up David Hume as an example, whom Schaefer chooses because of Hume's frequent association with empiricism and science generally. Schaefer starts with what is arguably Hume's most famous idea: the problem of induction. In this problem, Hume demonstrates that the knowledge we presume we have with objective certainty is anything but certain. In Schaefer's words, Hume's problem prompts questions such as "[h]ow do we know that leaves will fall, that the moon will change phases, that water will quench our thirst? We don't" (2017: 63). The only thing we know is what has happened. The moon has changed phases consistently throughout our lives, but "Hume shows us that we can't *know* that it will change phase again" (64). We may rest the empirical sciences upon inductive reasoning, but there is no foundation—or at least no certain foundation, to this reasoning.

The relevance of Hume's Induction Problem to affect theory is the *feeling* behind it. How do we actually *know* anything? How do we analyse a problem or situation and deem its outcome certain? Hume asks the question in different words: "[w]hat is the foundation of all our reasonings and conclusions concerning that relation [of cause and effect]?" He answers it simply: "[i]t may be replied in one word, EXPERIENCE" (emphasis his, Hume 2007: 23). That is, our experience of knowledge isn't purely cognitive. In fact, maybe it's actually a feeling. For Hume, all of our conclusions arise out of the fabric of our memories. They develop out of what we *feel* is true. In Schaefer's words, "[w]e only know through the impressions left by the world in our bodies" (2017: 64). We only know insofar as we have the ability to feel knowledge.

This reliance upon experience—this reliance upon a *feeling* of truth or certainty—is the gauge of all knowledge. Hume insists that "the difference between *fiction* and *belief* lies in some sentiment or feeling, which is annexed to the latter, not to the former, and which depends not on the will, nor can be commanded at pleasure" (emphasis his, Hume 2007: 35). Believing, underlines Hume, is feeling. You cannot make yourself feel things, and you cannot really convince yourself something is true if you don't feel that it's true. Conviction—whether it is about the result of a scientific study, the quality of a sports team, or a religious experience—is characterised more by the experience of what it feels like to be certain—or to *believe*—than it is about the specific content of that belief.

Belief, no matter how calculable, is a feeling. "[A]ll belief is emotional," writes Schaefer. "Belief is a feeling, a sentiment and it is ineradicably grounded in our bodies" (2017: 65). Logic may certainly play a role in the generation of beliefs, but there is no external, objective authority that licenses the beliefs. Believing *anything* is a part of what it means to be an animal that feels things and needs to navigate the world. In his reading of Hume's *Treatise of Human Nature,* which Schaefer cedes is a controversial document but nevertheless wishes to consider it "as part of the same experimental ferment out of which the *Enquiry* grew" (65), Schaefer diagnoses Hume as subordinating reason to "the passions." That is, he sees Hume, a philosopher known for his epistemological preference for and reflections on empiricism, diagnosing feelings as having epistemological precedent. This is not much of a stretch, as Hume famously writes "[r]eason is, and ought only to be the slave of the passions, and can never pretend to any other office than to serve and obey them" (Hume 1960: 415).

Hume makes it clear, at least in the *Treatise of Human Nature,* that affects precede and are laced throughout reason, says Schaefer. Rather than being able to slot our feelings with categorical precision beneath our clear and logical thoughts, our thoughts run along behind our affects, rendered legitimate through the lens of affective states. Reason, writes Schaefer, "simply can't adjudicate" between preferences. "It can only supply the information that will be animated by the force field of desire…in every arena, including knowledge production, reason is only the topsoil sprinkled over the tectonic plates of the passions beneath" (2017: 65-66). To be human is most certainly to feel. Even in a laboratory, deploying calculations and working with predictions at every turn, we are creatures who first and foremost feel our way through the world.

René Rosfort and Giovanni Stanghellini offer up as an example of the affectivity of a traditionally calculative philosopher René Descartes. Descartes has long been known as one of the key figures in the development of mind/body dualism. He is a champion of the *cogito*. He has a remarkable and influential, what Rosfort and Stanghellini call "metaphysical commitment to disembodied reason" (2012: 396). They write further that "[d]isembodied and abstract thinking are what we normally associate with Descartes's reconfiguration of philosophy" (402). This is most certainly correct. Descartes *thinks,* we all know, and therefore he is. He does not say that he *feels,* therefore he is. Yet in spite of Descartes's strident partitioning off of reason, Rosfort and Stanghellini discern more. They discern ambiguity. They argue that there is for Descartes an "inescapable ambivalence of physiology and cognition at the heart of emotional life" (396). Even the most relentlessly cognitive and rationalised thinker feels and understands the importance of the body.

Descartes's emotionality is given by one of Descartes's lesser known works from the final years of his life, *The Passions of the Soul* (1989). In this work, Descartes describes human emotion as fully embodied. His account of emotional life is physiological, even animal. He characterises almost all human emotions, feelings, and sensations as "animal spirits" that occur in the "machine of our bodies" (on Rosfort and Stanghellini 2012: 404; see Descartes 1989: article 7: 21]). Descartes defines these passion as "perceptions or sensations or excitations of the soul which are referred to it in particular and which are caused, maintained, and strengthened by some movement of the spirits" (on Rosfort and Stanghellini 2012: 404; see Descartes 1989: article 27: 34). But there is an interesting break in the pure distinctions Descartes is here trying to draw between the pure cogito and these lower, more passive and animal passions. It is the passion of wonder (*l'admiration*), which has the quality not of stirring the blood or the heart, like the other passions do, but the brain, which is the seat of scientific knowledge (on Rosfort and Stanghellini 2012: 405; see Descartes 1989: article 71:57). Rosfort and Stanghellini take this to mean that wonder "can be characterised as an intellectual passion" (2012: 405).

Our capacity for wonder, says Descartes, makes us sensitive to that which is "new, or very different from what we knew in the past or what we supposed it was going to be" (Descartes 1989: article 753: 52). It is able to excite the mind, to inspire it to seek new knowledge, to engage the world intellectually. Descartes worries about the potential for wonder to "stupefy" and render us "blindly curious" (Rosfort and Stanghellini 2012: 404), but that is rather irrelevant to the fact that it still influences us. It still is the impetus that gives strength to the intellectual life. Curiosity and the passion of wonder are in constant dialogue with our thoughts and our experiences. They animate thinking and compel us to become better acquainted with the world, often with thoughts as characterised by logic and reason as we can possibly make them. In the end, for Descartes,

even if it is buried deep, it is impossible to be a purely cogitating ego; that which thinks does not happen without that which feels. The processes of doing science, and specifically those related to calculability and slow, deliberate thinking, are shot through with affects.

Curiosity and discomfort are also relevant to this lattice of affects. Philosopher Lars Svendsen argues that the act of doing philosophy—or of methodically asking questions or seeking answers at all—is typically motivated by a deep affective compulsion. For him personally this motivation was once "a deficiency of meaning which could and should be remedied by an existential reorientation in life" (2012: 419). That is, in some sense, he required salvation. He felt a deep, existentially flavoured longing caused by the limitations of his intellect and understanding. Svendsen pursued philosophy as a means by which to remediate it. "Philosophy does not begin," he writes, "in a state of cognitive or affective neutrality, but rather in a state of disturbance or bewilderment" (424). He eventually found ways to overcome this "existential boredom" (420) by reading Heidegger and thinking deeply about his relationships with both philosophy and with existence (421-424). Through philosophy Svendsen channelled and eventually came to terms with the affective miasma out of which his philosophical career began. With this understanding of calculability in mind, when we ask the question: can individuals become affectively attached to the world without enchanting surprise? We can answer the query with a definitive yes.

Science as Salvation in the Life of Ursula Goodenough

As terrifying as the mechanical qualities of the world and science initially are for Goodenough, she did not run from them. She refused to look the other way. Science once disturbed Goodenough on a deep level, but it also showed her the truth of "how things really are" (1993: 400), a fact that

ensnared her attention and loyalty. So in spite of her nihilistic feelings, she became a biologist. She resolved to "explain an important level of reality" (1993: 400) and "understand how it all works" (402). In doing this, she perfectly embodied a sentiment that Rosfort and Stanghellini describe as Descartes's "intellectual emotions." These intellectual emotions—which Goodenough experienced in her devotion to the scientific quest, and which Schaefer implicates in the processes of science (2017: 66)—involve "an excitation of the will that allows us to find intellectual pleasure and even joy in pursuing a better understanding of that which may at first produce pain, surprise, boredom, sadness, or sorrow" (Rosfort and Stanghellini 2012: 406). Goodenough experienced terror when she first realised the gravity of science's insights. But she loved the insights, and she strode towards that terror.

In the decades following her nihilistic and despairing experiences, Goodenough—in her words—"played it straight" as a biologist (1998: x). She undertook professorships, research projects, federal grants, and teaching. But all the while her existential anxiety and specifically as it related to her work pressed upon her. After her children had grown and Goodenough had more time to sit quietly and experiment with these concerns, she returned to a question she had mulled over intensely after experiencing nihilistic shock. Goodenough's father had been both a Methodist preacher as well as a professor of the history of religion. He had encouraged his students to contemplate human nature. He had been driven by the need to "understand why people are religious" (1998: ix). Looking back on this, Goodenough wondered why she wasn't religious, and she wondered also if she *could* be religious (ix). Was being religious the answer to the existential despair and nihilism she had experienced so keenly in her youth?

Goodenough tells us she was seeking a naturalistic religion. But paying close attention to her motivations yields a more specific understanding of what she sought. It was not religion *generally* that Goodenough wanted, but specifically what she calls "religious emotions" (1998: xvii) or what we might call typically religious affects. In Goodenough's perspective, the "states of serious reflection, reverence, gratitude, and penance" (1998: xi) she observed in her local church were solutions to the threats of nihilism, anomie, and alienation—and specific to religion.[23] Goodenough began to view religion as not just having explanatory power but also means by which to engage and embed explanations into one's life and community (1998: 72-73). Goodenough sought to model, or to recreate, the ways in which religious explanations can be turned into religious emotions in a naturalistic framework. She wanted to find ways to "call forth appealing and abiding religious responses" (xv) based on a scientific understanding of the world.

So Goodenough earnestly invested herself in "reading and talking and listening and reflecting" (1998: xi). She did this with scientists, theologians, ministers, and philosophers alike. These discussions revolved around the possibility of transferring "religious emotions" from being grounded in "ancient premises and belief in the supernatural" to science. She set out to discover whether it was possible to "feel such religious emotions in the context of a fully modern, up to minute understanding of Nature" (xi). This understanding of Nature is Weber's disenchanted

[23] In doing so Goodenough participates in a tradition of scholars who associate a certain set of what we might call remediating or soteriological affects associated with religion. I have already discussed the scholars who hold a psychologically functionalist theory of religion in chapter three (150-152). There are also theologians who associate a particular quality of experience or emotion with respect to a religious object such as Friedrich Schleiermacher and Rudolph Otto. Schleiermacher characterises religion in large part by the "feeling of absolute dependence" (1986: 12-18); Otto, influenced by Schleiermacher, characterises religion by the affective experience of "the numinous"—of accessing the divine through the experiences of mystery, awe, and also terror (Otto 1950). Goodenough's colleague in religious naturalism Donald Crosby likewise describes six certain subjective states desirable for relating to religious objects: awe, assurance, acceptance, inspiration, peace, and wonder (1981; 2002). Like Crosby, Goodenough carries on the longstanding theological and scholarly tradition of locating specific, desirable (If not always pleasant) affects within the realm of religion.

nature. It's scientific; it's rational; it's predictable. It's the mechanistic, reductionistic, and indifferent world she learned about in college physics. Goodenough did not seek to re-enchant nature in the way Bennett does, by re-framing what she saw. She did not want to view the world differently (Goodenough 1993: 400-404). She only wished to develop ways of thinking about and relating to it that would elicit religious responses.

Goodenough's quest highlights an understated aspect of affect theory: internal, personal experience. One of the cornerstones of affect theory is the power of the environment over and above the autonomous individual. Recall that Sara Ahmed argues that, "emotions circulate between bodies and signs" (2004b: 117). And Goodenough's explorations did occur with others. She was always networked in environments, and she did explicitly reach out to intellectual and spiritual partners in her quest. But there was also a certain privacy to Goodenough's methods. Her affective quest began with a private moment[24]—it was just her and the stars. From then on there was a certain sombre, internal contemplation to her on-going wrestling with the scientific vision of the world. Goodenough's experiences in this regard were again reminiscent of those of Svendsen, who struggled with existential boredom and turned to a study of philosophy for remediation. Affectivity is about powers that circulate, but affects can be very potent and still privately held within one individual, too. It is important to bear in mind the works of Rosfort, Stanghellini, and Schaefer, who remind us that as public as affects may be, and as much as the environment is always a potent force on our subjective well-being, the quiet acts of reading, of thinking, of designing experiments, and of reflecting on data, are just as shot through with affects as those which are performed in more public and socially networked settings.

[24] At least insofar as it excluded other beings; some such as Bennett argue that non-living environments and objects are actors too. For more on which see Bennett's *Vibrant Matter* (2010).

There was also a particular *duration,* or at least a certain deliberateness or care, to Goodenough's seeking. Goodenough finally experienced and shared her revelations after literal decades in the sciences. She engaged in a deliberate, contemplative search for remediation of her existential anxiety. This was worlds away from Bennett's lightning surprise, the unexpected shots of adrenaline that accost and arrest. But it was no less valid. What remains to be seen in our understanding of this potency is what conclusions Goodenough drew and how they managed to turn Goodenough's anxiety and nihilism into gratitude and joy. Throughout *Sacred Depths* Goodenough describes twelve interpretations of scientific facts that cause her to experience salvation. Because we are limited by space, I will provide a case study of just one existential remediation: Goodenough's anxiety of death transformed into gratitude and joy.[25]

The Result: Remediating the Existential Anxiety of Death

Goodenough first identifies "two responses" to human death. The first is a response to the death of "someone loved, or a death that is premature or senseless" (1998: 150). This is an affectively potent experience because it "directly ravages our personal fabric of relationship." Goodenough recounts an experience she once had learning about a school-age child whose mother was killed in a car accident. Weeks after the accident, he "would go into her clothes closet and bury his face

[25] But there are very many: twelve, in fact. Goodenough relates salvific interpretations of scientific facts in *The Sacred Depths of Nature* one at a time. They are labelled by the scientific idea to which they are attached. These are: 1) Origins of the Earth; 2) Origins of Life; 3) How Life Works; 4) How an Organism Works; 5) How Evolution Works; 6) The Evolution of Biodiversity; 7) Awareness; 8) Emotions and Meaning; 9) Sex; 10) Sexuality; 11) Multicellularity and Death; 12) Speciation. And with each example—each of which gets its own chapter—Goodenough describes the specific interpretation of it she uses to remediate existential anxiety and replace it with the various remediating interpretations and "religious emotions" she set out to achieve (1998).

in her dresses so he could smell her smell" (150). She writes that she is "undone by his savage loss, and outraged by her death" (150). The death is affectively potent for Goodenough, too, as she feels empathy, injustice, and even rage. The death of loved ones is a cruel and inevitable part of what it means to be human. The other response to human death is the fact of one's own impending death, which is often felt with anxiety, apprehension, or horror.

Goodenough grounds her salvation from both kinds of death in a scientific phenomenon she calls the "germ/soma dichotomy." Germ line cells are those which participate in reproductive processes. In single-celled organisms, germ line cells are always present, and are passed on directly as a cell undergoes meiosis (or mitosis, which is similar). In meiosis, cells split their DNA into male and female pairs, which then multiply and recombine, resulting in two full DNA pairs. The organism then splits in two, each half of the cell taking one piece of DNA. This means that these cells are, in a sense, immortal. They continually split themselves in half, but they never "die." Death does not naturally occur for these organisms (that is, without environmental influence). For single-celled organisms, they "can be killed…but they don't *have* to die" (Goodenough 1998: 147). They simply go on splitting into new pairs.

Multicellular organisms, on the other hand, *do* have to die. This is because multicellular organisms specialise. When life developed the ability to be multicellular, an organism's capabilities no longer had to reside strictly within one cell. Instead, it could diversify (Goodenough 1998: 144). Multicellularity as such led to the development of organs and organ systems. In each cell of a multicellular organism there is a full string of DNA. Yet depending on which *type* of cell it is, a certain part of that genome is expressed. For most multicellular organisms—including humans and other animals—reproductive cells (germ cells) are relegated to reproductive organs. These

cells contain the ability to produce new organisms and continue the progression of the species. The rest of the body—soma cells—have different functions, which include things like seeking food, finding shelter, and mating. They are the cells which "perceive and move and sprout feathers and pump blood and make love" (146). They are the cells that provide a basis for affective life and experience.

The problem, however, is that, with the germ cells "safely sequestered in the gonads" (Goodenough 1998: 145), the somatic cells are evolutionarily disposable. They are necessary for moving genomes around and successfully mating, but they do not need to stick around forever. In fact, it is useful for them to die. Biologically, the body needs cells to die to make space for new, healthier bodies to protect the germ line. The soma is not particularly necessary. After reproduction has occurred, "the whole soma dies." There is no replacement of old cells with new. There isn't any reason for it. Biologists say that "if [death] happens after the germ line has successfully participated in the production of sons and daughters, then…the organism has served its biological purpose" (147). Eventually, all us multicellular organisms die, no matter if we are a sequoia or a dragonfly or a human. "If we don't die by accident or infection or because of the failure of a particular organ, we die because we just get old" (147). There is no genetic use for us anymore.

All of this may seem like it paints a pretty grim picture, and at first glance, it did for Goodenough. But she sought meaning and solace in these facts, and she found them, when she realised that death is literally the price for life. "Immortal organisms," she writes, "are by definition very limited in complexity" (1998: 147). They don't have bodies. They don't have depth of feeling. They don't have rich cognitive and social lives. But multicellular organisms, on the other hand, *do.* Brains,

realises Goodenough, are “destined to die” with the rest of the soma. But this then makes clear what Goodenough considers one of the “central ironies” of human existence: “our sentient brains are uniquely capable of experiencing deep regret and sorrow and fear at the prospect of our own death, yet it was the invention of death, the invention of the germ-soma dichotomy, that made possible the existence of our brains” (149). If we did not die, we could not live the kinds of interesting lives that we do. Goodenough develops feelings of acceptance around death, because she has learned from cellular biology—that is, specifically from the *scientific* study of nature—that it is necessary for her to have life.

Goodenough finds herself feeling gratitude. Death, she writes, “is the price paid to have trees and clams and birds and grasshoppers, and death is the price paid to have human consciousness, to be aware of all that shimmering awareness and all that love” (1998: 151). Her somatic life is “the wondrous gift wrought by her forthcoming death” (151). So Goodenough does not get what “most religious systems” offer as they seek to “ameliorate this perception by offering such concepts as… reincarnation” (1994b: 618). She cannot truly capture the religious beliefs such as immortality (149) and subsequent emotions that the people of her Trinity Presbyterian Church do—she simply can’t, as she arrives at a way of relating to the world in a different way. But she does get to combat her dread of death with the gratitude she feels for experiencing life. In this way Goodenough both seeks and then finds remediation of death anxiety. She experiences the remediation of death-anxiety by balancing it with gratitude for and joy within the gift of life, which she believes in first and foremost because of her scientific understanding of the germ/soma distinction.

As I have suggested throughout this chapter, processes of producing and consuming knowledge are laced with affective compulsions. And they may be motivated, at least in part, by the hope that producing and consuming knowledge will meet some affective compulsion or need. Svendsen talks about this affective need as sometimes being an experience of "disturbance," "bewilderment," or feeling "lost" (2012: 424). It is this longing to remediate "the fundamental mood of distress" that inspires Goodenough to develop this way of relating to the germ/soma dichotomy. She found cognitive understanding of the cosmos when she was in college. She comprehended calculability. She understood predictability. She knew how to manipulate equations and match them to observations of the natural world. She was proficient enough to become a professional scientist and professor. But the calculability of the world did not feel comfortable to her. In addition to needing science to provide her with information about the world, she also needed to find particular facts or ways of relating to them that was as satisfying emotionally as it was intellectually.

It is for this reason that I describe the normal affectivity of science as becoming imbued with existential potency when it collides with our existential registers. There is the kind of ordinary affectivity commonly addressed in literature on affect, and which Schaefer, Rosfort and Stanghellini, and Svendsen theorise at length. There is also the existential register of our affective matrices I've described here, which can give shape to a need for salvation. Mixing these two layers together results in a quest for affective satisfaction that involves science but necessarily goes beyond simple knowledge production. Goodenough achieves knowledge, but how does this knowledge feel? Can this knowledge be interpreted or situated in such a way as to change from causing despair to causing salvation? It does for Goodenough because seeks. She goes to church; she talks with ministers and theologians; she carefully wades through volumes of scientific facts

and discoveries, thinking deeply about how to relate to them. She does all of this the best way she knows how: "reading and talking and listening and reflecting" (1998: xi) with reason, with logic, and with rigid loyalty to empirical and calculable facts.

The answers at which Goodenough arrives are more than scientific facts. They are affective mixtures. This isn't to say that they are not fully scientific, but rather that these scientific facts are saturated with soteriological meaning. What we believe and how we interpret it, affect theorists such as Schaefer tell us, are not merely discursive. They are not merely cognitive. They are very much a part of our webs of affective experience. Schaefer writes: "[a]ffect theory prompts us to ask not just what we know, not just how we know, but *how knowledge feels"* (emphasis his, 2018: 70). Schaefer also argues that "pages, words, books, concepts are not just abstract ideas sitting inert in a Cartesian alternate dimension. They are embodied, part of our bodies, ticklish, irritable, erotic, and in every other way affective" (76). When Goodenough engages science alongside religious explorations, she attempts to harmonise the two. She wants her scientific knowledge to *feel* the way that religious knowledge does to Presbyterian church-goers. She explores a scientific understanding of nature until she finds facts she can interpret in a way that saves her from the despair of calculability she had been carrying since college physics.

Goodenough's Affective Attachment

In *The Sacred Depths of Nature,* Goodenough states that her purpose is ultimately singular, and the same as what I articulated as arguably the primary goal of religious naturalism: to "outline the foundations" for a "planetary ethic." This involves first and foremost a picture of "*how things are*" (emphasis hers, 1998: xvi). For her, this part is "easy." It's simply science. The scientific account of

the world, from the Big Bang to the formation of stars and planets to the evolution of life on Earth and the emergence of human consciousness, is "the story, the one true story" (1998: xvi). The problem is, she argues, that this version of events can only be ethically motivating under one condition: if it feels *religious*. By this, she means that a cosmology works "only if it makes the listener feel religious" (1998: xvii). These religious feelings are characterised first and foremost by the remediation of what I call existential anxiety, and what Goodenough in various places calls anomie, alienation, nihilism, terror, and depths of despair (xvii). They are then characterised by positive affects: thanksgiving, gratitude, joy, wonder. There is a strong link between this remediation and these positive affects. The positive affects—the ones which Bennett deems capable of inspiring ethical generosity—are able to occur as despairing interpretations of science are supplanted by salvific ones.

Goodenough wrote *The Sacred Depths of Nature* specifically in order to provide others with a means by which to experience their own religious emotions. "If religious emotions can be elicited by natural reality—and I believe that they can be," she writes, "then the story of Nature has the potential to serve ….the global ethos that we need to articulate" (1998: xvii). Humans need to be "orientated" in the cosmos. We need "stories." We need a way to relate to Nature that "embodies our ideals and our passions" (174). Goodenough makes this argument in part because of her own observations and experiences. She believes it because she has experienced it. Other people can be motivated to love and care for the world simply by "[reflecting] on the dynamics of nature" (xxi)—because this is what she has done. She offers us means by which to learn to cope with death, to experience meaning, and to overcome existential isolation. *The Sacred Depths of Nature* is a thoroughly autobiographical book. In Hogue's words, Goodenough "approaches her task in this work in a profoundly personal, deeply affective way" (2010: 125). In doing so she

demonstrates how she has learned to overcome nihilism and become spiritually committed to helping heal and protect the world.

Goodenough elsewhere describes religion as affection. "Affection is that which binds together, and this is our definition of religion," she writes (1994: 328). Here Goodenough is probably referring to the original Latin form of "religion," *religare,* which is often translated as "binding" or "to bind back" (Hare 2014; for an alternative interpretation see this thesis: 39). In seeking a religious vision, Goodenough seeks *binding*. She seeks, in a sense, the affective attachment of which Bennett writes. She seeks to be bound to the world through care, love, and affection. Her method for doing so is understanding and interpreting the world through science. She writes: "there is a subtle but important progression from *caring about* something to feeling *affection* for something. Affection requires direct knowledge…We can therefore say that the more we know about life, the deeper becomes our affection for it" (emphasis hers, 1994: 328).[26] We find here, therefore, that Goodenough's commitment to science serves not just her existential needs but also her ethical aspirations. They are in fact inseparable for Goodenough, since "if religious naturalism is to flourish, it will be because others find themselves called to reflect on the dynamics of nature" (1998: xxi). To use science to become acquainted with (and affectionate about) the world is also to find one's own answers to existential anxiety.

The *attachment* resulting from Goodenough's explorations is in no discernible way affectively distinct from Bennett's affects. Bennett aspires to cultivate an "affective force" that "might be deployed to propel ethical generosity" (Bennett 2001: 3). Goodenough aspires to inspire "religious emotions" that "orientate" us and "compel" a "global ethic" (Goodenough 1998: xviii).

[26] This is a similar view to E.O. Wilson's. See pages 281-288 of this thesis.

These are both forms of positive affective attachment that help inspire them (and, presumably, to at least some extent, their readers) to seek and enact ethical behaviour. Bennett's neglect of experiences that aren't altogether enchanting leaves whole registers of experiences and possibilities for affective attachment decidedly in the dust, specifically and importantly, the existential registers. As such, I here offer up Ursula Goodenough as an example of a human who has experienced salvation facilitated by the processes and facts of science. She experiences affective attachment to the world via processes that have been elided but which should be included in conversations about ethical potentialities in a disenchanted world.

Conclusion

From the time of Weber on it has been postulated by many that science disenchants the world and thereby significantly troubles the possibility of motivating ethical behaviour. Goodenough's early nihilistic experiences are a testament to the potential for this charge to true. Religious naturalists are highly concerned with this potential and all its implications. They seek to articulate means by which a scientific vision of the world can provide "religious" experiences and beliefs that feel good and which motivate ethical behaviour. Hogue paints a picture of religious naturalism as a movement that that seeks this, but his account also demonstrates that the movement has not thoroughly explored the mechanisms by which ethical motivation can happen, and specifically the ways in which they can be experienced in terms of affect.

Affect theory provides a comprehensive means by which to understand how ethical motivation can occur. Metaphysics and beliefs do certainly matter, but they must be enfolded into an understanding of human motivation that is much broader in scope and includes the whole range

of affective experience. Goodenough arrives at facts, but she is ultimately driven and saved by the existential potency of science—a phenomenon that is of utmost importance for her ethical dispositions. Jane Bennett articulates an affective understanding of attachment to and love for the world that helps round out the religious naturalist's perception of ethical motivation. She also articulates a specific method by which to develop these bonds of attachment and love. Her method however is limited only to surprise and specifically a kind of surprising enchantment. Bennett's accounting needs to be supplemented with an understanding of the potential affects embroiled in that which doesn't necessarily enchant. We have seen in Goodenough—a religious naturalist distinguished from others by her focus on scientific rigour—that science has the power to save and to motivate.

Goodenough is already a member of the religious naturalist movement, and a prominent one, so in a certain and important sense religious naturalists do not need to be told about her views or that her story is rich with ideas and potential. But it is crucial for the religious naturalist movement, if it wishes to advance its goal of developing ethical behaviour in naturalistic and scientific frameworks, to understand her work in an affective light. It is important to enfold an affect-based typology into the religious naturalism literature, and it is important to focus on how science and other components of religious naturalism are impactful and are felt, so that they may be better understood and leveraged.

Finally, it is important to understand that the unique value Goodenough places in science is not a detriment to her salvation but indeed a powerful asset, since science has the ability to impact us on an existential register. Science may for some at first be a force for alienation, anomie, and nihilism. But this chapter has demonstrated through Goodenough's experiences of the intermixed

affects of scientific engagement and of existential anxiety that it can actually be salvific if deployed the way she deploys it. I have also demonstrated that through this affective experience of salvation science has the power, at least for Goodenough, to compel attachment, care, and love for this world.

V. DISAMBIGUATING: SCIENCE AS SALVIFIC EPISTEMOLOGY WITH SAM HARRIS

"What yesterday was still religion, is no longer such today;
and what today is atheism, tomorrow will be religion."
Ludwig Feuerbach[1]

In 2004, Sam Harris published a polemical book against religion called *The End of Faith* that went on to be on the *New York Times* best-seller list for 33 weeks (*New York Times* 2004-2005).[2] In the following years best-selling books propounding what has come to be termed "New Atheism" flooded the market. Four bestselling authors of the movement—Richard Dawkins, (*The God Delusion,* 2006), Christopher Hitchens (*God is Not Great,* 2007*)*, Daniel Dennett (*Breaking the Spell,* 2006), and Sam Harris (*The End of Faith,* 2004 and *Letter to a Christian Nation,* 2007)—have dubbed themselves the "four horsemen"[3] because of their unapologetic and vigorous passion for bringing about the demise of religion. Sam Harris has for example spoken of religions as "intellectually defunct and politically ruinous" (2004: 221) and as "perpetuating man's inhumanity to man" (2004: 15). While many scholars have been quick to point out that the philosophical content of this brand of atheism is not new (e.g. Robbins and Rodkey 2010), more than a few

[1]In Ludwig Feuerbach's *The Essence of Christianity* (2006: 43).
[2] Curiously enough, Alister McGrath hinted at the possibility of an emergence of a new, freshly vitriolic Atheism even as he predicted atheism's demise (2004: 175).
[3] The debut of this name was in the form of an interview series that took place in Richard Dawkins's Oxford office among the four horsemen titled "Discussions with Richard Dawkins" (Timonen 2008).

have remarked that the fervour and dogmatic, even crude, vitriol with which they attack religion as a group is unprecedented.[4]

This is somewhat ironic because scholars have been quick to note a panoply of qualities that the New Atheist movement shares with religion (Schulzke 2013b; LeDrew 2015; Borer 2010; Bullivant 2010). One of the most common tropes within this body of literature is the idea that New Atheists are classifiably religious (Ruse 2011) or take on some form of secular religion (Wolf 2006) because they are *fundamentalist*. What scholars usually allude to in order to justify this comparison is either 1) a certain stridency in the tone (e.g. McAnulla 2014: 124, 128; Wolf 2006), or 2) a shared experience of what they call "faith" (e.g. Hedges 2008: 8). I opened this chapter with a quote by Feuerbach that states that "what today is atheism, tomorrow will be religion" (2006: 43). I would not go so far as to call New Atheism a religion, or even fundamentalism. But I do join these thinkers in discerning a particular resemblance between New Atheism and its Christian fundamentalist foil. What New Atheists do exhibit—and which manifests as a resemblance to fundamentalism—is attachment to a salvific epistemology.

I have defined salvation as an affective process characterised by the remediation of the embodied limitations of human life (this thesis: 148-149). The terminology of "salvific epistemology" follows that concept: it denotes a way of knowing about the world that facilitates the affective experience of salvation. Notably and of utmost importance for this chapter, this use of the language of salvific epistemology (and of salvation in general) is entirely apart from more traditional uses of the language of salvation such as that found among Christian fundamentalists, and to which New Atheism is here compared. I do not discount the validity of these more traditional conceptions of

[4] For examples of which see Amarasingam 2010: 3, Borer 2010: 135.

salvation. But these traditional Christian forms *do* function within the parameters of my concept of salvation, as they act as affective engines of existential remediation. For the purposes of this chapter, I explore the ways in which an epistemology—specifically, science—can function salvifically insofar as it provides a means by which to *know.*

For Christian fundamentalism, the salvific epistemology could rightly (if generally) be said to be faith, in the sense that entire metaphysical and normative worlds are based on loyalty to a specific set of literally interpreted Biblical truths. For the New Atheists, this foundational piece is science. I do not have space in this chapter to explore the fundamentalist relationship with belief at length, so I do not conduct a technical analysis of comparison and contrast between fundamentalist attachment to faith and New Atheist attachment to science. Rather, as I am concerned here in this thesis primarily with ways in which science is salvific, I focus on exploring the nuances of science's soteriological potential for New Atheism, and specifically Sam Harris. In doing so I elevate the qualities of Harris's salvation that gives rise to a resemblance to fundamentalism. I suggest that it is due to the depth and potency of his attachments to science as it neatly orders his world into categorisable, fixable units. Science *saves* Harris (and, theoretically, the other horsemen) because of the simplicity and orderliness of its answers in the face of the existential and political ambiguity of the postmodern moment.

In order to analyse the soteriological potential of science in appropriate detail, I focus here on the thought of just one of the four horsemen, Sam Harris. Harris is an appropriate candidate for this analysis for several reasons. For one, he has written three distinct books that deal extensively with the concept of science as it triumphs over religion, and in different categories: politics

(2004), morality (2010), and spirituality (2014).[5] For another, he appears to be the most scientistic—that is, allocating science the greatest epistemological and axiological authority—of the four horsemen, a phenomenon I discuss at length below. Finally, he advocates for a "spiritual" relationship with science in an explicit sense that none of the other New Atheists do. Harris's science *engulfs* and *orders* his cosmos, providing a profound experience of salvation.

I proceed by first analysing the charge of fundamentalism often levelled against New Atheists. I reframe the resemblance as attachment to a salvific epistemology—namely, science. Second, I explore the epistemological assurances of science for Harris's experiences of existential anxiety in an uncertain and postmodern world. Finally, I explore three examples of ways in which Harris deploys science to engulf ambiguous phenomena and thus render the world orderly and safe: in morality, in belief, and in spiritual practice. Notably, the latter two examples of belief and practice entail the engulfing of Buddhism into scientific order. Harris may hate religion, but if he is able to legitimise it with science, then he can (and does) appropriate it to his orderly purpose. Even the most complex of phenomena can be sorted in Harris's scientific landscapes.

The Charge of Fundamentalism

[5] Why call this spirituality? Why doesn't he call it something more mundane, which many might find appropriate for such a naturalistic task, such as "stress reduction"? These are important questions to ask, and ones that Harris has considered at great length. Harris cedes that the phrase "stress reduction" does encompass the effects of his meditation practices; Harris even says at one point that "in one sense, the Buddhist concept of enlightenment really is just the epitome of 'stress reduction'" (2014: 48). However, Harris considers the term "spirituality" appropriate because it is able to account for the moral implications and depth of his practices in a way that "stress reduction" never could. "The word 'spirit' comes from the Latin *spiritus*," he writes, "which is a translation of the Greek *pneuma*, meaning breath…no other word can link this spectrum of experience to our ethical lives" (2014: 6-7). In this sense, spirituality for Harris is a bridge between experiential learning and ethical living.

It is a common trope both in popular opinion magazines (such as *The New Republic* [Bruenig 2015]) and in scholarly publications (such as the volume *Religion and the New Atheism* [Amarasingam 2010]) to call New Atheists fundamentalist. One reason people have often done so is because of its strident tone. Gary Wolf for example reports that he tires of having conversations with atheists at dinner parties because they are always aggressively pushing their agenda. He writes: "[t]hey are fundamentalist. I hear this protest dozens of times. It comes up in every conversation. Even those who might side with the New Atheists are repelled by their strident tone" (2006). Wolf finds the aggression laced throughout the language and dialogues of New Atheism aversive.

To identify New Atheism as fundamentalist because of its tone however is an intellectually unsophisticated way of characterising the resemblance between New Atheism and Christian fundamentalists. Plenty of groups and individuals in the world have strident tones but aren't considered fundamentalist. There are also far too many variables within each group to generalise glibly, and there are far too many differences between the two to call them the same. Michael Sherlock makes the relevant point that to call New Atheists fundamentalists in this vein is to make the mistake of drawing a *weak analogy*. Weak analogy is a technical term from the study of logic: if two phenomena have shared attributes a, b, and c, there is no logical conclusion that they also share d, e, and f (see Hurley 2000: 147-149).

In this case, just because New Atheists and Christian fundamentalists share a strident tone or particularly unrelenting quality of discourse does not mean that they necessarily share the rest of each other's qualities, or even enough qualities to achieve a Wittgensteinian family resemblance

(Sherlock 2015).[6] Drawing this analogy however is precisely what the critics do. They see a certain phenomenon occurring among Christian fundamentalists, and then when they see this phenomenon also occurring among New Atheists, they label the whole of each group the same. This is something Michael Ruse does when he describes the "bitterness" of Christian fundamentalists whenever they encounter opposing ideas. The same is true of New Atheists; therefore, for Ruse, New Atheists are fundamentalist (Ruse 2011).

Another way in which New Atheists have been charged with fundamentalism is via their epistemology, in the sense that science is said to be their faith, or belief, followed blindly. Former war-correspondent and journalist Chris Hedges for instance argues that the New Atheist form of "secular fundamentalism" is "a new version of an old and dangerous faith" (2008: 8). What they are allied to may not be a Biblical text, but it is still *faith,* says Hedges, insofar as it refuses to correct itself. Hedges believes that the New Atheists are so loyal to their specific views that they "[dismiss] all alternative viewpoints as inferior and unworthy of consideration." New Atheism is, in this sense, "anti-thought" (63) and against "intellectual investigations" (71). Hedges even compares New Atheist "faith" to the kind of dogmatic loyalty to a utopian vision apparent in National Socialism (8). According to Hedges, New Atheism is a faith in the pejorative sense. It is faith insofar as it is narrow-mindedly focused on a specific set of tenets, so much so that it has the potential to develop into violence.

[6] He makes this argument contra Ruse, who writes in his blog series that "[o]f course, some features are more important than others. Belief in God would surely be one. Which certainly leads into fields relevant to the New Atheism question. It seems to me that the negation of a claim is likely to be of the same type as the claim itself. If 'eggs are good for you' is a claim about nutrition, then 'eggs are not good for you' is a claim about nutrition. 'God does not exist' seems to me a claim about a religious idea, perhaps even a religious claim" (Ruse 2011; Sherlock 2015). For the origin of the concept of family resemblances, see Wittgenstein 1958: 31-33.

As Sherlock again puts it, however, to charge New Atheists with being fundamentalist on this score entails a misunderstanding of the New Atheist epistemological position (2015).[7] The term "fundamentalism" derives from a moment in history in the late nineteenth century in which a group of Protestant Christians in America decided to be loyal to a set of "fundamentals" of scripture (Wood and Watt 2014: 2-3).[8] Continuing in this tradition today, fundamental beliefs *must* be embraced given that they are the word of God. These are treated by and large as non-negotiable both for belonging to the group and identifying as a fundamentalist,[9] as well as for rightness in relationship with God (McAnulla 2014: 33). In this sense there is a particular closed quality to the religiously fundamentalist concept of faith, and especially so far as empirical evidence goes, which is outside of the kinds of revealed knowledge and Biblically inerrant Word deemed acceptable by fundamentalist principles.

Faith in Biblically revealed truth stands in somewhat stark contrast to the New Atheist epistemological preference and perspective, which, even while it stridently rejects belief "without evidence" (Harris 2004: 225), actively seeks correction. Harris, for example, when asked which scientific concept ought to be better known, responds with "intellectual honesty." This he means in the simple sense of being willing to be wrong. Intellectual honesty is a principle he writes that "rests on the understanding that *wanting* something to be true"—something he takes to be characteristic of fundamentalist faith—"isn't a reason to believe that it *is* true" (emphasis his,

[7] Or is a diversionary tactic meant to pivot pejorative analyses from one side to the other.
[8] Importantly, the definition of fundamentalism is by no means agreed upon, and, indeed, it has often been used in contexts "unanchored" from American Protestant contexts (Clarke 2014: 163-180; see also Wood and Watt 2014: 3). Nevertheless, I consider it important that if we are going to draw parallels between fundamentalism and any other movement or phenomenon, that they be cognizant of the history and connotations of the term, mostly especially its embeddedness in the American Protestant tradition.
[9] Though intolerance, it is noted, is not inevitable within fundamentalism (Almond, Appleby, And Sivan 2003: 17).

Harris 2017). Elsewhere, defending himself against charges of secular fundamentalism, Harris says that "there is nothing you have to accept as dogma; there is nothing to have to accept on insignificant evidence" (Harris 2009). This is the difference to which Sherlock refers when he writes that New Atheists "have a religious-like faith in a self-critiquing scientific method that makes it impossible to have a religious-like faith" (2015). In short, New Atheist loyalty to empirical evidence is not equivalent to fundamentalist faith in the word of God.

The real resonance between New Atheism and religious fundamentalism, then, is not in the *nature* of the epistemology, nor is it in the strident tone with which it is defended. Rather, it is in the respective groups' *salvific attachment* to it. For Christian fundamentalism, generally speaking, *faith* is central to the proper and desirable way of being in the world. It permeates all experiences and actions and is the core around which existential anxieties and their abounding salvations revolve. For New Atheism, science is the central ordering phenomenon that gives rise to their ability to make sense of and continue to live in the world. This is especially true for Harris, for whom science does not just reveal the *truth* of the natural world, but according to whom science is the only way to reveal facts, a process of which he says "nothing is more sacred" (Harris 2004: 225). Science saves Harris because it disambiguates the world and promises to provide clear answers to every deeply concerning problem and uncertainty humanity has.[10] In order to get to the bottom of this salvation, I begin with Harris's rage and anxiety in the face of postmodern

[10] And of the future. Unfortunately in this brief chapter I do not have the space to explore utopianism in Harris's worldview, though it is worth knowing that he is deeply emotionally attached to the power of science (if only we *wake up* to it) to realise a utopian vision. I do here quickly note that the quality of Harris's hope is not one that could be characterised by confidence in any sense of the term, but rather is a "hope against hope." Harris's hope is as such like that of all hope: it is "*always* against (a caricature of) itself, and even when there is no hope, we…hope we are wrong" (D. Bell 2017: 12-13). Bell takes this notion from Ernst Bloch, who writes that "[h]ope is not confidence. If it could not be disappointable, it would not be hope. That is part of it…However, hope still nails a flag on the mast, even in decline" (1998: 16-17; see also D. Bell 2017: 10-15). Harris's utopian vision is not one of salvific confidence or *faith,* but instead a hope this will unfold despite all evidence to the contrary.

ambiguity, and then describe three instances in which Harris deploys science to make the world orderly: in morality, in Buddhist belief, and in Buddhist practice.

The Blessed Rage for Order

Harris claims that all people are "terrified of our creaturely insignificance" and that "much of what we do with our lives is a rather transparent attempt to keep this fear at bay" (2004: 37). Harris in a sense refers to his own salvation when he says this. Harris's entire body of work is an extended polemic against religion that champions science. It may at first glance seem like creaturely insignificance has nothing to do with his passion for this polemic, but for Harris it certainly does. Science provides for him a bastion of clarity, certainty, and authority that steadies his world in front of the yawning discomfort and ambiguity of the abyss. Sociologist Anthony Giddens has argued that people seek something he calls "ontological security." Ontological security is basically the need to feel some kind of surety about who you are and how you fit into the order of the world. According to Giddens, ontological insecurity is especially rampant in today's world, as the need for ontological security can arise or become exasperated when the world is unsteady or experienced as ambiguous (1991: 35, 37-42). Giddens sees much of the modern psyche as being characterised by a quest for ontological security; this is exactly what Harris manufactures with science.

Echoing Giddens's concern with ambiguity in today's world, William Stahl diagnoses anxiety about uncertainty as central to New Atheist motivation. Stahl draws attention to the deep discomfort Harris and other New Atheists appear to experience whenever they encounter threats to their order and stability. According to Stahl, Harris is so deeply attached to science because it performs

world ordering function in response to the ambiguity of "late modernity's crisis of meaning" (Stahl 2010: 97, 101). New Atheists deploy science as a defence against the "crisis of authority…that mirrors the larger crisis of meaning in late modern society" (Stahl 2010: 101). In Stahl's perspective, the New Atheists are so attached to science because they attempt to use science to lay firm foundations to knowledge, which helps them capture a sense of purpose and normative control over their environments, or, to put it in Giddens' terms, to grasp at ontological security.

This taste for having a definitive purpose and meaning—so in a sense, control—of New Atheists may be in part related to the affective compulsions attendant to rationality. The vision for which Harris and other New Atheists fight is, in a sense, a modernist one. It is fully scientised, ordered, unambiguous. Not all societies are founded upon these kinds of principles and aims, of course, but it makes sense that this scientific, sorted, ordered quality of modernism has its own kind of appeal. Donovan Schaefer writes at great length about the affective ways in which we can be compelled by reason and order, characterising reason as a "chessboard" that draws us into the fascinating logic of its matrix. "Cognition itself," even just the act of thinking, exploring, and organising one's thoughts, "is an affective magnet, pulling us into its waves" (2018: 85). There is in this sense something deep within our animality that can enjoy or can be in some sense satisfied (or never satisfied, but forever tantalised) by rationality. "We can become fascinated," Schaefer writes, "even addicted, to a vision of a rationally ordered world" (85). Reason is not affectively anaemic, as a culture we sometimes like to delude ourselves into believing. It can be compelling—sometimes perhaps electrifying and sometimes perhaps soothing—and even, when threaded with existential anxieties, salvific.

An affinity for order is grounded as such in potentialities of the human animal. This potential appears to take on extreme forms in the case of New Atheism, which makes sense in light of a cultural context that entails the collapse of modernism and of all its attendant justifications for knowledge and a scientifically ordered world. Adam Possamai suggests that, since the shift towards postmodernity, "human knowledge and beliefs are….lacking foundations and might create uncertainty and a desire for stability, certainty, and predictability" (Possamai 2005: 80). This is an idea that Alan Nixon takes up in his article "Contemporary Atheism as Hyper-Real Irreligion: The Enchantment of Science and Atheism in This Cosmos." In this article, Nixon explores the potential for New Atheism to be a source of ontological security to modern- or science-minded "consumers." Atheist materials and culture, Nixon argues, "support the individual ontological security of contemporary Atheists via an enchanted public image of science and progress…providing inspiration for the creation of meaning and identity" (2012: 375). With a firm sense of security, New Atheists such as Sam Harris are able to jettison the ambiguity and insecurity of uncertainty that can be experienced in the postmodern era.

That New Atheists and Harris in particular are put-off by postmodernism is no secret.[11] Harris has argued at great length about the dangers of what he characterises as its relativism, which is "nonsensical… and dangerously so" (2004: 178). Harris in fact views postmodernism as so dangerous that he equates it with religion: "I had previously imagined," he writes, "that the front lines in our culture wars were to be found at the entrance to a megachurch. I now realise that we have considerable work to do in a nearer trench" (2010: 39). This trench is in the academy. It is

[11] In this paragraph I focus on Harris, but other New Atheists have similar views. Richard Dawkins has said for example of postmodernism that "there's this thing called being so open-minded your brains drop out" (2009).

specifically in the humanities,[12] where moral complexity and ambiguity are common. Harris decries the denial of scholars that there may be definitive answers to truth, and specifically within the realm of morality. He says, "it is always amusing when these people…hesitate to condemn specific instances of patently abominable behaviour" (2010: 144). He sardonically writes that "I don't think one has fully enjoyed the life of the mind until one has seen a celebrated scholar defend the 'contextual' legitimacy of the burqa, or of female genital mutilation, a mere thirty seconds after announcing that moral relativism does nothing to diminish a person's commitment to making the world a better place" (2010: 43-44). For Harris, postmodernism is as much of a threat to progress and moral order as fundamentalism is.

For all of the New Atheist distaste of disorder, however, they do not express it explicitly, and certainly not as any kind of underlying anxiety. Harris for example does not profess to feeling any sort of anxiety about the order of the world in his works, at least so far I have been able to discern, and I've read each of his books closely. Stahl however suggests that a deep need for certainty for New Atheists is apparent in the rage that burns inside of them and which they direct towards anyone who questions the epistemological authority of science. The evidence of Harris's existential anxiety related to order is his rage; George Levine calls it a "blessed rage for order" (2006: 25). Stahl writes that New Atheists are "very, very angry" (2010: 97) and that the very essence of New Atheism is a "[scream] of rage against those that do not conform" (Stahl 2010: 108). Anyone who disagrees with the view that science is the only valid epistemological model is a target of this rage precisely because they are a threat to world order. As such, religious fundamentalists and anyone who apologises for them, including moderate religious people or

[12] Though it is also in the sciences (2010: 138-140). Harris writes, for example, "[t]he deference and condescension of most scientists on these subjects is part of a larger problem in public discourse" (2010: 141).

non-religious people who defend faith (Harris 2004: 31-32, 110-111, 150-152), are a menace to society.

In Stahl's perspective, the New Atheists both detest and fear chaos: "[b]ehind their rage is a fear of losing control" (2010: 107). To account for this link between anxiety and rage, Stahl borrows a concept from Richard Bernstein called "Cartesian anxiety" that is linked to the decline of modernism's firm foundations to knowledge. According to Bernstein, Cartesian anxiety entails the notion that "*either* there is some fixed foundation for our knowledge *or* we will be engulfed by intellectual and moral chaos" (emphasis his, Stahl 2010: 99; see also Bernstein 1983: 18). The potential to experience Cartesian Anxiety, says Stahl, is so great in the postmodern era because society still remembers, and is often attached to, visions of a neatly ordered and sorted world. In an "attempt to recreate authority in the face of crises of meaning in late modernity," the Christian fundamentalists, conclude Stahl, turn to faith; the New Atheists, he says, turn to science. They both "claim to find certainty through their beliefs" (2010: 97, 101). This certainty for Stahl is a façade; it is weak and ultimately untenable. The New Atheists, longing for the certainty of a modern past and the moral authority that comes from a foundational epistemological model (106), express a rage that masks a deep anxiety over the uncertain existential and political conditions of the postmodern world.

Science, as such, is possibly the key to salvation for New Atheists in general, and it is certainly the key to salvation for Harris. It is the locus of order, the locus of rationality, and the locus of clear, unambiguous answers to life's most pressing questions in front of the ominous ambiguity that lurks around every postmodern corner. For the rest of this chapter I explore three explicit ways in which Harris deploys science to engulf and order existentially concerning aspects of life: morality,

spiritual belief, and spiritual practice. The latter two categories of spiritual belief and practice are particularly interesting because they involve the use and appropriation of Buddhism. Even religion—Harris's foe—can be salvific if it is available to be scientised.

Scientising Morality

For all New Atheists, and for Harris in particular, there is one key component of science that lies beneath all of its soteriological functions: the superiority and expansiveness of its truth claims. Robert Park captures the rigidly empirical mind-set of the New Atheist movement: "[s]cience is the only way of knowing," he writes, "everything else is just superstition" (Park 2010: 215). Indeed, the charge of scientism as "[seeking] to expand the very definition and scope of science to encompass all aspects of human knowledge and understanding" (Pigliucci 2013: 144) is nearly universally levelled at the New Atheist movement (e.g., Borer 2010).[13] Relative to other atheist movements and thinkers in the past, scholars have often identified New Atheism as uniquely focused on the sciences as a source of truth and even meaning. Marcus Schulzke writes that confidence in the sciences "sets New Atheists apart from the many atheists, including Nietzsche and Freud, who are… suspicious of the natural sciences" (2013b: 782). If anything could be said to be "new" about New Atheism, it is the intensity the New Atheists exhibit in their attachments to science.

Still, the extent to which New Atheist writers embrace scientism varies. Importantly, Harris is arguably the most scientistic, in large part because the other three "horsemen" have expressed reticence about the relationship between science and morality, whereas Harris has advocated for

[13] And typically, as in these two instances, in a pejorative way.

it with jubilant force. For instance, Dawkins is prominently scientistic in the way in which he uses science to assess and dismiss theological arguments; he describes God as a hypothesis to be tested (Dawkins 2006: 73).[14] But Dawkins explicitly avoids conflating science and morality: "we can all agree," he writes, "that science's entitlement to advise us on moral values is problematic, to say the least" (80). Christopher Hitchens and Daniel Dennett take similar stances; Hitchens argues against a normative framing of atheism in the name of science: "[w]e do not rely solely upon science and reason," he writes, "because these are necessary rather than sufficient factors" (Hitchens 2007: 6). Daniel Dennett views science as a tool for studying religion, not something that should attempt to "do what religion does" (Kaden and Schmidt-Lux 2016: 87; see Dennett 2006: 38). These are all somewhat circumspect responses to the question of how far science may reach in its exploration and discernment of truth, specifically with respect to morality.

Harris is not so circumspect. Morality, he argues, "should be considered an undeveloped branch of science" (2010: 4). According to Harris, we can learn with precision which behaviours and conditions are conducive to the "good" since anything that is "good" is "that which supports well-being," and well-being can be studied scientifically (2010: 25). We have this ability because we have empirical data and we have neuroscience; we can study events in the world and how they impact human beings precisely, down to the level of specific neurochemical events. Human well-being, Harris writes,

> entirely depends on events in the world and on states of the human brain. Consequently, there must be scientific truths to be known about it. A more detailed understanding of these truths will force us to draw clear distinctions between different ways of living in society with one another, judging some to be better or worse, more or less true to the facts, and more or less ethical (2010: 13).

[14] This approach is also the cornerstone to the work of another man often included amongst the list of prominent New Atheists, Victor Stenger. In 2007 he published a book titled *God: The Failed Hypothesis; How Science Shows that God Does Not Exist.*

If we can map an event like the loss of a loved one to a quantitative assessment of the various brain regions involved in the experience, so we may be able to precisely determine conditions and actions that can improve upon these experiences.[15] Science, Harris is certain, "will gradually encompass all of life's deepest questions." A science of "human flourishing" may, he says, "seem a long way off." But to achieve it, he writes, "we must first acknowledge that the intellectual terrain actually exists" (2010: 7). Morality is actually a branch of science; the first step towards greater wellbeing is accepting this.

What Harris means here by science is a crucial point. For Harris, science is not so much the deployment of a specific methodology practiced in a peer-reviewed community. It is instead a certain "attitude" that permeates all of one's inquiries, interests, and actions (Harris 2014). This distinction between science and the scientific attitude is crucial for understanding Harris. What Harris considers to be science and what is traditionally considered to be science are not the same thing. In Harris's perspective, science entails much more than just hypotheses, experiments, and data; it entails "pretty much anything that deals with 'facts'" (Pigliucci 2013: 151). Notably, in the second footnote to the introduction of *The Moral Landscape*, Harris says that he does "not intend

[15] Interestingly enough, Harris never actually describes the specifics of how a neurological study may lead to moral conclusions, or how this reveals new information on moral decision making. Pigliucci makes this point without mercy. "The reader will await in vain throughout the book," Pigliucci writes, "to find a single example of new moral insights that sciences provides us with. Harris, for instance, tells us that genital mutilation of young girls is wrong. I agree, but certainly we have no need of fMRI scans to tell us why: the fact that certain regions of the brain are involved in pain and suffering, and that we might be able to measure exactly the degree of those emotions doesn't add anything at all to the conclusion that genital mutilation is wrong because it violates an individual's right to physical integrity and to avoid pain unless absolutely necessary (e.g., during a surgical operation to save one's life, if no anaesthetic is available). Indeed, at some point Harris's argument becomes puzzling to the point of absurdity" (2013: 150). Pigliucci later writes, "if, from the point of view of the brain, believing 'the sun is a star' is importantly similar to believing 'cruelty is wrong,'" which is something Harris asserts, "how can we say that scientific and ethical judgments have nothing in common? I will leave it to the reader to work out why this is a colossal non sequitur, and arguably the silliest thing written by any of the New Atheists to date" (2013: 151).

to make a hard distinction between 'science 'and other intellectual contexts in which we discuss 'facts'" (2010: 249; see Pigliucci 2013: 151).[16] Logic, empiricism, data, rationality—these all fall under the umbrella of science. Science *engulfs.*

So science is in, for Harris, and everything else is out. Stuart McAnulla calls Harris a Moral Manicheist, meaning that he is "prone to view the world in 'black' and 'white' terms" (McAnulla 2014: 13). It is basically metaphysical and moral dualism.[17] Here, we can hypothesise that since, in Karen Armstrong's words, the New Atheists view their religious and religiously apologetic enemies as "the epitome of evil" (2009: 293), faith is Harris's villain. His story needs a foil, an oppositional force, a hero. He needs a dualistic opponent that can fight or "defeat" faith "point by point in zones of conflict" (E.O. Wilson 1978: 192). The most obvious epistemological and sociological force is science. Even while throughout the Enlightenment and into the modern area a wide variety of thinkers such as Isaac Newton (Manuel 1974) and Charles Darwin (Pleins 2013) saw no tension between the two phenomena, science has increasingly been associated with atheism and conceived of as a foil to religion, with the New Atheists at the far end of this historical trajectory (Fuller 2010: 57-59). For this reason, Harris sees life on Earth today as a sort of dualistic battle—rational science on one side and irrational non-science on the other.

The irrationality of non-science is most obviously championed and exemplified by faith, but it also includes postmodern relativism, as briefly discussed in the previous section. Secular liberals can be as much of a threat to world order as their more conservative foes. According to Harris, liberals doubt science because they doubt knowledge itself, and specifically how it could ever relate to

[16] Pigliucci discusses this at length (2013).
[17] McAnulla writes that "new atheist discourse does tend to establish sharp 'either/or' boundaries" (2014: 13).

values. “Not knowing what is right—or that anything can ever be *truly* right,” says Harris, “often leads secular liberals to surrender their intellectual standards and political freedoms with both hands” (emphasis his, 2010: 17). Because of this, liberals (including scientists, who are “predominantly secular and liberal”) have made “breathtaking concessions” to “religious dogmatism” (17). For nearly a century, the “moral relativism of science has given faith-based religion—that great engine of ignorance and bigotry—a nearly uncontested claim to being the only universal frame for moral wisdom” (2010: 243). This has fuelled the persistence of problems such as nuclear proliferation, genocide, energy security, climate change, poverty, and failing schools (243). For Harris, the world has become permeated with moral chaos because people have refused to see that science is “the light” (Harris 2014: 205).

The Moral Landscape (2010) is as such Harris’s ode to science as the holy grail of rational order. It is the ultimate solution that can save us from ethical relativism, or what he describes as “confusion.” Secular liberals and scientists tend to think that “notions of ‘good’ and ‘evil’ must be the products of evolutionary pressures and cultural invention.” This is a belief that is “merely to give voice to one’s apish urges, cultural biases, and philosophical confusion” (Harris 2010: 12). In the *Moral Landscape,* Harris rescues himself and the rest of us from this confusion with the clarity (233), simplicity (13), and rationality (108, 179, 261) of science. This is the only way to know what is truly good and to create a society that is sustainable and peaceful. Science provides a secure path out of this darkness, even if it will take a long time to figure out precisely how to go about it (18). Asserts Harris: “[o]nly a rational understanding of human well-being will allow billions of us to coexist peacefully, converging on the same social, political, economic, and environmental goals” (18). Answers will come. Moral order will come. The solution is only to ally ourselves with the facts and to assent to the superior rationality of science.

Scientising a Buddhist Tenet

An especially salvific thing about science, for Harris, is that it doesn't just sort one kind of chaos, such as that which we experience as a crisis of morality living in a postmodern and rapidly globalising world. It sorts all kinds of ambiguity, including those imbued in ultimate questions. This is important because Harris is well aware of the material conditions of human life that give rise to existential anxieties. "We live in a world where all things, good and bad, are finally destroyed," he writes. "The world sustains us, it would seem, only to devour us at its leisure" (2004: 36). Death *devours.* And in this devouring there is also destruction. "When the stopper on this life is pulled by an unseen hand, there will have been, in the final reckoning, no acquisition of anything at all" (2004: 37). Life will have proven itself meaningless, in the end. This terrifies all of us—including Harris—ineluctably. "We are terrified of our creaturely insignificance," he writes. "Much of what we do with our lives is a rather transparent attempt to keep this fear at bay" (37). Life is terrifying, and it totters on absurd and empty meaninglessness.

Fortunately for Harris, the terrors of material finitude and creaturely insignificance can be sorted, just like morality. The only thing one has to do is think about and respond to them *scientifically.* And of course, this is what Harris does. But the very interesting thing about this is that Harris doesn't simply fabricate solutions out of scientific tenets. Instead, he turns to Buddhism. This may seem dissonant with Harris's distaste for religion. But according to Harris, certain thinkers and branches of Buddhism are "exceptionally empirical and exceptionally wise, and therefore merit the exceptionalism claimed by their adherents" (2014: 29). The teachings of Buddhism, Harris argues, are not best viewed as "dogmatic texts," but rather "as lab manuals and explorers logs

detailing the results of empirical research on the nature of human consciousness" (2014: 32). Buddhist teachings, says Harris, are *scientific* This makes them palatable to Harris and therefore capable of providing materials for salvation with scientific legitimacy.

The one "Buddhist belief"[18] at the core of Harris's salvation from existential concerns such as death and meaninglessness is that the modern, Western idea of a coherent self is an illusion. Here is the salvific idea, in Harris's words:

> Everything we take ourselves to be at the level of our subjectivity—our memories and emotions, our capacity for language, the very thoughts and impulses that give rise to our behaviour—depends upon distinct processes that are spread out over the whole of the brain. Many of these can be independently interrupted or extinguished. The sense, therefore, that we are unified subjects—the unchanging thinkers of thoughts and experiencers of experience—is an illusion. The conventional self is a transitory appearance among transitory appearances, and it vanishes when looked for (2014: 206).

That is to say: we are not selves. We are not ghosts in the machine. We are not Cartesian souls, bound for the afterlife. What we are, for Harris, are organisms that have memories and experiences of psychological continuity—which give rise to an experience of selfhood, but which are ultimately mere fictions. We are merely experiencers of consciousness, which is "simply the light by which the contours of mind and body are known" (Harris 2014: 205). The Buddha's and others' ideas around the nature of the self in Buddhism have been interpreted differently by different people and schools throughout Buddhist history (Keown 2013: 59). For Harris this is not relevant; he finds the kernels of Buddhism that fit within his neatly ordered world. And Harris *has* spent a significant amount of time exploring certain thinkers and schools of Buddhism. So at least

[18] For a discussion of the ways in which Buddhism has been appropriated and viewed as a set of cosmological propositions or beliefs in the West see Lopez 2017.

according to Harris's exposure and experience, the truth at the core of Buddhism is the insight that the self is an illusion.

For Harris, taking the self to be an illusion is core to his salvation. This experience of salvation began when Harris first took MDMA in 1987 and experienced such a deep love for a friend that he "ceased to be concerned about [himself]" (2014: 3-4). He describes the realisation not so much as a change in his feelings, but rather as a "[glimpsing] of parallel lines" that made new sense of old data (5). He then "spent several years deeply preoccupied with reaching the goal of cessation" (5), spending at least one whole year in silent retreat. During this time Harris also sought out and meditated at the feet of several Buddhist gurus in Tibet and elsewhere; one of whom, Poonja-ji, became significant for Harris's attempts to reach enlightenment (129-134). Decades later, Harris's book *Waking Up* (2014) describes the tenet of no-self and his explorations of it through the lens of Buddhism. Harris devotes several pages in the first chapter to mindfulness in terms of the Pali word *sati*; he describes practices of *vipassana* that can help one realise their own illusoriness (34-35); and he outlines the ways in which the idea of no-self is a useful response to the truth of *dukkha* (translated from Pali as "suffering") (38). Harris believes the self doesn't exist, and he teaches his readers about it in Buddhist terms.

But is it *Buddhism* Harris is actually teaching? Perhaps. That doesn't particularly matter to Harris. What matters is that certain tenets of Buddhism seem scientifically legible to him, rendering the religion—or at least parts of it—palatable, even admirable. He writes: "[t]here is a diamond there, and I have devoted a fair amount of my life to contemplating it, but getting it in hand *requires that we remain true to the deepest principles of scientific scepticism* and make no obeisance to tradition" (emphasis mine, Harris 2014: 10). Harris specifically denies the vast majority of

Buddhist metaphysical claims. He says, for example, that the idea that consciousness is identical with God is a metaphysical claim that "any serious student of science should find incredible" (22). He also says that the metaphysical claims of the vast majority of contemplatives "can be dismissed as bad science….after merely thinking about them" (93).[19] It's not *Buddhism* Harris proselytises, but his scientised version of it.

Scholar of Buddhism Donald Lopez Jr. has explored the phenomenon of scientising Buddhism at great length, most notably in his works *Buddhism & Science: A Guide for the Perplexed* (2008) and *The Scientific Buddha* (2012).[20] Lopez's scholarship demonstrates that Harris is not alone. Harris actually participates in a long history of "purifying" Buddhism so that it is scientifically legitimate (Lopez 2012: 1-19). According to Lopez, for more than 150 years, "the claims for the compatibility of Buddhism and Science have remained remarkably similar, both in their content and in their rhetorical form" (2008: xii). This relationship began when nineteenth century Buddhist elites claimed allegiance with science so as to defend it against Christianity. In the following Victorian era, the apparent coherence of Buddhism with science became trendy as science was in the process of solidifying its prominence and prestige in the academy and broader culture (Lopez 2012: 10-11).[21] That trend continues today; it has remained for more than a hundred years a means for intellectuals to pursue spiritual ends in a "scientific" way (12-13; 47-100). If Harris can be slotted into any branch of Buddhism or particular "religious" tradition, it is this one.

[19] Harris makes various statements about the dubious quality of certain Buddhist metaphysical claims six times throughout *Waking Up* (2014).
[20] The scientised version of Buddhism is so dissonant with Buddhism throughout its long history in Asia according to Lopez that it is, in his words, "deafening" and should be "allowed to pass away" (2012: xi).
[21] Lopez notes, supporting his thesis, that one of the greatest proponents of the scientific quality of Buddhism today is none other than the Dalai Lama (2012: 12).

The specific way in which Harris scientises "no-self" is with evolutionary theory and cognitive science. First with evolutionary theory, Harris posits that human perception evolved in such a way that it is inherently flawed. This is contrary to how some of his critics interpret him. One of the more prominent moral and political theorists of New Atheism, Marcus Schulzke, mischaracterises Harris's understanding of human nature in light of evolutionary theory. He basically ascribes to Harris the naturalistic fallacy, saying that "[t]he most serious limitation of New Atheists' use of evolutionary ethics is that New Atheists often assume that descriptive explanations of how moral judgment emerged can also provide a prescriptive theory of how people should act" (2013a: 68).[22] Schulzke makes this claim on the basis that Harris has said that "[o]ur ethical intuitions must have their precursors in the natural world, for while nature is indeed red in tooth and claw, it is not merely so" (quoted on Schulzke 2013a: 69; in Harris 2004: 172). Schulzke is here making an explicitly moral argument, but it is relevant to our purposes because in doing so he gravely misreads Harris's view of human evolution, insofar as he suggests that human instincts are for Harris in any way good or true.

When Harris says that our intuitions (moral or otherwise) must have their precursors in the natural world, he does not mean that they are *correct.* Indeed, one of the cornerstones of Harris's perspective is that they are almost *never* correct. We did not evolve to be happy, nor did we evolve to treat each other well, nor did we evolve in any sense to detect truth instinctively. Instead, we evolved to survive and to reproduce, and to treat each other however necessary in order to achieve those ends, regardless of what the actually "right" way to do things is or the *actual* way things are. These things are most certainly part of the *red in tooth and claw* part of his

[22] Interestingly, in a 2018 blog post on the public intellectual Jordan Peterson, Sam Harris critiques Peterson for the same intellectual flaw of which Schulzke here accuses him (Harris 2018).

statement. “Nature,” he says, “has not adapted us to do anything more than breed” (2004: 186). “Our brains,” he later writes, “were not designed with a view to our ultimate fulfilment” (2010: 26).[23] Opposite to Schulzke’s intuitionist read of Harris, Harris actually views humanity as a tangled mess of thoughts and feelings that fights for survival. For Harris, finding the truth does not come particularly easily to humans. It has to be won through the championing of our rational—so, according to his categories, scientific—capacities over baser instincts.

One major flawed inclination with which evolution has gifted humanity is the tendency to believe that the self is real.[24] Insofar as we are deeply flawed bodies evolved solely for the purposes of survival and reproduction—and whose initial feelings are the source of our suffering and whose intuitions are almost always false—our sense of self cannot in any sense be considered an indicator of *reality*. From evolution, we inherited a feeling “that our experience of the world refers back to a self—not to our bodies precisely but to a centre of consciousness that exists somehow interior to the body” (2014: 83). We also inherited a strong attachment to this idea of selfhood. And yet it is perfectly, patently false. Our sense of self is probably an epiphenomenal by-product of evolution derived from the theory of mind (Harris 2004: 240; 2014:111). We have no reason to believe it evolved to be true; in fact, because of neuroscience, we have every reason to believe it is *not* true.

[23] Here he goes on to explain the many ways in which evolution is insufficient to the conditions and problems of the modern world; we need, for example, to form stable democracies and save other species from extinction, challenges evolution could not have anticipated (2014: 26). He then proceeds to describe how we “have inherited a multitude of yearnings that probably helped our ancestors survive and reproduce in small bands of hunter-gatherers, much of our inner life is frankly incompatible with our finding happiness in today’s world” (Harris 2014: 26).

[24] And the one that is actually to blame for all of our suffering, since our attachments to these experiences of negative affects are actually the source of our suffering.

Neuroscience constitutes a significant bulk of the text of *Waking Up.* Neuroscience is the most basic and important justification Harris has for holding the belief that the self is an illusion. Where neuroscience shifts, so does Harris's perspective on what it means to be human. This is because neuroscience is the best tool we have to make sense of our experiences of being thinking, feeling, conscious beings. We are our brains; our brains are us. Any sense of "who we really are," says Harris, is an explicitly neurological claim, and not much else: who we are "depends entirely upon the structure and integrity of the brain in the immediate moment" (2014: 81-93). He states this idea plainly, many different ways, multiple times. He also says, for instance, that "human minds are the product of human brains. There is simply no question that your ability to decode and understand this sentence depends upon neurophysiological events taking place inside your head at this moment" (55). Our experiences of contemplation and consciousness are readily reducible to our biological makeup.

One way Harris says we can know that we are identifiable with the integrity of our physical brains is that if the corpus callosum—the bridge between the right and left hemispheres of the brain—is severed, consciousness splits into two separate streams, even if both streams have different qualities and characteristics. Neuroscientists can actually set up experiments in which they "talk" with one half of the brain at a time, and they will get completely disparate answers depending on which hemisphere with which they are communicating. The bizarre thing about this is that the subjects of these experiments think that they are having seamless experiences of consciousness.[25] In the eventuality that "these tributaries [should] converge again,"—that is, should the corpus callosum be repaired and the right and left brain properly connected—"the final current would

[25] The fact that a split brain splits consciousness without the "self" being aware of it has been documented at great length and with much nuance in the neuroscientific and psychological literature. For an overview of such phenomena see Tye 2003.

inherit the 'memories' of each." Consciousness continues to appear seamless—to those of us experiencing it—but it is not. Harris concludes that "there would be no cause to ask where my 'self' had been while my brain was divided, because no 'I' exists apart from the stream" (2014: 93).

Given these scientific postulates, Harris concludes that "the only thing relevant to the question of personal identity is psychological continuity from one moment to the next" (2014: 89). That is, we tend to think that we are unified "selves" because our brain states link up in a way to provide an experience of psychological continuity from one moment to the next. But this, as demonstrated by split brain experiments, is an illusion. So far as to whether or not there is a "unified self", a "ghost in the machine", a "soul", or any other concept of some unique entity housed within the human brain, Harris's answer is a firm "no". Thus we find that existential anxieties aren't really a problem because the "self" with which evolution saddled us doesn't exist. Death isn't a problem because there isn't really a self that can die. Creaturely insignificance isn't a problem because there isn't a self that can be insignificant. None of our existential anxieties are a problem because the whole set of these emotions is predicated on an illusion. The self does not exist, ergo, negative thoughts and feelings that derive from attachment to the self do not need to exist.

The illusion of selfhood, says Harris, is an "intellectually honest" belief. It might be hard for someone from the West to wrap their head around it, but this is the *only* way possible—the only *scientific* way—to reconcile one's self with all of the various concerns of ultimate end and ephemerality that plague our completely delusional society (2014: 44). This scientific belief is in fact the *only* bearable alternative to the traditional religious way of seeing death "as a doorway to another world" (2014:44). We don't go on to heaven. We actually cannot, for the extremely

trenchant reason that "we" don't really exist. This idea, says Harris, is loyal to "the facts," and in being so it has a real and sustainable chance of helping sooth our anxieties and make our present realities "better" (2014: 44). It might seem a bitter pill to swallow, at first, but accepting that one's selfhood is an illusion is ultimately liberating.

Selfhood, indeed, is the source of all of our misery. "Taking oneself to be the thinker of one's thoughts," Harris writes, "that is, not recognising the present thought to be a transitory appearance in consciousness—is a delusion that produces nearly every species of human conflict and unhappiness" (2014: 101). Whether it is a mundane flavour of suffering such as discontentedness when we look in the mirror, or "profound forms of human misery" such as learning one has terminal cancer on the eve of her wedding (2014: 41), we suffer, says Harris, because as cogitating, self-aware animals, we are *attached* to our experience of selfhood. This is precisely why, in the end, internalising our un-reality and learning to detach ourselves from selfhood is, in Harris's perspective, the solution to suffering and all varieties of existential anxiety. Our selfhood and the varieties of our experience are only by-products of evolution that cause us ambiguity, chaos, and suffering, and therefore not anything we should consider metaphysically real or worthy of our intellectual energy. When we can overcome this illusion, then we are set free from our experiences of all varieties of suffering, and most importantly those related directly to our attachment to selfhood. Existential anxieties lose their grip once you let go of your existence in the first place.

Waking up to the illusion of selfhood has significant benefits. If one really doesn't have a coherent self and believes that she is actually just a mode of consciousness experiencing the present moment, then she can stop worrying about death, meaninglessness, and pretty much anything

else and simply *be happy now.* "Acknowledging that this"—that is, that the self is an illusion in an ephemeral-material world, writes Harris, "is the structure of the game we are playing allows us to play it differently. How we pay attention to the present moment largely determines the character of our experience and, therefore, the quality of our lives" (2014: 3). Harris recommends to his readers, based on his personal experience, that they internalise this belief (with the help of meditation), and in doing so cultivate a greater sense of peace in their daily lives.

According to Harris, people can, essentially, remediate their negative affects—including ones as entrenched and endemic to humanity as existential anxieties—and be saved on a regular basis, if only they—and here's the important part—really *believe.* Of course, by *believe,* Harris does not mean have *faith.* But he does mean to apprehend the "facts." He means to follow the science to its ultimate conclusion. He means to base one's entire psychological wellbeing upon the singular fact that the experience of selfhood is an illusion.

The relevance of belief—or at least a certain kind of voluntarism with respect to what one thinks and feels—to Harris comes into sharp relief here. New Atheists are well known to be doggedly cognitivist in their approach to religion. For them, religion is characterised by the quality of its belief. This reflects what Talal Asad has identified as a peculiarly Euro-modern, Protestant orientation to religion as "a set of propositions to which believers gave assent, and which could therefore be judged and compared as between different religions and as against natural science" (Asad 1993: 41). Schaefer writes that for New Atheists, "religion is a question of what a thinking subject *thinks* is or is not, a set of propositions to which the quality of 'true' or false' can be appended" (emphasis his, 2018: 81). Dennett for example characterises "brights" as "those who don't believe" (2003). Harris writes that "[b]elief is a lever that, once pulled, moves almost

everything else in a person's life" (2014: 12). Harris and the other New Atheists take religion to be a disease of false belief, begotten by the irrational desire for these things to be true (Harris 2017).

With his views on selfhood and the power enlightenment can have to enlighten and save us, we see that Harris appears to apply this cognitivist perspective even to himself. Or, perhaps he takes such a strong cognitivist stance to religion *in part* because of his own experiences of the power of this salvific belief. Regardless, Harris makes it clear that—because of *science*—we can jettison our automatic processes and replace them with deliberate, scientific practice and scientifically derived conclusions. *Better thoughts* can lead to *better feelings.* Harris provides a mundane example from his own life. When the pipes once burst in his house after just being replaced, "[t]he moment I heard the first drops," he writes, "I was transformed into a hapless, uncomprehending, enraged man" (2014: 95). But then, he remembered that his immediate feelings were just that: feelings. If he could simply be more *scientific* about the situation and remember that his thoughts and attending frustrated feelings were the product of a fleeting illusion, he could arrive at a more peaceful state (95).

It is in this sense, then, that science slams into, mixes with, and ultimately engulfs the Buddhist tenet of no-self, conforming it to its contours and confines. Harris openly promotes this belief as a Buddhist tenet and both acknowledges and deeply respects it as a significant component of the Buddhist tradition for thousands of years. He would not however embrace or proselytise it if it did not fall under evolutionary and neuroscientific umbrellas. In the end, for Harris, the illusion of selfhood is primarily a scientific fact. It is *nice* that it has a rich history of exploration in the Buddhist tradition through which one can find nuggets of wisdom and quality advice. It provides Harris with explanatory concepts and tools that he can use for himself and for his advocacy. But

the belief is acceptable only if it makes it through Harris's rigorous test of scientific scepticism. There is a poignant reversal here: the one thing against which Harris rages the most—religious belief—becomes joyously acceptable and indeed salvific once he constructs a means by which it can qualify as science. This then is the core of the salvific function that science performs for Harris: it tidies up Buddhism and makes it rationally legitimate, which provides clear solutions to existential problems in his neatly ordered universe.

Scientising a Buddhist Practice

For all of the benefit Harris derives from Buddhist principles, they are nothing to him without the apparent empiricism out of which they emerge. This is the second means by which Harris attempts to legitimise Buddhism: its sheen of empiricism. In Harris's eyes, Buddhism is a uniquely scientific religion. Many historical and contemporary Buddhists, says Harris, develop their ideas about the self via a "scientific" investigation of the first person experience of consciousness. Buddhism doesn't just have scientific *facts.* It has scientific *practices.* Of course, from the perspective of a scholar of religion, the whole of Buddhism is in no way generalisable to being empiricist. It is almost certainly anachronistic and culturally inappropriate to impute a widespread label of "empiricism"—or, even more daringly—"science"—onto Buddhist practitioners.[26] But Harris has no qualms in doing so. Indeed, he is absolutely eager, even joyous, to discern empiricism at the very foundations of ancient Buddhist history.

[26] Harris is not alone in making such a comparison. Alan Wallace published an entire book on the convergence of Buddhism and empiricism, specifically neuroscience, called *Contemplative Science* in 2007. But as is suggested by the work of Donald Lopez Jr., the claim of "Buddhism is scientific" has a long history through which both the image of Buddhism in the West and scientific concepts with which it is said to cohere have changed drastically (Lopez 2012: xii).

Harris is well aware that Buddhism, like other religious traditions, has more folk, less rigorously empirical branches. Most of its branches are in fact that way. Buddhism, like other religions, he says, has "spawned many of the same pathologies we see elsewhere among the faithful: dogmatism, anti-intellectualism, tribalism, otherworldliness" (Harris 2014: 30). But, says Harris, and this is absolutely crucial for his relationship with Buddhism, "[u]nlike the doctrines of Judaism, Christianity, and Islam," the teachings of Buddhism are "not considered by their adherents to be the product of infallible revelation. They are, rather, empirical instructions" (30). It is not just the texts but the communities around them that are empiricist, says Harris. Empiricism abounds. The heart of Buddhist practice, despite having been corrupted by "pathologies," is scientific.

Buddhism's empirical instructions are all about learning the shape of conscious experience and how to arrive at certain conclusions about it or states of enlightenment. They are empirical according to Harris because they say that "if you do X, you will experience Y." The goal of Buddhism as such is to "understand the nature of [one's] own mind" (Harris 2014: 30).[27] The path to doing so is to "[become] interested in one's own mind... and [pay] closer attention to one's own experience in every present moment" (32). This "paying attention" is legible as empiricism and "not unscientific" to Harris because "there are no real boundaries between science and any other discipline that attempts to make valid claims about the world on the basis of evidence and logic." This notion he includes in a paragraph on "the aims of spirituality" because he wishes to reclaim "evidence and logic" as central to spirituality, as opposed to the kinds of things that are nowadays typically attributable to spirituality such as "wishful thinking, tribalism, or ecstasy"

[27] This goal is represented by Gautama—*the* Buddha—says Harris, who managed to achieve precisely that (2014: 30).

(199). All you have to do to be considered "scientific" in your Buddhism and specifically your meditative practices is to observe—with "evidence and logic"—the phenomena that occur in your experience of consciousness.[28] And it is to learn—specifically—that the experience of your "I" is an illusion.

Harris compares meditation to scientific experimentation and instrumentation. A meditator cannot, as opposed to someone in the sciences, use the tools built by others. The tools of meditation can only be found within someone's own mind. But a meditator can still build her own telescope (to use Harris's metaphor) based on the instructions of others (2014: 93).[29] "To see how the feeling of 'I' is a product of thought," writes Harris, "indeed, to even appreciate how distracted by thought you tend to be in the first place—you have to build your own contemplative tools" (93). [30] The difficulty of such experimentation is why Buddhism is actually useful for Harris. He may prioritise scientific discoveries and insights above all else, but it is in Buddhism that one can find information about thousands of years of practice venturing into the corners of consciousness. So long as the Buddhism one picks up is scientific, a spiritual seeker can study the methods of others, work to deploy these methods within their own experiences of consciousness, and learn that their experience of selfhood is illusory.

[28] It is interesting to note that Harris considers the isolated self examining its own experience of consciousness to be a paragon of empiricism, rationality, logic, and science. It has been suggested, for example, by Caroline Matas, that the New Atheist movement is as enamoured with individuality as it is with reason, since reason is often historically and today considered to be associated with the primacy of individual thought against collective ignorance (Matas in Ruper 2019a).

[29] Harris further writes: "But just imagine where astronomy would be if, centuries after Galileo, a person were still obliged to build his own telescope before he could even judge whether astronomy was a legitimate field of inquiry. It wouldn't make the sky any less worthy of investigation, but astronomy's development as a science would become immensely more difficult" (2014: 93).

[30] These telescopes come in a variety of forms. Harris has years of experience with various Buddhist schools of meditation such as Dzogchen and Zen. For a comparison of which see *Waking Up* (2014: 138).

Having an experience of the dissolution of the self while meditating is a potent moment; scientific practice within your mind reveals the neuroscientific truth that the self doesn't exist. Through science, you are able to experience—you are able to feel—what you believe (if you are a good scientist like Harris). But Harris is clear that the path to true salvation doesn't stop at a singular moment of realisation or belief. It is not to let the idea go stagnant in a corner of your mind. Instead, the whole point of all of this is to use meditation as a sort of, to borrow Foucault's terminology, technology of the self (Foucault 1988). According to Harris, meditation is the means by which you internalise the salvific belief, practice experiencing it, and in doing so become an increasingly peaceful and ethical person—or, in my words, be saved. This way, the ideas that one learns from scientific fact *and/or* from scientific practice can become ingrained. Internalised. Returned to. Never attained perfectly, but continually revisited and, of course idealistically, increasingly integrated into one's daily functioning and habits. This enables one to escape suffering and cleanly slingshot away from the disorder and chaos with which evolution has saddled us.

Harris admires people who are advanced meditators and who have their thoughts and feelings under great control. Expert meditators, for example, experience less suffering from physical pain than the general public. When tested in a laboratory, these experts "judge the intensity of an unpleasant stimulus the same but find it to be less unpleasant. They also show reduced activity in regions associated with anxiety while anticipating the onset of pain" (Harris 2014: 121). Because these experts have significant practice distancing themselves from their automatic thoughts and feelings—that is, leveraging *scientific* control over their affects—they are able to remediate their negative experiences in a way that non-experts simply cannot. They may be religious figures and

devotees, but they are in Harris's view scientists of the highest order as they deploy reason, logic, and discipline to master their feelings and transcend everyday disorder.

Harris calls this affective mastery scientific and with great awe, and there appears to be significant aspects of disambiguation and scientific order in his meditative practices and "Buddhist" beliefs. We must also understand however that meditation can have affective effects without metaphysical baggage, so to speak. A plethora of studies exist that explore meditation's power to engender positive affective responses absent any kind of philosophy or metaphysical injunction. Menezes and Bizarro for example have demonstrated that even brief interventions of five days of meditation training has positive impacts on negative affect and trait anxiety, as well as improvement on responses on the attention test (2015: 393). In this specific study, subjects received training only in basic practices of meditation such as diaphragmatic breathing (395). Even with this limited training, subjects experienced statistically significant positive affective outcomes. With extended training the potential is even greater, as indicated by studies of long-term, years-long meditation practices (e.g., Sukhsohale and Phatak 2012). Meditation has a way of simply *calming* the body down by virtue of the effect it can have on the nervous system.

Harris does not neglect the potential meditation can have on physical and emotional signs of stress. Even while preferring the term "spirituality" for his methods because of its experiential depth and moral breadth (see footnote 5 to this chapter on 216), he cedes that the phrase "stress reduction" does encompass the effects of his meditation practices. Harris even says at one point that "in one sense, the Buddhist concept of enlightenment really is just the epitome of 'stress reduction'" (2014: 48). So Harris does benefit from meditation and view people benefitting from it simply in *itself,* without having to be understood in a particular way or with a particular Buddhist

context. But for Harris, that which is truly salvific—that is, the aspect of meditation that remediates his existential anxieties related to chaos and disorder—is its situation within and legitimation by the larger scientific picture. The most important part of meditative practice for Harris is that it's a scientific practice that affirms a scientific fact. The "true" discipline, he writes, "is to remain committed, throughout the whole of one's life, to waking up from the dream of the self" (2014: 199). This is a commitment to a belief, enacted through a practice.[31]

Given the emphasis I place in this thesis on the pre-linguistic quality of affective experience, it is worth asking the question of how relevant this belief in science may actually be for Harris's salvation and spiritual practice. Maybe it's all just the affective by-products of meditation that soothe and save him. But it is also important to bear in mind that affect theory is inclusive of the discursive. Even while power is, in Kathleen Stewart's words, "a thing of the senses" (2007: 84), and affects are, in Schaefer's words, "neither under our 'conscious' control nor even necessarily within the register of our awareness" (2016), beliefs are still a powerful part of the affective experience of what it means to be human. They simply are enfolded *within* an affective matrix. Schaefer writes that "[t]his is the insight of affect theory: sovereign consciousness—including reason—is an effect of a matrix of moving lines of force, travelling through us and leaving power

[31] It is of course eminently important to bear in mind that Harris's flavour of meditation as stress reducing is narrow at best. In fact, according to Donald Lopez, Buddhist meditation is often intended to be stressful. Lopez writes: "[t]his is the briefest of descriptions of a central topic in Buddhist meditation, one that is often presented in the most gruesome detail. The goal of such meditation is to cause one to regard this life as a prisoner regards his or her prison, to cause one to strive to escape from this world with the urgency that a person whose hair is on fire seeks to douse the flames. *The goal of such meditation, in other words, is stress induction*. This stress is the result of a profound dissatisfaction with the world. Rather than seeking a sense of peaceful satisfaction with the unfolding of experience, the goal of this practice is to produce a state of mind that is highly judgmental, indeed judging this world to be like a prison. This sense of dissatisfaction is regarded as an essential prerequisite for progress on the Buddhist path. Far from seeking to become somehow 'non- judgmental,' the meditator is instructed to judge all of the objects of ordinary experience as scarred by three marks: impermanence, suffering, and no self" (emphasis mine, 2012: 108).

in their wake" (Schaefer 2016). As potent as meditation is for reducing stress, its basic affects are subsumed within the entirety of Harris's mix that disambiguates.

Harris is affectively compelled by the enticements of a neatly ordered world; this permeates all of his cognition and feeling. Indeed, it seems he would not even be interested in meditation if he could not enfold it into a scientific framework and understand it as a part of an ordered practice and cosmos. The bedrock of Harris's salvation is the process of scientising the world and all of its ambiguities. Included in this process are deeply existential questions that can be neatly sorted by finding the right answers to questions of morality, learning the right "scientific" beliefs about the self, and enacting the right "scientific" processes to engage the Buddhist tradition and properly embody the right beliefs. With these things combined together in the affective matrix of Harris's aversion to ambiguity, he is ultimately (and genuinely, if imperfectly) saved and delivered from chaos into the arms of science's neatly ordered world.

Conclusion: The New Atheist Context

For anyone who's looking with the right lens, Harris wears his salvation on his sleeve. He reveres science and deploys it in such a way so as to sort political problems, moral dilemmas, questions of value, and spiritual needs. It does nearly *everything* for him—a function which is best characterised by its universal ability to clearly order and disambiguate the world.

As to whether science reaches as deeply into the hearts of other New Atheists is a live question, and not one that I have at all addressed in this chapter. It is well known that Dawkins has a deeply emotional and even, though he dislikes the term, spiritual relationship with science. He has

respect and admiration for the Einsteinian kind of spirituality insofar as it has purely naturalistic reverence for the world and values science (2006: 11-19). Hitchens reports experiencing awe when encountering science (2009),[32] and Dennett professes to a secular spirituality (2009). They do not, however, at least explicitly, express anything with the same quality of intensity that I have here explored as occurring for Harris. These other New Atheists have attachments to the sciences on levels that appear on first glance to be at least somewhat salvific—especially in light of the world-ordering functions—but the question of the degree and quality of these salvations will have to be left for another time.

Are New Atheists fundamentalist? They are not. They are not because of their tone and they are not because of the quality of their epistemology. But one thing this chapter has demonstrated is that insofar as there is a certain resemblance between New Atheism and what we today in the West identify as Christian fundamentalism, it is marked by attachment to a salvific epistemology. Christian fundamentalism entails a salvific attachment to faith in the revealed Word. New Atheism entails—at least as evidenced here by Harris—a salvific attachment to science. Both groups experience this phenomenon because they grasp for sense, order, and control. This thesis's explorations of affect have demonstrated that human animals have the ability to appreciate and become attached to rationalised order. This potential can burgeon into deep needs for and attachments to unambiguous epistemologies when cultural circumstances are in

[32] In a 2009 lecture, Hitchens quoted a speech from Martin Rees titled "Dark Materials." Of it, Hitchens said that "[t]here was a paragraph in it that completely arrested me, and I'm going to, as they say, 'share' it with you." He then reads Rees's quote: "Most educated people are aware that we are the outcome of nearly four billion years of Darwinian selection. But many tend to think that humans are still somehow the culmination of that. Our sun, however, is less than halfway through its lifespan—it will not be humans who watch that sun's demise six billion years from now. Any creatures that then do exist will be as different from us as we are from bacteria or amoeba" (Hitchens 2009).

any way socially, politically, morally, or existentially disruptive. Disruption, disorder, and chaos have been demonstrably the case in recent history and current events as modernism has given way to postmodernism and the ambiguities of the twentieth and twenty-first centuries.

Harris is an exemplar for the quest to reclaim the modernist rationality characterised by order and certain means by which to adjudicate truth. Given the way in which he blankets and smooths away all of the world's problems under the orderly promises of science, he participates in a salvific dream of order and a salvific experience of control over self and world. Science neatly orders the postmodern and relativist milieu in which Harris is situated and against which he so fervently rails. It can do this for him because he inflates science to comprise not just a community of actors engaged in empirical investigation, but rather all of the ways in which life can be approached with empirical or logical rigour. Harris is saved by science because Harris is saved by order. This chapter has made manifestly clear the ways in which Harris orders the chaos of morality, the chaos of belief, and the chaos of spiritual practice in a disordered world.

VI. HOMECOMING: SCIENCE AS SALVIFIC INTIMACY WITH E.O. WILSON

"Going to the mountains is going home."
John Muir[1]

Edward Osborne Wilson is a scientist, but he is not, perhaps, an everyday scientist. Not only was he a professor of biology at Harvard for forty years,[2] but he is also considered to be the "the father of sociobiology," "the father of biodiversity,"[3] and the world's leading expert in the study of ants (Giberson and Artigas 2007: 194-5). In addition to being a prolific scientist he is also a prolific science populariser and author of books on science and nature. To date he has published twenty books read widely by the public, and three of them have been *New York Times* bestsellers.[4] In these capacities Wilson has received in total more than 100 awards including the International Prize for Biology, the Carl Sagan Award for Public Understanding of Science, and the Pulitzer Prize, twice.[5] All in all, Wilson has excelled not just as a scientist but as a man who evangelises a scientific view of the world.

[1] In Muir's *Our National Parks* (1916: 1).
[2] Today at 90 years old (as of 1 September 2019), he has been a Professor Emeritus since 1996.
[3] This is because he edited the volume *BioDiversity* in 1988. In Wilson's words, he "deserve[s] no credit at all" (1995: 359). The expression was actually "put in play" by Walter Rosen, the administrative officer of the National Academy of Science who organised a 1986 forum to discuss species preservation (359).
[4] *The Social Conquest of Earth* (2012)*, Letters to a Young Scientist* (2013), and *The Meaning of Human Existence* (2014).
[5] For *On Human Nature* (1978) in 1979, and *The Ants* (Hölldobler and Wilson 1990) in 1991.

Wilson has enacted this advocacy to such an extent that he has even argued—and vociferously—that scientific materialism "in narrative form" (Wilson 1978: 192) should replace religious cosmologies as a mythic orientation. Wilson writes that the "sacred narrative cannot be in the form of religious cosmology," so it should "be taken from the material history of the universe and the human species" (1998: 295). He calls it the Epic of Evolution. The Epic is "as intrinsically ennobling as any religious epic. Material reality discovered by science already possesses more content and grandeur than all religious cosmologies combined" (1998: 225). In this capacity he was the spark that set aflame a constellation of movements Lisa Sideris identifies as the "New Cosmology."[6] This New Cosmology aspires to restore "enchantment, wonder, meaning, and value to the natural world" via "cutting-edge scientific knowledge" (Sideris 2017: 1).

The New Cosmology is not without its critics, however. Sideris is one of them. Sideris identifies the New Cosmology as "[taking] science rather too seriously" (Sideris 2017: 1). In Sideris's perspective, New Cosmologists invest and imbue far too much in the sciences, leading to a glorification of the human capacity to know and control the world over and above the actual world—or nature—itself. Sideris says that Wilson "provides a case in point" of this fact (51). He is the case study she uses to demonstrate that investing enchantment, wonder, and meaning-making in science diverts attention away from the lived experience of and encounter with nature,

[6] Wilson coined the term "Evolutionary Epic" and was the first promulgator of the epic who had mass influence. The movement as a whole however could arguably be traced back as far as the Victorian era. Ian Hesketh argues that Winwood Reade was an early originator of the epic, as he, in Hesketh's words, "was inspired by his correspondence with Darwin to turn his narrow ethnological research on West African tribes into the broadest history imaginable, one that would show Darwin's great principle of natural selection at work throughout the evolutionary history of humanity, stretching back to the origins of the universe itself" (2015: 44).

which is where it should really be if we wish to experience something truly wondrous and ethically inspiring.

In the end, Sideris's argument is an ethical one built on epistemological preference and aesthetic experience. Scientism (the "privileging of science over all other forms of inquiry" [Sideris 2017: 254]) causes people such as Wilson to wonder at science instead of at nature; this "impoverished" wonder leads to anthropocentric ethics. Sideris often writes about this split in terms of competing "realities": the New Cosmologists, she says, revere a scientific "reality" over and above the actually *real* reality of nature. This causes them to direct their attention and passion away from what really matters: scientific abstraction propels people away from nature, "[emerging] as a rival and competitor….with nature itself" (7). *Real* reality as it is lived and experienced however roots people in an aesthetic appreciation for nature. But this is not possible if you champion science as a way to know the world. According to Sideris, Wilson represents this diversion of wonder.

I do not here make an ethical argument to combat Sideris's, but I do analyse Wilson's experience of science and arrive at a reading different from Sideris's. I demonstrate that Wilson's relationship with science actually draws him closer to nature by conducting an affective analysis of Wilson's relationships with nature and with science. Wilson's young life was characterised by finding respite in nature; as he learned about the biological sciences from about age ten to eighteen, he grew attached to science as it provided means by which for him not just to engage nature but also to feel deeply and salvifically at "home" in it (Wilson 1998: 333; 2006: 139-140, 148). Affect theory is able to shed important light on Wilson's experiences of science because it shows how the early attachments Wilson formed to natural environments and science have endured and functioned throughout his life. Science is not an epistemological preference that wraps Wilson up

in abstract worlds that drive his aesthetic attention and awe away from nature. It provides a way for him to feel more richly and salvifically at home in it.

As such, this chapter is a tour of Wilson's salvation in science via the functions it performs with its theories and practices of homecoming in nature. I do not assert that Wilson's salvation in this sense disproves Sideris's ethical postulates as a whole. But Wilson's experience of science is her case study for how having a religious relationship with science leads to a divestment of wonder away from nature and toward abstractions. The following analysis suggests that science doesn't create an abstract reality that siphons away Wilson's attachment and wonder from nature; it actually embeds him deeper within it. I begin with an introduction to Wilson's early experiences of Nature (always a capital "N" for him),[7] then survey Sideris's critique of the New Cosmology and Wilson, and finally demonstrate the ways in which both the theoretical components of Wilson's science, specifically his idea of biophilia, and also the practical methods of Wilson's science, save Wilson by helping to emplace him firmly in nature as his existential home.

Wilson's Youthful Relationship with Nature

Wilson's parents divorced in 1936 when Wilson was seven years old. This turned his life itinerant. He attended fourteen different public schools in eleven years. Every time he relocated, any stability he might have experienced in human relationships evaporated. While Wilson doesn't

[7] Wilson writes: "Nature, with a capital N, the concept: for me it holds two meanings. When the century began, people could still easily think of themselves as transcendent beings, dark angels confined to Earth awaiting redemption by either soul or intellect. Now most or all of the relevant evidence from science point in the opposite direction: that, having been born into the natural world and evolved there step by step across millions of years, we are bound to the rest of life in our ecology, our physiology, and even our spirit. In this sense, the way in which we view the natural world, Nature has changed fundamentally" (1995: xi).

remark to any significant degree upon the psychological effects the divorce may have had upon him, he does make it clear that this "nomadic" (1995: 52) existence was plagued by fear and lonesomeness (53). He writes: "[w]ith each move I had to insert myself into a new group of peers, mostly boys….I ventured cautiously" (52). In his first major move—to Orlando—he avoided socialising altogether: "I avoided schoolmates for a few weeks, out of fear. I conversed silently with myself, creating three boys in my head: I, me, and myself" (52). He longed for human companionship, but he didn't know how to navigate it. He turned away from others and was left with just his imagination and nature for solace. Once on a playground he "rescued bits of Spanish moss that had fallen to the ground and replaced them on the low branches of the schoolyard oaks." He writes that these bits "were [his] friends," but "the emotion [he] felt was self-pity" (52).

After being in Orlando—where he befriended the moss—for a few weeks he realised "to [his] joy" that one of the city lakes was within walking distance of his home. In reflecting back on the period, he sees his loneliness among humans as a primary driver of his feelings of home in, comfort with, and love for nature. "[L]oneliness in a beautiful environment," he writes, is "a good if risky way to create a scientist, at least a field biologist" (1995: 53). This is in fact the most prominent theme of Wilson's narration of his early life. Nature offered him sanctuary, a place at which to feel at home in an otherwise strange and alienating world. "A nomadic existence," writes Wilson in his autobiography, "made Nature my companion of choice."[8] The outdoors were for him "the one part of my world I perceived to hold rock steady. Animals and plants I could count on; human relationships were more difficult" (52). Wilson felt deeply alone and estranged, paving the

[8] At one point in *Consecrating Science* Sideris notes that "nature provided peace and stability during some troubled childhood years" (2017: 80). She immediately pivots to discuss Wilson's later environmentalism, but I think the peace and stability are worth a more thorough accounting as I have given it here, as they are the cornerstone of Wilson's salvation within and attachments to science.

way for later developments of what we might call existential alienation, lonesomeness, or homelessness.

When Wilson ventured out the backdoor of whichever boarding house his father had them holed up in, he experienced a solitude (or, to use Wilson's preferred term, the Latin *solitudo* [1995: 56]) which he describes as feeling "safe" and "secure." The specifics of the natural environments he encountered were changing constantly, but the experiences of adventure and encounter he had within them were not just enlivening but also a homely kind of familiar: solitary, safe, secure. In his words, he "turned with growing concentration to Nature as a sanctuary… the fewer people in it, the better. Wilderness became a dream of privacy, safety, control, and freedom" (56). He might not have understood (and still today not understand)[9] people, but with nature, he found and continues to find sanctuary from that trial.

Immediately following his parents' divorce Wilson lived in a boarding house near a place called Paradise Beach. He writes that he has long since forgotten the names and characters of the people with whom he lived while he was there. Instead it was "the animals of that place that cast a lasting spell." He was enamoured. "Every species, large and small, was a wonder to be examined, thought about, and, if possible, captured and examined again" (1995: 8). Wilson left the house immediately after breakfast to "wander alone in search of treasures along the strand" (7). He would arrive home again for lunch, leave, return again just in time for dinner, and

[9] It is worth noting that this preference for nature over humans has endured through the entirety of Wilson's life. Sociologist Ullica Segerstrale spoke with Wilson and became convinced that that despite all of Wilson's fame in his adult life, he still carries with him a robust shyness. He prefers nature to humans. She writes that "[f]rom interviews…it becomes obvious that Wilson is more interested in other species than humans…Interestingly, while Wilson's most conspiratorial critics perceive him as obsessed with human sociobiology, he declared in interview that the place where he was really happiest was at the edge of the rainforest—alone" (Segerstrale 2001: 48).

afterwards would “re-live [his] continuing adventure briefly before falling asleep” (8). Wilson continued this pattern every day for the whole summer, relentlessly immersing himself more and more in encounters with nature and becoming less and less concerned with the humans around him.

Wilson’s early enchantment with nature is palpable. In his autobiography he recounts several tales of adventure and wonder. One such encounter was with a scyphozoan jellyfish. He writes: “I stand in the shallows of Paradise Beach, staring down at a huge jellyfish in water so still and clear that its every detail is revealed as though it were trapped in glass. The creature is astonishing…I study it from every angle I can manage from above the water surface” (1995: 5). Another such encounter was with a Gulf toadfish—a creature less stereotypically elegant, but wondrous all the same. One morning Wilson “pulled in a Gulf toadfish, an omnivorous bottom-dweller with a huge mouth, bulging eyes, and slimy skin. Locals consider the species a trash fish and the ugliest of all sea creatures. I thought it was delightful” (11). Wilson was charmed—“enchanted”, in his words (9)—by the strange and wondrous qualities of the creatures he encountered. They did not have to be any particular way; they simply had to be out there, waiting to be discovered, spotted, encountered, familiarised.

Wilson was so compelled to engage and explore nature at this time that he nonchalantly endured through an encounter with a fish that left him blind in his right eye. One day, when he was exploring Paradise Beach, he was fishing on the dock, “jerking pinfish out of the water as soon as they struck the bait” (1995: 13). He managed to hook the fish *Lagodon rhomboids.* This fish has ten needlelike spines. Wilson reports that he “carelessly yanked too hard when one of the fish pulled up on [his] line. The fish flew right out of the water and into [his] face.” As a result, one of

its spines pierced the pupil of his right eye. The pain, he reports, was “excruciating” and he “suffered for hours” (13). But he wanted to stay outside fishing. He was “anxious to stay outdoors,” so he didn’t “complain much” or tell the family with whom he was living. Several months later after he returned to Pensacola with his parents, the pupil clouded over with a traumatic cataract. Corrective surgery was not successful: Wilson remains blind in his right eye to this day.

After this incident, Wilson persevered in his compulsion to exploring nature. This was so much the case that not only did he stay out fishing the day of the incident, but he also used it as a point of determination to continue to adventure in and study nature for the rest of his life. Wilson today looks back and remembers his resolve at the time, deeming himself “destined to become an entomologist, committed to minute crawling and flying insects.” He committed himself to insects because it was the only route left available to him after going blind in one eye. In his words, “I had to have one kind of animal if not another, because the fire had been lit and I took what I could get” (1995: 15).[10] Wilson would go on to marvel at the world on a microscopic scale, simply because those were the creatures left available to him.

In 1939 Wilson first encountered science proper when he and his father spent a few months living in Washington D.C. There, Wilson spent every available hour wandering the halls of the Natural History Museum and the National Zoo. He was, in his words, already “tuned to any new experience so long as it had something to do with natural history” (1995: 56). This meant that living where there was “a world-class zoo on one side and a world-class museum on the other”

[10] He vowed to “celebrate the little things of the world, the animals that can be picked up between thumb and forefinger and brought close for inspection” (Wilson 1995: 15).

was a fantasy come true, “absorbed by the unending variety of plants and animals….lost in dreams of distant jungles and savannas” (56). Seeing all of this fantastical nature in a professional setting gave Wilson the idea that he could spend his entire life continuing to study what he loves. He came to see the museum curators as “shamans of [his] new world.” Awareness of their existence “fixed in [him] the conception of science as a desirable life goal.” He reports that at the time, he “could not imagine any activity more elevating than to acquire their kind of knowledge, to be a steward of animals and plants, and to put the expertise to public service” (57). At just ten years old, Wilson identified science as a formalised way to continue to study and care for animals.

Following this summer at the museum, Wilson’s wanderings out in nature retained their adventurous flavour but became increasingly scientific. After he acquired a passion for butterflies, for example, he came up with his own design for a butterfly net made of broomsticks, coat hangers, and cheesecloth bags. This idea he took from Frank Lutz’s *Field Guide to the Insects* and W. J. Holland’s *Butterfly Book.* As he continued to explore nature and to study it with homemade methods, he also began to pore over more scientifically rigorous texts such as R. E. Snodgrass’ *Principles of Insect Morphology.* He “could barely begin to understand [it] but revered [it] because it was *real* science” (emphasis his, 1995: 58). According to Wilson’s own words, he has been in the sciences his whole life because of his early enchantment with nature. “The boy who experienced the magic of the zoo and museum,” says Wilson, is still strong inside [him]. He is the puppet master of the man” (61). Out of such early encounters with nature was born a man who went on to be a young and distinguished professor at Harvard and vocal advocate of biodiversity conservation. He also became the subject of Sideris’s charge that loving and experiencing wonder in science reduces the ability to be attached to and care for nature.

Sideris's Critique of Wilson and the New Cosmology

Scholar Lisa Sideris has now worked for decades on the concepts of wonder, nature, and what she calls "scientific mythmaking" (2015; 2017). Sideris's 2017 book *Consecrating Science: Wonder, Knowledge, and the Natural World* has the primary aim of exposing the "anthropocentric, anthropic, and (for want of a better term) *Anthropocenic* dimensions of [scientific] narratives" (2017: 2). In essence, she aims to expose the problematic aesthetic and ethical elements of the "New Cosmology," which refers to a constellation of thinkers and movements that are characterised in large part by their consecration of science. The New Cosmology movement is diverse but each of its iterations revolves around the same theme: science's "alleged mythic potential" (1). Proponents of these various epics include Richard Dawkins, Thomas Berry, Brian Swimme, Mary Evelyn Tucker, John Grim, Loyal Rue, David Christian, Eric Chaisson, Connie Barlow, Michael Dowd, and, of course, E.O. Wilson.

This myth that Wilson and his fellow New Cosmology proponents evangelise is a narrative of cosmogenesis. This myth tells the story of the unfolding of the universe from the Big Bang to today. The point of it, many of its proponents argue, is to inspire hope and wonder. The hope is intended to arise as a result of strides in human knowledge, capacities, and ethics. Advocates Swimme and Berry even argue that the next era in evolution is the "ecozoic"—in which humans find means by which to live in harmony with the Earth (Swimme and Berry 1992). The wonder is intended to be at the astounding qualities of the unfolding of the universe. Wilson and his fellow proponents believe that a new mythic story is necessary because our culture suffers from what Loyal Rue calls *amythia* (Rue 1989).[11] We need, says Wilson, "a story to tell about where we came

[11] This article is titled "Amythia: Crisis in the Natural History of Western Culture" (1989).

from and why we are here" (Wilson 1998: 7). But since we no longer have reasonable justification to turn to supernatural myths and figures, scientific materialism in "narrative form" (Wilson 1978: 192), argue the New Cosmologists, is the only plausible means by which to do this.

The problem with this perspective, says Sideris, is that it elides and derides forms of making meaning and cultivating ethical orientations outside of science: religion, spirituality, direct experience. It's not that appreciating science is wrong (Sideris 2017: 8); it's that the New Cosmology is scientistic (3, 7), since it glorifies that which is discovered by scientists over all else. Indeed, says Sideris, the New Cosmology movement takes itself to be an authority on truth, which its proponents use to depict it as superior to other forms of knowing. Sideris writes: "[r]eligions, and their contingent narratives, are thus easily displaced by science's 'real world' credentials'" (11). This is what it means to be scientistic for Sideris—to value only science as a way of knowing the world. Sideris does not deny that scientific claims and theories are legitimate and wonder at them may be appropriate at limited times.[12] But she argues ardently against the New Cosmologist position that science is a useful phenomenon for inspiring wonder and motivating people to care for the world.

One major detriment of this scientistic perspective is that it has the unfortunate effect of "impoverishing" wonder (Sideris 2017: 3). In Sideris's perspective, the ultimate loser in in the New

[12] In her words: "I am not claiming that wonder at scientific knowledge is (always) inappropriate and problematic or (generally) irrelevant for the cultivation of wonder for nature." She says explicitly that there are some times in which scientific wonder can be generally said to be appropriate such as when we yearn to get away from the "messiness and tragic finitude" of our world; at such times "we might indeed turn to the universe—to the wonders of deep space and time, to our species' emergence from such mysterious depths—with a powerful sense of relief. For there is something awesome about our ancient and infinite cosmos and we are right to feel gratitude for scientific discoveries that allow us to contemplate it" (2017: 8).

Cosmology narrative is nature, because the "inappropriate wonder" of the New Cosmology movement invests in abstract ideas and by extension the scientists who come up with them (2); this is not sufficient to the task of inspiring humans to care for the environment. This move of directing wonder towards science, in her words, "collapses an unfathomably vast and alien cosmos into something far less wondrous. It encourages a mood of self-aggrandisement, a kind of cosmic smugness that is contrary to wonder" (9). Wonder unintentionally becomes empty at best and anthropocentric at worst (2-3, 116-134). It falls away from the natural world, and our abilities to love and take care of nature suffer.

Sideris constructs an explicit bridge between the "scientism" of the New Cosmology and anthropocentric ethics. Epistemological preference leads to aesthetic experience, and aesthetic experience leads to ethics. Scientism (an epistemological preference), leads to a channelling of wonder towards the abstract (an aesthetic experience), and this leads to anthropocentric triumphalism (a problematic ethic). So loving science, then, causes "a displacement of primary experience—encounters with a more directly sensed world—with secondary and, for the most part, abstract and vicarious experience in the form of information dictated by experts" (Sideris 2015: 156). New Cosmologists privilege science over other ways of knowing, so all kinds of their attention including the aesthetic are directed towards scientific realms of theories and facts and away from the natural world, the "more directly sensed world" (156).

Sideris interestingly often deploys the somewhat metaphysical language of "reality" to illustrate or bolster the link between the epistemological and the aesthetic. She says that the scientific mythology "asks us to look behind the scenes, beyond the senses, to what is assumed to be a more fundamental domain of reality" (2015: 146). Sideris quotes Linda Weiner and Eric Ramsey

using this concept: "science and mechanistic analysis," they say, "gets to what is real or to reality itself and…it provides the only concrete descriptions and explanations we can have" (on Sideris 2017: 60). Weiner and Ramsey, says Sideris, stop seeing nature as *the most real thing* and replace it with science. A key theme—perhaps *the* key theme—in *Consecrating Science* is the contrast Sideris creates between the *real* world—that is, the world as it is experienced and encountered—and the abstract realm of the sciences. This is a purely rhetorical move in the sense that Sideris does not believe any new metaphysical reality is actually being manifested or promulgated by proponents of the New Cosmology. But it is significant in that it Sideris uses it to show how decisively the New Cosmologist attention turns away from nature.

Wilson is the case study Sideris uses to demonstrate that privileging a scientific understanding of reality necessarily steals wonder from nature.[13] Sideris devotes an entire chapter to Wilson in *Consecrating Science* called "E.O. Wilson's Ionian Enchantment: A Tale of Two Realities" (2017: 50-82). The two realities Sideris contrasts are the ones described above: the abstract reality of science and the concrete reality of "human-level experiences thereof" (71). Sideris does acknowledge that Wilson appears to value both nature and science. The problem, she says, is that they are necessarily in tension. Wonder at them cannot be aggregative; as wondrous as nature might be, a preference for "scientific reality" pulls attention and reverence away from it. Wilson, says Sideris, is "caught between celebrating nature's ultimacy—direct experience of nature as a reservoir of wonder and profound solace—and exalting a scientific reality that is "'far more

[13] Sideris elevates both Wilson and Dawkins as problematic figures because they "aggressively disseminate" scientistic arguments if in different ways (Sideris 2017: 3). The problem with Dawkins's view, Sideris argues, is that "his devotion to, and awe of, scientific knowledge….has marginalised nature in fairly consistent ways throughout his life and work. Dawkins's temperament is typical of a certain type of scientist—or person generally—who feels compelled to solve puzzles. Puzzle-solving is key in some areas of science (think of medical science and genetic research, for example), but as Dawkins and Dyson illustrate so well, there is no necessary correlation between such habits of mind and any concern with the well-being of nature" (48).

awesome' than anything else we can know and experience" (68). According to Sideris, Wilson's treatment of science as the ultimate arbiter of truth means that science is more real for him than nature. The result is a science that is constantly siphoning Wilson's wonder away from the natural world and to anthropocentric triumphalism.

Wilson assuredly does love nature. Sideris knows this; she has read his autobiography. And she does note that "nature provided peace and stability during some troubled childhood years" (Sideris 2017: 80). But as much as she knows that Wilson considers nature to have "ultimacy and value" (51), she represents Wilson as consistently discarding the potential to experience wonder at nature for the sake of experiencing wonder at science. The elevation of science over all other modes of knowing or engaging the world, says Sideris, is "the overarching message of Wilson's work" (60).[14] In Sideris's perspective, nature is "surprisingly absent in Wilson's work, even in passages containing impassioned pleas to save the planet" (78). Instead what is present is "scientific reality" (60).

Sideris sees evidence of Wilson privileging science over nature nearly everywhere she looks. One example is Wilson's aesthetic experience of the "humble mouse." Wilson describes the mouse as wondrous, but from Sideris's point of view in doing so he actually elides the mouse and only espouses the wonder of science. This is because the thing Wilson focuses on in his description of the wonder of the mouse is its DNA: if the DNA from one cell of a mouse were unwound and enlarged to the size of a string, he writes, it would measure 900 kilometres in length. Sideris does

[14] This is not necessarily true—in fact, based on the prominence of environmental advocacy in Wilson's work and most trenchantly his argument in *Half-Earth* (2016) that half of the world's landmass should be set aside for wilderness preservation, I'd say it's incorrect—but Sideris sees scientism as Wilson's priority. We might also consider that even the book *Consilience* (1998), which is about the unity and scientific foundations of all knowledge, is book-ended by discussions about the health and future of the planet.

not like this presentation of the mouse because "an organism's ethical value should not be substantiated by close examination of its biology" (on Sideris 2017: 79).[15] She thinks Wilson shouldn't need cellular biology in order to appreciate the mouse.

Another reason Sideris thinks Wilson's wonder can be characterised by scientism and anthropocentrism is because of his famous—or even infamous—idea of consilience. Consilience, in Wilson's words, entails "a belief in the unity of the sciences—a conviction, far deeper than a mere working proposition, that the world is orderly and can be explained by a small number of natural laws" (1998: 2-3). This means that the sciences can hypothetically explain all phenomena, and that the sciences are somewhat reducible to lower levels of organisation. Each level of science supervenes on the next, as they all explore and are related within the same reality. The purposes of the humanities and the arts in this framework are relegated to the "exploration of beauty" (233) and "the expression of the human condition by mood and feeling" (236). Wilson thinks that the humanities and the arts are important—this is, at least, what he consistently says about them—but so far as truth claims about the nature of laws or theories of the universe are concerned, it's science for Wilson all the way down.

Sideris is not impressed by the concept. For one thing, she views consilience as a force for domination. It "[applies] the tools of science to nonscience disciplines" thereby subjugating them to its methodology, a phenomenon Sideris calls a "colonising agenda" (2017: 62). For another, consilience "turns scientific information *itself* into a coherent, wonder-evoking narrative" (71). Sideris diagnoses consilience as so important to Wilson that it is not just a moral or academic goal, but rather the object of what she calls his "religious longing" (54-55). This religious longing

[15] That's true, but Wilson would likely agree with Sideris on this point.

"permeates" Wilson's vision of consilience. Consilience, she writes, "as a quest for reality is also the pursuit of higher forms of wonder, of what is genuinely 'grand.' This quest places science in a slot that Wilson vaguely assumes to have been occupied by something like 'theology'" (67). Sideris even describes Wilson's relationship with consilience in somewhat affective terms: "Wilson's account of consilience," she writes, "is replete with allusions to feverish, tantalising dreams and intoxicating spells; consilience is an all-consuming vision quest" (55). She then quotes Wilson, as he has said that consilience entails a "Magellanic voyage that eventually encircles the whole of reality." This is meant to demonstrate his love for complete, total, and abstract knowledge.[16]

Sideris refers to the work of some scholars such as Mark Stoll who have noted a parallel structure between the "unity metaphysics" of consilience and that of the Southern Baptist faith of Wilson's youth. Stoll writes that in both cases "truth is discovered rationally by a logical ordering" (2009: 333). Stoll views Wilson's affinity for scientific abstraction as rooted in a lifelong obsession with order. In Sideris's words, "Wilson retains, and assumes others to share, a profound desire for a tidy, synthetic, coherent worldview, an overarching rationale—the secular equivalent of a systematic theology" (2017: 77).[17] Indeed, Sideris contrasts Wilson's wonder with Dawkins's; whereas Dawkins has a "serial wonder" that derives from progressive problem-solving, Wilson experiences wonder at "cherished final theories" and "the promise of a fully integrated body of knowledge" (2017: 77). In this sense the Epic of Evolution is a narrative product of consilience and what Vassiliki Betty Smocovitis calls the "Tormenting Desire for Unity" (1999). Wilson, argues

[16] Sideris does not mention that Wilson has also described the minute and near infinite details of a decaying tree trunk to also entail a Magellanic voyage: "[a] lifetime can be spent in a Magellanic voyage around the trunk of a single tree" (Wilson 1995: 364).
[17] See also James Gustafson's "Sociobiology: A Secular Theology" (1979).

Sideris, imports the unification metaphysics and religious longing of his youth to the quest for total scientific knowledge. Consilience is a religiously flavoured project, and it is one that holds up the abstractive for apotheosis.[18]

It is because of consilience that Sideris describes Wilson as one of the more problematic figures in the New Cosmology movement (2017: 3). Wilson's quasi-religious vision of total knowledge and complete theories brought about by uniting disciplines underneath the banner of science is far too scientistic. He might have a deep and long-lasting affinity for nature. He may even view nature as religiously ultimate.[19] But this ultimacy is in direct tension with science, and the science keeps siphoning off wonder, to the extent that he values it "over and above" nature. Wilson, she writes, "feels a powerful 'Ionian Enchantment' with structures of human knowledge over and above the natural world that the scientific mind 'dissects'" (56). Wilson is more enamoured with the scientific than with the natural; as valuable as nature is to Wilson, the scientific is the true object of his attention, wondering, and religious longing.

Sideris's interpretation of Wilson's aesthetic relationship with science is a foundational piece of evidence for her ethical project. She uses Wilson to demonstrate that prioritising and valuing

[18] If we enfold Sideris's diagnosis into an affective framework, we can in a sense describe Wilson's relationship with consilience as salvific. I say "in a sense" because there is no certain proof of existential remediation in Wilson's words. Wilson does not explicitly articulate any sort of existential aversion to chaos or to incomplete knowledge in his books. But the fervour with which Wilson speaks of consilience does demonstrate a deep emotional attachment to it. Given the postulates of Stoll and Sideris that this attachment stems from an early religious orientation towards order and rationality, we may cede that there is an existential layer to his relationship with consilience. But without further evidence, I refrain from exploring the concept. *If* there is any other significant reason for Wilson to be saved by consilience, it is because it has the potential to deliver knowledge that is relevant to saving the planet he loves so dearly. But this concern is best bracketed for another time when I have space to discuss salvation in science as it may relate to hope or eschatology.

[19] Sideris does not define "ultimate" though I infer she means something vaguely akin to objects of utmost religious reverence, as articulated by Tillich (2000), and later readers of Tillich such as Crosby (2002), Thatamanil (2006), Wildman (2009), and etc.

science leads to the diverting of wonder at nature to wonder at an impoverished reality. The aim of this chapter as such is to explore Wilson's relationship with science in an affective light. This affective analysis of Wilson's relationship with science suggests that, rather than pull Wilson's aesthetic experience and affective attachments away from nature, science actually helps foster his love. This is because science *saves* Wilson by providing him with a way to overcome alienation and lonesomeness and feel at home in nature. The rest of the chapter tours the beginning of Wilson's attachments to nature, the scientific theory of biophilia he develops as a way of theorising nature as a sacred home, and how Wilson's scientific methods actually help sustain and deepen the intimate relationship with nature he began on the strand when he was seven years old.

Where It All Begins: Wilson's Early Attachments to and Salvation in Nature

As mentioned above, Sideris does give passing mention to the importance of nature to Wilson during his childhood, but this is as far as her analysis goes. A deeper, affective analysis of Wilson's youthful relationships with nature and with science both however reveals an origins story that is rich in affective intensity. The first and most important part of Wilson's story to highlight is perhaps the very beginning. Wilson spent all of his available hours avoiding humans in favour of exploring the natural environment. He was motivated first by a desire for escape from the messiness and lonesomeness of human relationships. But, once he began to experience nature he was immediately ensnared. As demonstrated above by Wilson's enchantment with nature and its creatures, nature was not a bland purgatory in which he had to live out his lonesome affects. It was a wondrous world full of creatures and adventures. It enchanted him. It hooked him. It *compelled* him.

Wilson later on in his life developed a concept called biophilia (discussed at length below) that basically states that humans have an inborn affinity for life and natural environments. This idea has since been taken up by scholars who are interested in the unique power nature has to enchant and compel. In an essay titled "Biophilia's Queer Remnants," affect theorist Courtney O'Dell-Chaib describes an "unexpected unfolding" of affects as they swirl through bodies as they encounter nature (2017: 21). O'Dell-Chaib argues that "the affective responses" of humans to the natural environment in particular "tether bodies to landscapes in 'queer couplings'" (Schaefer 2015: 197 in O'Dell-Chaib 2017: 21). Natural environments have powers that compel, ensnare, and enchant us.

Of course, all environments are full of compelling components. This is a foundational pillar of an affective understanding of the world. But the natural environment, O'Dell-Chaib argues, magnifies this power. Unlike the dusty halls of a library or fluorescent lights of an office building, natural environments have a long, shared evolutionary history with humans. Because of this history, human affectivity is uniquely impacted by nature. These impacts are usually positive, as we tend to affiliate with like and lifelike processes, but they can also be negative. Mostly, they are hard to anticipate. Natural environments have unique capacities to affect us in unanticipated—or queer—ways. "[C]ompulsions," O'Dell-Chaib writes, "can be unexpected, unfolding in unanticipated fidelities" (2017: 21). Viewed in this way, and understanding nature as having such deeply embedded and mysterious power, Wilson was not just reaching out to nature throughout his childhood. Nature was also reaching out to *him.* Nature was compelling him. Nature was a rich lifeworld, full of enchantments and mysteries that compelled Wilson onward.

Nature immediately ensnared Wilson's attention with an intensity that could be called an "unanticipated fidelity." Of course, Wilson was primed to develop attachments to phenomena beyond the human realm, because he was so averse to human interaction. But nature didn't just appease Wilson. It *gripped* him. It embraced him, tantalised him, and compelled him to be attached to it in a deeply profound and affectively compulsive way. We can even use the concept of cruel optimism (this thesis: 120) to describe Wilson's attachment to nature. Recall that optimism entails an attachment that hopes for delivery of a promise (Berlant 2010: 93); cruel optimism is an attachment "to compromised conditions of possibility whose realisation is discovered either to be *im*possible, sheer fantasy, or *too* possible, and toxic" (94). When Wilson was poked in the eye by a fish, he suffered extreme pain. The surgery he underwent to attempt to fix the blindness was horrifying—Wilson reports having a phobia of being in enclosed spaces with his arms tied down to his sides to this day (1995: 14). Nature did and does and can hurt Wilson. But he was and is so ensnared in the enchantments of the natural world that he never even hesitated to bust back out into the wild.

Wilson's coupling with nature is a direct example of how phenomenological affect theory accounts for attachment. As surprising as affects may sometimes be—and as "unanticipated" and "queer" the intensity of Wilson's attachment may be—a running theme throughout this thesis is that they are not without explanation. According to phenomenological affect theory, affective experiences are a composite of evolved intransigencies (such as a biophilic predisposition to react to the natural environment) and personal history. This personal history entails "a local confluence of social, political, economic, and cultural contexts" (Schaefer 2015: 13). This perspective provides a means by which for us to understand Wilson's itinerant lifestyle and unstable home environment as influences that made him a ripe candidate to experience compelling attachments

to nature in forms such as wonder, curiosity, adventure, safety, control, and homecoming at a young age. It was even as Wilson says: loneliness did appear in his case to be a potent ingredient in the making of a good field biologist (1995: 53). Nature reached out to Wilson with all its compelling enchantments, but he was already grasping for companionship, grasping for solace, and grasping for the sanctuary of home.

These attachments eventually took on an even greater existential dimension. This happened as Wilson lost his youthful faith in Christ. He describes his faith up until he was about fourteen years old as "an exquisite, perfect spherical jewel" (1995: 43). He was deeply enamoured with the idea of spiritual redemption; he longed to be saved and go to heaven. Wilson believed at the time that "the soul can be redeemed by union with the sacred fellowship and thereby enter eternal life in heaven" (36). This was so much the case that he once, when he was fourteen years old, upon hearing the sombre, dissonant tones of a hymn about the crucifixion, "wept freely in response to the tragic evocation" (42). Wilson promptly decided to get baptised. He recounts that going into the baptism he had felt "emotion as though from the loss of a father, but one retrievable by redemption through the mystic union with Christ—that is, if you believed, if you really believed; and I did so really believe" (42).

During Wilson's baptism ceremony, however, something, in his words, "cracked." He "discovered a ruinous fracture" in the perfect jewel of his faith (1995: 43). Wilson never articulates precisely what it was that caused this fracture, except he does recall that the baptism event felt very "physical" and mundane. He was immersed in a tub in a scratchy gown in front of spectators with a pastor who said smoking was a sin but did it anyway. This caused him to wonder if "the whole world [was] completely physical after all" (43). Wilson began to wonder if his visions of

otherworldly sacredness and salvation in Christ had been mere illusions. Over the course of the next couple years Wilson's attendance at church became desultory, and then he stopped going altogether.

Despite his growing distaste for religion, Wilson nevertheless continued to experience religious longing. In his words, he experienced a "longing for grace" (1995: 44) which became more and more naturalistic as he looked for it "rooted solidly on Earth" (42). Wilson increasingly found supernaturalism distasteful, but he reports that he "never lost faith in the immanence of the Lord" (42). In doing so Wilson implies that he retained the deeply spiritual sensibility and desire for salvation he acquired growing up in the Baptist faith; he simply could no longer experience it in a supernatural, other-worldly sense. Given what we know of Wilson's deep affective bonds with nature, this is perhaps unsurprising. As Wilson's church attendance waned, he dived deeper into his relationship with and exploration of nature as a means by which to both make sense of experience as well as channel his spiritual longing in a fulfilling way.

The way became science. Science provided Wilson with an alternative to religion that made sense of what he had experienced and learned about in nature. Science was materialistic, embedded, and interested in the natural world as it was sensed and explored. In the years following his break with the Church, Wilson dove headfirst into the sciences. At eighteen years old he read Schrödinger's *What is Life?* (1944) and Ernst Mayr's *Systematics and the Origin of Species* (2005). He realised that these books—wholly opposite to his experiences of the Bible and of Christian faith—provided endless and minute details to mull over on the workings of nature. His world lit up with wonder. Unlike what we saw in chapter four of this thesis when Ursula Goodenough experienced great despair when she first encountered the sciences (174-175), Wilson was

delighted that "biology could be explained by the principles of physics and chemistry" (Wilson 1995: 44). Scientific principles immediately made sense to Wilson because of his experiences engaging and observing nature. With science, Wilson could understand himself as belonging to the natural world. Science gave Wilson the ability to experience what Donald Crosby calls spiritual rightness—a "goodness or fitness that…lies at the heart of [one's] world" (Crosby 2002: 120).

Through the sciences, Wilson of course learned many things. But perhaps most of all he learned that, contrary to a world in which "people still think of themselves as transcendent beings awaiting redemption," people are at home on Earth. "Most or all of the relevant *evidence* from science," writes Wilson, "point in the opposite direction: that, having been born into the natural world and evolved here step-by-step across millions of years, we are bound to the rest of life in our ecology, our physiology, and even our spirit" (emphasis mine, Wilson 1995: xi). Similarly, he writes in *Consilience* that "[t]oday the entire planet has become home ground…But the mystic realm has not vanished" (1998: 259). The fact that science provides *evidence* that Wilson is at home in nature is a point of intensity for Wilson's salvation in science that Sideris just misses. What about this is abstractive, transcendentalist, or anthropocentric? Through science, Wilson feels he is *meant* to be at home in nature. It is for this deeply spiritual and salvific reason that science became, for Wilson, "the new light and the way" (Wilson 1995: 45). Science's naturalistic immanence replaced the faith of Wilson's transcendental youth. It gave him a means by which to be deeply, salvifically at home.

Consistently throughout his work, and especially in *The Creation* (2006), Wilson describes human separation from nature as the ultimate "human dilemma" (10). Major world religions and especially Christianity have made the "especially serious…Neolithic mistake" (12-13) of creating

supernatural dreams that "[stray] from Nature" (10). They say our home is somewhere else, located in some supernatural realm. They say we need to neglect, or use, this planet. On top of this mess of transcendentalist belief, the modern "technoscientific revolution" has caused us to "[betray] Nature a second time." This second betrayal happened as Westerners built upon their supernatural presuppositions and further "[fostered] the belief that the cocoons of urban and suburban material life are sufficient for human fulfilment" (12). Western humanity has increasingly removed itself from nature as the rightful and sacred environment. Over the course of millennia, Westerners have forgotten that "[t]he spiritual roots of *homo sapiens* extend deep into the natural world" (12). According to Wilson, Westerners have strayed, in essence, from the relation in which we *belong.*

Wilson's deep immanence and commitment to the idea of nature as a rightful and sacred home is completely absent in Sideris's analysis of Wilson. In fact, as stated in the previous section (this thesis: 266), Sideris says that Wilson is so enamoured with a "unity metaphysics" he picked up from his Baptist youth that he is drawn to science because of its abstractive qualities and promises of total, transcendent knowledge. Sideris frequently uses the language of transcendence to indicate that Wilson's love for science takes him above and away from nature. He is "bent on a transcendent quest to complete all knowledge" (Sideris 2017: 49); he views science as a project that gives humanity "transcendent purpose" (42); he is "unable to resolve the tension between his commitment to transcendent science and his appeal to nature" (80). Sideris's deployment of this language is commensurate with her construction of scientific abstraction as an alternative "reality" distinct from nature as it is lived and experience. Sideris sees Wilson's love of science as a force that drives him and his emotional energy away from nature. It "transcends."

It is important to note however not only that Wilson very obviously prefers immanence, as he has directly stated that he never lost faith in the immanence of the Lord, but also that even though Wilson *has* used the language of transcendence, he deploys it for semantic effect and actually intends it to mean getting deeper *in* nature. He says for example that "we have been trying to transcend *from* Nature, as opposed to *to* Nature" (emphasis his, 2006: 13). Wilson both is and wants to be at home in a horizontal plane, right alongside the creatures he studies. Contrary to Sideris's read of Wilson, science provides him with a way both to make sense of this immanence as well as develop greater intimacy with the world within it. Next I explore how Wilson's feelings of spiritual homecoming in nature led him to develop the theory of biophilia—a scientific theory that legitimises, normalises, and sacralises his belonging in nature. After Wilson became a scientist, his feelings about and approach to nature did not change. They simply developed scientific sophistication, which is reflected in his theories (discussed next) and his practices (discussed below).

The Evolutionary Epic and Biophilia

In 1984 Wilson published *Biophilia,* a book that explains his theory that humans are *biophilic*. Wilson describes biophilia as "the innate tendency to affiliate with life and lifelike processes" (2006: 63). By "innate" Wilson means "genetic," and this genetic predisposition he makes very clear is not an affinity simply for human life, but for all life, including all species, lifeforms, and environments.[20] This affiliation exerts a "gravitational pull…on the human psyche" (63). If one

[20] The affiliation is for life in general. There are specific qualities of attachment for different types of life according to evolutionary pressures. The species of plant considered most attractive by humans for example are acacias, "which are dominant elements of healthy African savannas" (Wilson 2002: 135). Spiders and snakes, on the other hand, may elicit *biophobia* (1984: 93-100).

takes time to connect with nature, the affiliation is characterised, says Wilson, "by pleasure, or a sense of *security,* or awe" (emphasis mine, 1995: 360). I emphasise security here to elevate Wilson's experience of nature as a safe, or *secure,* home. Nature calls to us, says Wilson, precisely because we are born to live within it. "Nature is a part of us, as we are a part of Nature," he writes (1995: 362). Wilson argues that we are in our most natural and most fulfilled state when we are in the natural environment for which evolution intended us. At least part of the reason Wilson makes this argument is because this has always been and remains his personal experience.

There are many versions of the Epic of Evolution; only Wilson's has biophilia so prominent in its ethics and aesthetics (Baxter 2007: 13).[21] This is likely because of his unique experience of feeling so much rightness and homecoming in nature from a young age. Sideris in fact asserts this baldly, implying (and I certainly do not disagree) that Wilson came up with the idea of biophilia and then attributed it to everyone else simply because it felt true for *him*. She says, "[r]ather than argue for a clear link between our evolutionary endowments and an environmental ethic, Wilson seems to project biophilic feelings onto the rest of humanity" (2017: 78). The extent to which Wilson is correct about humanity in general we cannot say. We can assert with good reason, however, that he *knows* that it is true for himself; it seems also that he *hopes* that it is true for humanity at large. Biophilia, if true, would make humanity *made for nature;* this would provide Wilson with a way of legitimising, contextualising, and intensifying his affective responses to nature. It would deepen them and enrich their salvific qualities. Wilson could experience homecoming and fit in a way he wouldn't with a transcendental or otherwise religious worldview.

[21] Brian Baxter analyses the ethical positions of various versions of the Epic and finds Wilson's to have biophilia positioned most centrally. Wilson, he writes, "does have one distinctive form of argument that tends in a different direction, namely, the case he makes for the existence within human beings of an evolved trait which he labels 'biophilia'" (2007: 13).

For the most part, Sideris elides biophilia from her chapter on Wilson's aesthetic orientation to science. She mentions it nine times during the chapter; consilience she mentions seventy-seven.[22] When she refers to biophilia, she does so to distinguish Wilson from Dawkins (2017: 52), to demonstrate his impact on academics and on lay people (53, 63), and to assert that his "project of consilience cannot get him to his ethic of biophilia" (68). In doing so, Sideris makes it clear that Wilson is committed to environmental ethics, but her ultimate point is that science interferes with this commitment. This is a problem however because the aesthetic and phenomenal experience Wilson has with respect to science is key to her argument about ethic potentialities. She diagnoses Wilson as religiously invested in scientific abstractions, unity metaphysics, and transcendence, which siphon wonder and energy away from nature. This diagnosis coheres with her emphasis on consilience. But it elides biophilia, and biophilia, in affective analysis, is demonstrably crucial for Wilson's relationship with nature.

According to my affective analysis, Wilson's deeply immanent attachment to nature makes it no wonder that he was the primary architect of the modern day Evolutionary Epic, and such a passionate one at that. We articulate what we know, and what we know is by and large also what we feel. This is at least the perspective of affect theory, which supports the idea that Wilson did not just *think* his way to biophilia as a theory but *felt* its truth burgeoning in him throughout his life. Affect theorist Eve Kosofsky Sedgwick offers a useful means by which to account for the scientific content Wilson creates. She begins with a question: "[w]hat does knowledge *do,*" she asks: "the pursuit of it, the having and exposing of it, the receiving again of knowledge of what

[22] This is including all instances in which the word "consilience" is used, including when referring to the title of his book *Consilience* (1998). Considering that Wilson also has a book titled *Biophilia,* this seems a fair comparison to make.

one already knows?" (emphasis hers, 2003: 124). Sedgwick here prompts us to think through the functions and powers of knowledge. Can knowing ever be exempt from our affective matrices?

Sedgwick and affect theory generally suggest that it cannot. Knowledge production is an embodied process that unfolds out of lived history. Lauren Berlant has along this vein conceptualised Sedgwick's view on knowledge production as a "sensualised epistemology." That is to say, forms of knowledge such as the Evolutionary Epic are produced and valued not just for what Schaefer calls their "epistemic utility" (2017: 75), but for their affective capacities (Berlant 2011: 158). We are drawn to, confirm, and produce knowledge that coheres with our prior experiences and their enduring affects. In Schaefer's words, "where rhetoric theory asks, 'how are emotions marshalled in the service of arguments?' affect theory asks the reverse: 'how are arguments marshalled in the service of affect?'" (2017: 75). According to theses affect theorists, our ideas—and even our scientifically coherent ones—are products of cognitive-affective matrices, deeply intertwined with our personal, embodied histories and feelings.

Sedgwick elaborates on this inseparability with a notion she calls resonance. In an essay titled "Pedagogy of Buddhism," Sedgwick explores the process of translating and teaching Buddhist concepts to Western audiences. This is a topic admittedly far from the soteriological potential of science, but within it is an affective treatment of the experiences of recognition and realisation. Recognition and realisation, she argues, entail "resonance" (2003: 162). When we recognise an experience or idea and find it legitimate, it simply "sounds true" (165). This happens "as if the template of truth is already there inside the listener, its own lineaments clarified by the encounter" (165). Essentially, we find things to be true if they resonate with or fit within our prior

cognitive-affective experiences.[23] This happens when we encounter new ideas; it also happens as we produce knowledge through the collision of ideas or affects with certain triggers within our environment.

We can also explore Wilson's immanentist concept of biophilia (and the Epic in general) as a "hope" by circling back to the concept of attachment, and specifically optimistic attachment, which is experienced as a kind of narrative. Berlant has been useful in this thesis so far as providing means by which to theorise about cruel optimisms—that is, about the types of attachments that may turn out bad for us but to which we persist in being attached regardless. Our ability to form such attachments is why Wilson keeps loving nature despite the fact that it made him go blind in his right eye. At the root of the concept of cruel optimism is a view of attachments that involves a desire to sustain them. "We assume our position as subjects in a world and therefore *it"*—the "it" to which Berlant here refers is a propensity to develop optimistic attachment—"*is in us* as a structuring condition for apprehending anything" (emphasis hers, Berlant 2011: 52). In essence, the narratives we tell sustain our optimistic sense-making. Wilson describes biophilia as a component of reality so that he can make sense of the world with a narrative that accounts for and intensifies his experiences and attachments.

Berlant argues that this kind of optimistic narrative is inherent to intimacy and relationships in general. Berlant writes that attachment "involves an aspiration for a narrative about something shared, a story about oneself and others that will turn out in a particular way" (1998: 281). When talking about the attachments that form and could be rightfully said to be intimate between two people, Berlant says that in these narratives "it is hoped that the relations formed within those

[23] These concepts are not unlike our treatment of Hume and feeling in chapter four (this thesis 192-194).

frames will turn out beautifully, lasting over the long duration, perhaps across generations" (280). This relationality does not necessarily have to apply only to people; attachments to different situations, objects, or environments also endure in narrative hope. We can therefore view biophilia as a narrative form of attachment. Embedded in Wilson's version of the Evolutionary Epic, biophilia tells the story of humanity in a way that makes sense to Wilson. It legitimises his experience and grounds him firmly on earth, both presently and in the future. The intense emotional functions biophilia performs for Wilson are absent in Sideris's account.

The Epic of Evolution and biophilia in particular are stories that Wilson simultaneously believes are true and desires to be true.[24] They explain and legitimise his experiences of nature as his ultimate and salvific home; they emplace him right where he feels he is meant to be. The Epic says that human beings evolved as a part of a material Earth full of kinfolk creatures. Biophilia develops this material immanence further and says that human beings evolved to love other life forms and to depend on wilderness for true spiritual fulfilment. These concepts emplace Wilson firmly on Earth, providing a narrative scientific context with which to account for his own affective landscape and experiences. They are in a sense directly opposite to the transcendental views with which Wilson was raised and of which Sideris accuses him. The fact that knowledge production occurs within a swirl of affects related to past experiences answers the question of why Wilson thought up biophilia in the first place. The roots of them have been in Wilson's bones since he was seven years old, and his lifetime of engaging science has been a means by which to nurture them. To conclude this tour of Wilson's salvation in science I turn to how his present day scientific habits are extensions of his childhood attempts to cultivate homecoming in nature.

[24] I say this without passing any judgment on whether they are true.

Facilitating and Deepening the Relationship

One of the cornerstones of Sideris's project to dismantle the New Cosmology's scientism is a bifurcation she imposes between knowledge production and lived experience. For Sideris, the practices of scientific knowledge production and consumption are essentially alienating forces; the more you engage a scientific "vision of reality", the more removed you are from authentic engagement and connection with the world. While this certainly may be the case for some, it is decidedly not the case for Wilson. In fact, an affective read of Wilson's relationship with science throughout his life suggests that Wilson is a paradigmatic example to the contrary. Wilson's scientific practices and motivations for pursuing science do not fabricate for him an alternative "reality" to which he is more loyal than nature. They actually facilitate his salvation by strengthening his homecoming in nature and providing a means by which to continually return to the scenes of intimate encounter and delight.

This elevates an important point of contrast between Sideris and Wilson, perhaps the most important of all. Sideris views "scientific reality" as abstractive and separate from the "reality" of lived experience, but Wilson's approach to science doesn't cohere to such bifurcations. When Wilson seeks knowledge, he does it to immerse himself in deeper and deeper relationship with nature. There is no nature/science distinction for Wilson. For Wilson, science is simply a way to know nature, so if Wilson could be said to be pulled towards any "reality" or aesthetic experience by science, it is *towards* nature.[25] Exploring nature, immersing himself in nature, discovering new

[25] Wilson's view in this respect has actually recently been advocated for by Ursula Goodenough in an interview I conducted with her in July 2019. Goodenough insists that we must distinguish between the practices of science (the epistemology) and the insights science reveals about nature (metaphysics). Nature is nature, and science is a way to study (in Ruper 2019b). To conflate science with any of its own kind of

creatures within nature—these are all ways that Wilson enacts "science" and develops intimacy with nature at the same time. This is how science manages to save Wilson over and over again: by providing a way for him to live out the salvation in nature he began experiencing as a child.

Sideris views the love of discovery as triumphalist and anthropocentric, which elides the array of affects at work in encounters with objects that are loved, or in our case here, salvific. Knowledge production, contrary to Sideris's simplification, is not necessarily about triumph. It can also be about *encounter,* and about reverence for what has been encountered—and has thus become beloved. Wilson writes: "[h]umanity is exalted not because we are so far above other living creatures, but because knowing them well elevates the very concept of life" (1984: 22). In this passage, Wilson does not specify in which way the concept of life becomes elevated, but it appears to be in a way that makes life more worthwhile, beautiful, or sacred. To be clear, there is certainly here a hint of the anthropocentrism Sideris discerns. It is easy to see how she could read a passage like this and interpret it as anthropocentric. *Humanity* is exalted. *But* there is also present in the passage the assertion that humanity is not to be exalted above other creatures; if anything about humanity is worth exultation, it is the fact that humans can become more acquainted with other species in the act of knowing.

Sideris consistently depicts Wilson's wonder as being derivate of human mastery and confidence and as a striving for the totality and completion of scientifically unified knowledge. Complete knowledge, according to Sideris, is the most wondrous thing of all for Wilson (2017: 73-74). However, while Wilson does advocate for the pursuit of complete knowledge, he also says A) that he doubts it is possible, and B) that he certainly hopes it is not possible. He describes wonder and discovery as two phenomena which feed one another indefinitely. This is exemplified by one passage from *Biophilia*:

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reality that is separate from nature is to impose a distance between it and its subject matter that may not exist—and that certainly does not exist for Wilson.

> Now to the very heart of wonder. Because species diversity was created prior to humanity, and because we evolved within it, we have never fathomed its limits. As a consequence, the living world is the natural domain of the most restless and paradoxical part of the human spirit. Our sense of wonder grows exponentially: the greater the knowledge, the deeper the mystery and the more we seek knowledge to create new mystery. This catalytic reaction, seemingly an inborn human trait, draws us perpetually forward in a search for new places and new life. Nature is to be mastered, but (we hope) never completely. A quiet passion burns, not for total control but for the sensation of constant advance (1984: 10).

Wilson loves discovery and learning, most certainly. The passage even has hints of dominance and mastery in it. But it is a misread to say that he hungers specifically for the completeness of knowledge and an end to seeking so that humans may glorify their achievements. He values the delight of encounter far too much to want to exhaust the unknown. He even says it's not control he seeks, but rather, to keep learning.

Wilson's encounters with nature throughout his life entail what Svetlana Boym has theorised as the intimacy of homecoming—of elevating and loving something simply because it is familiar or has become familiar. We see this repeatedly in Wilson's deep love for and commitment to the species he has learned from head to toe (or antenna to thorax, as the case may be). He *reveres* species, so much so that, for example, he heartbreakingly preserves a tuft of hair of Emi the Sumatran rhino, the last of her kind (2002: 80). In *The Creation* (2006) he reflects on this deeply emotional view: "this is how I see living species: masterpieces, legends" (58). He also here says that"[a]ll species are something of a miracle" (55). Wilson experiences a profound feeling of reverence for life's creatures that goes far beyond, or is even entirely outside, what Sideris considers to be his quest for unity metaphysics. She argues that science imposes a metaphysical and aesthetic distance between Wilson and nature, but science provides Wilson with a way to experience and be attached to the miracle of each unique species.

Wilson elaborates on his reverence for life in *Creation* saying, “each species is a world unto itself. It is a unique part of nature. In the instant of time the species comes to your attention, it is spread before you as an ensemble of its member organisms, distributed in certain patterns over the landscape” (2006: 109). Wilson’s religious reverence for species quite nearly bleeds off of the pages of his books. And it is certainly appropriate to call it religious; his works are (and *Creation* especially is) full of religious language applied to species and to nature; for example, he calls nature “a heaven on Earth” (2006: 61). Of course, Wilson chooses this language for the sake of its poetry and captivating flair, but we also have no reason to doubt him; there are many pages full of passionate descriptions of the beauty and majesty of life that lend credence to his sincerity.

Boym’s idea of intimacy entails a “complete belonging” that is characterised by familiarity. In this sense, every time Wilson deepens his understanding of the world, whether in a swamp, looking under a microscope, or taking a rhino tuft into his hand, he becomes more familiar with the world, and as such deepens the quality of his relation with and his belonging within it. Boy argues that knowing has a positive affective valence if it provides a sense of familiarity, and therefore of home (Boym 1998: 502). It entails safety, comfort, and ease, alongside a particular kind of appreciation. This is what we witness in Wilson, as he very early on in his life identifies nature as his environment of choice; it is the only place in which he feels at home. And other species are necessary for these feelings to endure. Wilson has called a future with more extinction and biodiversity loss the “Eremocene—the Age of Loneliness” (Wilson 2014: 123). Nature’s species are Wilson’s compatriots in the web of life. They are a part of what makes him feel like he belongs, and like his experiences in nature are actually those of deeply sacred homecoming.

Boym writes that memories of past experiences—such as Wilson's of exploring beaches, bogs, and forests growing up—re-create feelings of home and welcome. This intimacy of recollection is "connected to home; intimate meaning 'inner-most'" (Boym 1998: 503). Here, feelings of home are directly connected to one's innermost attachments and desires for closeness, relations, and belonging. And they are in part generated by knowledge of various points of connection and shared understanding or narrative. This view is coherent with our perspective on attachments as enduring and optimistic, and on Schaefer's view of particular kinds of knowledge as those which "[organise] the world in ways that mesh with our pre-existing affective landscape" (2018: 88). Wilson had a certain set of experiences as a child in which nature became a home that provided him with belonging and companionship; increasing his understanding of nature revisits and recycles his feelings of closeness and relation within it. Consider how he says he "had the same interest in the diversity of snakes that other fifteen-year-old boys seemed automatically to develop in the years and makes of automobiles" (1995: 87). He may in part want to *know* for the sake of epistemic dominance, as Sideris argues, but he also wants to know simply because he *loves,* and he feels a relation he wants to deepen.

The specific role science plays for Wilson in this respect is in providing a means by which to continue to engage with and delight in nature. Wilson doesn't do science to escape the attachments he formed in nature as a child, but rather to sustain them. There is real continuity in his experience. Sideris treats Wilson's burgeoning interest in science as something that is contrary to his early love for nature, but when she does this she elides whole swaths of Wilson's storytelling that suggest the way in which he relates to nature is continuous throughout his life. His early explorations of nature have an element of "science" to them, and his later practices of science retain all the sensory, immersive, connected, intensely curious, and adventurous aspects

of his early exploring. Wilson's mature field science—the type of science that makes him happiest (Segerstrale 2001: 48)—is hardly any different from the time he spent as a child out exploring the strand. A series of snapshots throughout Wilson's life demonstrates significant continuity among his experiences of engaging nature "scientifically" in order to enhance his feelings of homecoming and intimacy.

Consider first his earliest encounters with nature at Paradise Beach. Here, at just seven years old, Wilson "waded in and out of the dependably warm surf and scrounged for anything [he] could find in the drift. Sometimes [he] just sat on a rise to scan the open water" (1995: 8). Wilson recounts having a meditative presence. His exploration is characterised by immersing himself in the scene, simply opening himself up to whatever creatures may enter his experience, fully embodied and present on the shore. He, "on calm days…sometimes scanned the glassy surface of Perdido Bay for hours at a time" (1995: 9). As a young child, Wilson didn't experience an aesthetic or even an epistemological divide between "lived experience" and what is classifiable as "scientific" as Sideris suggests. He simply wandered out into relationship with nature and opened himself to wondrous affects and attachments.

About a decade later, while nearing the end of his high school career, Wilson often visited a local swamp, at which he developed his understanding of water snakes and other swamp biota. His experience was more elaborate but strikingly similar to the hours he spent walking along the shores of Perdido Bay. He writes:

> Into the paradise I threw myself with abandon. The hours I spent there were among the happiest of my life….When I focused on the ponds and swamp lying before me, *I abandoned all sense of time.* Net in hand, khaki collecting satchel hung by a strap from my shoulder, I surveilled the edges of the ponds, poked shrubs and grass clumps, and occasionally waded out into shallow stretches of open water to stir the muddy bottom.

> *Often I just sat for long periods scanning the pond edges and vegetation for the hint of a scaly coil*…..In the swamp I was a wanderer in a miniature wilderness (emphasis mine, 1995: 87).

I emphasise these points about time to demonstrate their continuity with his earlier practices. Here we find again Wilson sitting meditatively for long periods. He focuses intently on the environment around him, though in a way that is not pressured or goal-oriented, but simply *aware.* He is adventuring, exploring, encountering, learning. He is doing it all in the field, with the same kinds of meditative, immersive practices he developed as a child. He is not an official scientist yet, but this is also at the time of his life in which he is beginning to learn and become excited about science.

Consider these accounts of young explorations alongside Wilson's account of fieldwork he conducts in the coastal forest of Surinam as a researcher at Harvard. Here, instead of just a net and a khaki satchel like he had as a teenager, he has a camera, forceps, trowel, axe, mosquito repellent, jars, vials of alcohol, a notebook, and a twenty-power hand lens (1984: 5). His instrumentation for observation and learning is increased. But the rest—the way he encounters and apprehends the environment with intimate receptivity—appears to remain somewhat constant. He says "[m]y attention was on the forest; it has been there all my life" (5). And then he writes:

> I walked into the forest, struck as always by the coolness of the shade beneath tropical vegetation…. I tried to compose the mental set—call it the naturalist's trance….by which biologists locate more elusive organisms… I was a transient of no consequence in this familiar yet deeply alien world that I had come to love… Breathing and heartbeat diminished; concentration intensified. It seemed to me that something extraordinary in the forest was very close to where I stood, moving to the surface and discovery. I focused on a few centimetres of ground and vegetation. I willed animals to materialise, and they came erratically into view (1984: 6-7).

Here we see again a meditative state that Wilson now labels as "the naturalist's trance." He focuses, but in a way that is open to what unfolds, with his senses alert and as in tune with the environment as possible. Wilson gains scientific sophistication and methodologies throughout his life. He feels no resistance to and indeed early on embraces the taxonomies (1995: 10, 94, 96, 203) and theories (1995: 110) of the sciences. But as he does so he never disentangles what he calls his naturalism from his science. Especially as a scientist in the field, he retains his spirit of adventure, his meditative immersion, his attention to detail, his persistence in seeking out creatures, and his sensory-affective way of relating to the environment. For Wilson, exploring nature *is* science. Science *is* exploring nature. They are one and the same effort to come to know, and in doing so, love, nature. Sometimes he might find himself in a laboratory or museum of natural history, but this element of exploration and encounter remains the core of his scientific experience.

It is in this sense that Wilson pursues the sciences precisely because they deepen and facilitate his relationship with nature. Sideris views the anthropocentric triumphalism of scientific knowledge production as the locus of Wilson's religious relationship with science, but when Wilson's affective attachments to and salvation in science are taken into account, that becomes significantly unlikely. It is encounter, familiarity, the act of becoming known, and perhaps most of all the intimacy of engagement that actually drive Wilson today, and that have been driving Wilson since 1936. It is the safety of home and the familiarisation of one's companions and environment. It is the kinds of salvific attachments that Wilson forms throughout his adolescence, and the compulsion Wilson feels to sustain these affective experiences throughout the rest of his life. Wilson writes in his autobiography that "[i]n my heart I will be an explorer naturalist until I die" (1995: 365). He is not a *scientist* first and foremost, but a boy who once fell in love and felt at

home in nature—who was once *saved* by nature. Science is the path that enables him to continue to engage with and revere what he loves, thereby deepening and facilitating his continued salvation in nature as his sacred home.

Conclusion

E.O. Wilson deeply loves science for a wide variety of reasons, including the allure Stoll and Sideris identify as complete, unified theoretical space. He *does* long for more knowledge, for coherence among academic disciplines, and for all concepts to be grounded in empirical observation. But I argue that—contrary to Sideris's claim that Wilson privileges abstractive scientific reality above nature—Wilson's most prominent, long-standing, and existentially motivated reason for loving science is that it provides him with a means by which to feel at home in and relate to nature. We have seen Wilson wading precariously in tide pools at seven years old. We have seen teenage Wilson spend hours standing still in a bog, waiting for a snake or some other such creature to slither past. We have seen young Wilson devour scientific text after scientific text, attempting to make sense in a world in a way that jettisoned the supernaturalism of his youth. We have seen Wilson talk about nature as the rightful home to which we should all return, in order to be saved from the Neolithic mistake. We have seen Wilson curse traditional religion and praise science all in the same breath, not solely but in large part because religion celebrates dividing humans from nature, which is the exact existential dilemma from which we all need saving.

Sideris uses Wilson as an example of someone to whom nature is very important, but who is also too caught up in religious longing for knowledge to give it the full emotional attention of which he is capable. His ideas about consilience Sideris finds particularly problematic because they glorify

an abstract unity that can cause one to lose sight of the natural world as it is lived and encountered. But Wilson's life is an example to the contrary. He might love the idea of unified knowledge, but that does not preclude him from thinking and feeling that nature is the most real reality, from experiencing wonder at science *as* wonder at nature, and from experiencing science in an intensely salvific way precisely because of how closely it helps him feel at home in nature.

Sideris depicts scientism leading to abstractions, abstractions leading to inappropriate wonder, and inappropriate wonder leading to anthropocentric ethics. But Wilson himself does not get wrapped up in abstractions or direct his wonder towards such abstractions. Wilson's science (or scientism) isn't extractive or even a kind of science (if any such kind exists) that is more real or wondrous than nature. Instead, Wilson's science *is* nature. Or at least, it is the study of nature. Wilson exhibits this at marvellous length in the continuity of his experiences exploring nature throughout his life. Learning nature isn't dominating it; it is building loving and reverent intimacy. I do not claim that this is the case for everyone who engages science. But it is the case with Wilson, as discernible through affective analysis.

Wilson is a complex figure, but I find his heart and his salvation simple: they lie with nature. Science is important to him and a phenomenon worthy of reverence—Sideris is right about that—but its greatest value isn't its triumphalism; it's the opportunity for discovery, knowing, contextualising, and intimacy. Science provides an explanatory alternative to religion that elides transcendence and instead emplaces humans firmly on Earth, "bound" to other creatures in experience and in spirit. It provides a means by which for him to make sense of his own experiences of homecoming in nature, and to rest more comfortably in the solace of his natural home. Sideris remains right to question the anthropocentric qualities of the New Cosmology or

scientism in general, and to make us ask hard questions about where our wonder is going. But Wilson's salvation troubles his status as a case study for the bifurcation of nature and science and glorification of science over nature. Wilson's experiences suggest that we revisit the idea that "religious" relationships with science impose affective distance from nature. For Wilson at least that appears to be literally impossible.

CONCLUSION

"[T]here are no new ideas. There are only new ways of making them felt."
Audre Lorde[1]

Threaded throughout the entirety of this thesis have been three underlying questions: what is science? What is humanity? How can the two relate? While I have not provided definitive answers to any of these queries, I have explored concepts and case studies that have prompted new avenues for conceptualisation of all three.

Regarding science, it has become clear throughout this thesis that science is, in one very important sense, a distinctive, empirical methodology that can aid in our exploration of the physical world. This is the sense of science I have referred to when I have used phrases such as "according to the science," "in the sciences," or "with a scientific approach." I used science in Part I of this thesis to great effect, using evolutionary theory and cognitive science to create new ways of theorising about human nature, religion, and religion-like things. Without understanding and using science *in this sense,* I would not have been able to construct an empirically robust concept of subjective, affective salvation.

[1] In Lorde's *Sister Outsider* (1984: 39).

In Part II of this thesis I explored other, more broadly cultural dimensions of science. The existence of science-as-investigative-method as I explored it in Part I has given rise to a sprawling multiplicity of cultural ideas, feelings, and moods associated with it. We often refer to them as *science,* or use the word *scientific* broadly. Science is so much more than just a method. It is a cultural force. It is an abundance of suggestions, influences, and powers. It is a phenomenon with connotations of reason, exploration, wonder, and advancement (among other things) that exists in some form in the hearts and minds of virtually every person in our culture. Science is rich in its own affective potencies, and often with existential flavour.

Regarding human nature, I raised the question in the introduction to this thesis of whether it is appropriate to investigate it as a category. Postmodern discourse has taught us the extremely important lesson that attempting to generalise or to speak in any kind of universalising language about categories of any sort invites subconscious biases, oversights, and desires to advance one's own power to influence the discourse and therefore cause tangible harm. Scholars (such as Lois Lee and Charles Taylor) have as such continued to attempt to theorise about various cultural circumstances and experiences, but without explicitly conducting analysis around this problematic category of human nature. Nevertheless, tacit ideas about humanity undergird and/or transect such theorising. It seems to me that rather than take postmodernism's warnings to mean that attempts to theorise about the human should be rejected altogether, it is more prudent and more productive to use these insights as impetus to develop means by which to theorise more carefully.

I have addressed potentially problematic elements of discourse on human nature and religiosity in the sciences (a realm in which it has been particularly contentious) by turning a scrutinising eye to evolutionary science and to neuroscience. Scholars such as Griet Vandermassen have attempted

to use both evolutionary theory and neuroscience to help render the sciences friendly to social constructionism and to progressive discourse, but they have failed because they have unquestioningly adopted outdated and incautious theories regarding evolution and the mind. If we think about evolution in terms of by-products and tendencies, however, and if we adopt a more interactional approach to cognition, then we arrive at a scientific approach to the human that doesn't elide but rather actively requires social forces to be key players in the development and determination of human behaviour. With science deployed in such a matter, thinking about human nature becomes less rigidly categorical. Boundaries blur. Context manifests. Biology provides substrata that differentiate based on the environment, and the differentiation occurs in remarkably plastic ways.

An important complement to these scientific insights is the perspective of affect theory. Humans are unrelentingly affective. I have deployed phenomenological affect theory in this thesis in order to demonstrate the rich ways in which animal intransigencies (such as the genetic tendencies or predispositions to which I refer above) intersect with environmental circumstance to give rise to abundant differentiation. That is to say, animals are biological, but they are very much at the mercy of their environments, too. In a very crucial way, then, affect theory helps bolster the suggestion that functionalism—the idea that religion or any phenomena exists to serve a certain purpose—needs to be supplemented and reconsidered. Religion (and science) is not just about what does it *for* you, but also about what it does *to* you. This is a subtle but important difference in perspective. Humans are compelling animals, but humans are also compelled animals. We experience and act within a matrix of powers. When science is deployed within the study of the human in the ways I articulate in this thesis, and especially when in conjunction with affect

theory, it becomes a methodology that can actually provide insights about power in all of its embodied breadth and depth.

Regarding the relationship between science and humans, I have demonstrated that we must look beyond the purely methodological or investigative qualities of science. Science is not just empiricism but is also an amorphous cultural phenomenon that can be deeply felt in various ways, and which can be impactful on an existential register. Another way to articulate this impact is to say that science, as an existential culture, has inherent *existential power.* I have used the language of "soteriological potential" throughout this thesis to denote the power that science has to *save*: the information it reveals about nature saves Goodenough, the clarity it delivers saves Harris, and the intimacy with nature it delivers saves Wilson. This power of course can also work in the opposite direction: if encountered in such a way as to cause experiences of meaninglessness or despair, such as what happened to Goodenough when she was in college, it can be damning, in the sense that it can be existentially harmful. Science has the ability to impact people on an existential register. This is obviously true for Goodenough, Harris, Wilson, and myself. We must understand that this power is afloat in culture at large.

Throughout popular culture and many fields and subfields in the academy, science is depicted as a calculative, rational endeavour that eschews emotion. This perception of science has meant that scholars interested in emotion, experience, and affect have often looked the other way, directing their attention to religion and other more traditionally emotional phenomena. The studies of Goodenough, Harris, and Wilson in this thesis however demonstrate that science can be by itself deeply felt entirely apart from any kind of relationship it might have with religion. These three thinkers experience science on a richly existential register. This is even the case when, for Harris,

science is doggedly intended to be as rational and objective as possible. It might not always be the case that science is related to with intense emotion and especially of this existential flavour. But it certainly can be.

Such insights lead me to recommend several avenues for future study:

1. Explore the concept of "existential power" as it may apply to science, and specifically its negative impact

I have described ways in which science can impact us positively or negatively on existential registers. This is, in a very real sense, an existential power. For the sake of understanding influences on our subjectivity, feelings, beliefs, and actions, it is important to thematise and explore this concept of existential power. I propose exploring the concept of existential power as a quality of phenomena (such as science) that entails having relationships with and being able to influence us on our existential registers. I propose exploring the concept of existential power in culture at large, and of course specifically as it may apply to science.

Studies of the arc of Western philosophy, religion, and culture have long recognised the importance of the decline of traditional religious forms and the rise of science, humanism, and secularism. One of the most prominent of these perspectives is the narrative of disenchantment put forth by Max Weber and explored by Weberian scholars of culture and religion at great length (this thesis 186-187). The West, so the theory goes, has traded magic and religion for science and secular humanism. Disenchantment entails the loss of the world's magic, colour, and life. Affect theorist Jane Bennett is one of a growing number of theorists who challenge this narrative by

pointing out how enchanting the modern world can be, if in different ways than it was once before. This is an important perspective to bear in mind when considering the impact of disenchantment on the modern religious and spiritual landscapes. Instead of thinking about the modern, scientific world as disenchanted, says Bennett, it may be best to think of it as otherly-enchanted.

There is another way to challenge or supplement traditional disenchantment narratives, however, and that is to shift our focus from the aesthetic in terms of magic, surprise, and vibrancy to the experiential in terms of the embodied limitations and existential registers of human life. So as science (and other phenomena with existential power) can save, it can also *damn.*

Goodenough's experiences of nihilistic despair and terror suggest that narratives of disenchantment may not go far enough—so far as the emotional impact of the modern spiritual milieu is concerned. I have here in this thesis focused on exploring how science can function positively. It saves. It ameliorates existential anxiety. But it can also function to exacerbate (or trigger) existential anxiety. Various triggers for existential anxiety have of course been explored by thinkers within and tangential to the existentialist movement for a long time. But specifically within the field of religion and the subfield of religion and science, it would be useful to complement my study of the salvific qualities of science with a study of what we might for now call the potential to give rise to damning qualities. This would add layers of existential depth to traditional disenchantment narratives and enable scholars to theorise affectively and existentially about the modern spiritual milieu.

2. Explore the religion and science conflict in terms of existential power

As suggested briefly above, it may be useful for the subfield of religion and science to deploy this existentially affective lens in analyses of the "conflict" between religion and science. A significant bulk of the literature in the field (and especially in its foundational days, such as via the typological work of Ian Barbour [1997]) is devoted to understanding the ways in which religion and science can be said to interact. Recent landmark studies such as Peter Harrison's *Territories of Science and Religion* (2015) have demonstrated that the modern day conflict is a result of many complex intersecting factors rooted in the histories of language, value, identity, and more. I recommend building on efforts to explore these historical developments by exploring the idea of science having an existential power that interacts with that of religion.

Science appears to have existential power for many reasons, perhaps most of all because it informs the ways in which we think about our most ultimate questions such as, who are we? And, from where do we come? Some examples are the scientific influence on questions about human origins (evolving from apes) or the nature of miracles (supernatural phenomena are not empirically verifiable). The affective force of this explanatory power cannot be overstated, as it is a part of why cosmological narratives, myths, and other explanations that are typical of traditional religion find themselves in competition with science. Science may also have many other forms of existential power, and there may be many other ways in which science's existential power affects its relationship with religion. Understanding these potencies would add an important affective-experiential lens to discussions about the religion and science conflict and relationship generally.

3. Use the category of salvation for comparisons

The concept of salvation I have here devised is useful in part because it provides a means by which to conduct cross-cultural analyses of experience. If salvation is a human potentiality then it can be found in any culture or context provided that the culture or context has means by which existential anxiety can be triggered or become manifest. The studies in this thesis suggest that salvation can be intense and dramatic (especially as we saw with Julian of Norwich and Catherine of Siena). It can also be minimal, subtle, entirely beneath the surface, quiet or loud, long-running or short-lived, healthy or unhealthy, belief-centric or practice-centric, intentional or unintentional, or any other variety of qualities. Digging deep into analyses of people's experiences can shed light on this variance. Comparing what is found across all sorts of demographic and cultural differences, and especially religions, can help provide means by which to get to the heart of the subjective experience of human existentiality and the differences and similarities that may become apparent within it.

4. Interrogate the relationship between salvation and morality

Each case study in this thesis was about experience, but morality was invariably bound up in the discussions. It was not my intent when I began working on this thesis to draw ethics so much into the conversations, but it became necessary when I realised the extent to which each of the subjects experienced morality as crucial to their salvations. This was especially the case for Goodenough and Harris. In the case of my analysis of E.O. Wilson the importance of ethical questions to him was less obvious (in my analysis, at least; it was obvious in Sideris's), but morality is actually a very central piece to Wilson's worldview, motivations, and affective matrices. The actual, literal salvation of sacred nature from environmental crises, for Wilson, hinges on the ways in which we relate to nature not just on intellectual but also on emotional and

spiritual levels (see most relevantly Wilson 2006). He essentially seeks and attempts to provide salvation in nature so that we can use science to literally *save* nature.

Affect theorist Jane Bennett has provided a potent starting point out of which to analyse the affective dimensions of morality. She has argued that positively-valenced affective attachment to the world (she calls it "love") is necessary in order to inspire dispositions to ethical generosity. This seems to me a powerful thesis that merits further exploration. Specifically with respect to my concept of salvation, further exploration would yield insights into the potential salvation (and salvific things) can have for inspiring dispositions to ethical generosity. We saw a clear case of how salvation helps Goodenough cultivate an ethical orientation to the world. This is also, though I did not explore this explicitly here in this thesis for lack of space, the case for Wilson. Is that in any way also the case for Harris? How could it be the case, or *more* the case? Can certain beliefs or practices regarding science, nature, religion, or other phenomenon be salvific in such a way so as to inspire ethical generosity? Perhaps if it is grounded in nature, in other human beings, or in the phenomenon towards which the ethical generosity should be directed? It seems extremely plausible to me. This is an important avenue for further exploration not just in the context of religious naturalism but across religions and cultures.

5. Use affectivity to explore link between belief and ethics

Affect theory does not assert that beliefs don't matter. They do matter. This is abundantly apparently from the case studies in this thesis, each of which discusses the potency of specific ideas. But beliefs must be enfolded into a pre-linguistic, embodied matrix of emotions and other kinds of sensations and feelings. When we do consider beliefs within this affective matrix, a map

of the tangled routes between feelings, beliefs, and actions begins to emerge. Of course, this is an enormously complex map, but it is a map nonetheless, and one that must begin to be charted if we are going to appropriately theorise about the links between belief and action.

6. Explore the relationship between science and nature in cultural conception

The case studies of Goodenough and Wilson have revealed that there is a complex relationship between nature and science that merits exploration, or perhaps untangling. These studies have revealed that there is rich potential here to be explored for understanding how we experience, are saved by, and may influence our ethical dispositions within both nature and science.

In a 2019 podcast interview with me, Goodenough emphasised the importance of distinguishing between that which is *science*—for her, a methodology—and that which is a simple *fact* about the universe, which is revealed by science (in Ruper 2019b). Science as a practice reveals nature. This is why her book titled *Sacred Depths of Nature* is about the sacred depths of *nature,* even while at least half of the text is devoted to explaining what we might ordinarily think of as scientific concepts. In her 2017 book *Consecrating Science,* Sideris charges Wilson with an anthropocentric triumphalism because, for example, he considers the DNA of a mouse to be amazingly long. In Sideris's eyes, this signals a love of *science,* as science is the means by which we can achieve such an abstract or technical understanding of mice. But in Wilson's eyes, this entails a love of *nature,* because he, like Goodenough, sees science as a way to get to know nature. String theorist and author Tasneem Husain considers science to be an on-going conversation with the universe: science is a way to become better acquainted with the universe over time (in Ruper 2019c). This

seems to capture both Goodenough's and Wilson's approaches to science as they came to light in the case studies.

In this thesis I have used the language of science in many senses. I have used it to refer to methods and I have used it to refer to facts and I have used it to refer to cultural sentiments and media. My tattoo of *ursa minor* is an example of its cultural qualities . It is also an example of what we might consider to be confusion regarding nature and science in culture at large. I have called my tattoo and my motivations for getting it "scientific"—or I have at least related the tattoo to my experience of science as salvific… but what does this really mean? Could this not also be said to be a tattoo of something "natural"? It could. So what is it about my decision to get this tattoo and personal feelings about it now that makes it feel to me *scientific*? This is an important question that bears on the relationship between religion and science in culture at large.

How does culture influence whether we think of something as "scientific" or not? Does it have anything to do with tension against religion, or science's standing as a cultural institution that provides its own kind of explanation? Is science its own realm, or simply the realm of nature? These are important questions because they can affect public perceptions of science and the ways in which people find science credible or incredible. It is crucial that we first explore and discuss more precisely what people mean when they say "science" and then—and *only then*—analyse how they feel and think about it. The same goes for related phenomena such as nature, and also religion and technology. If we do this, we may be able to arrive at appropriate interpretations of people's experiences, feeling, behaviour, and allegiance, and then devise appropriate paths forward.

These recommendations I make for future study are ambitious. This study in itself has been ambitious. It has endeavoured to untangle or at least to appreciate the complex affective webs that pulse at the heart of science. It has applied the insights and resources of the study of religion to the study of science. It has taken a concept that has belonged to traditional religion for thousands of years and applied it to modern day science. It has developed an analytical tool—the concept of salvation—that is intended to erode traditional barriers between that which is religious and that which is not, at least in terms of experience. It has attempted to bolster the use and potency of affect theory within the study of religion and specifically within the subfield of religion and science. It has assessed people's relationships with a secular phenomenon—science—and deemed them salvific. These facts make this thesis a bold and complex work. Ultimately, however, this has also been a simple study. I have explored what it means to experience embodied limitations for three people belonging to a small slice of the cultural landscape of the modern West. They each, if in different ways, are merely being human, compelled by the existential registers that are alive in us all.

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