INVOKING A NATURAL CONSCIOUSNESS

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ERASMUS DARWIN'S EXPLORATION OF COSMOLOGY

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A Thesis Submitted to the School of Graduate Studies

in Partial Fulfillment of the Requirements

for the Degree Master of Arts

McMaster University

McMaster University

MASTER OF ARTS (2023)

Hamilton, Ontario (English)

TITLE: Invoking a Natural Consciousness: Erasmus Darwin's Exploration of Cosmology

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NUMBER OF PAGES: viii, 93

Lay Abstract

This project focuses on a reading of Erasmus Darwin's *The Loves of the Plants* (1789) that emphasizes its purpose as an exploration of cosmology and the influence of ideological histories. Taking inspiration from the metaphors of Carl Linnaeus' system of plant classification, Darwin is able to introduce his readers to the world of botany, all the while pointing to the implications of following approaches to understanding the natural world that rely on religious conceptions. Looking specifically at Darwin's manipulation of the origins of Euro-Western ideas pertaining to our planetary natural order, those which stem from the creation myths of Genesis and were passed on through antiquity into the Age of Reason, I intend for this thesis to demonstrate how Darwin's reimagining of nonhuman beings serves to illustrate the ways in which our cosmologies, even those we believe to be removed from, are able to affect our understandings of the worlds around us and all the beings within them.

Abstract

This thesis examines Erasmus Darwin's poem *The Loves of the Plants* (1789) for its boundary crossing expression of ecological theory that takes into consideration the influence of religious cosmology on our understanding of the natural world. Darwin (1731-1802) was the grandfather of naturalist Charles Darwin, whose theories we recognize now as the foundation of an entire field of biological study. But Darwin harboured his own beliefs of evolutionary theory long before his grandson was born, those which asserted a relatedness of all forms of life and pressed against the conceptions of existence that were so deeply rooted in the Euro-Western mind. I intend to demonstrate here the originality and complexity of Darwin's work as an exploration of cosmology, wherein the animation of his vegetal world invites readers to consider both the continuities between states of organic existence and the categories which were established in an attempt to keep them apart. By investigating the origins of these conceptions, from biblical creation to the Aristotelean tradition into the time in which Darwin wrote, I explore the ways in which these ideologies pertaining to the natural order of being have come to be and continue to be. Based on his interpretation of Carl Linnaeus' system of taxonomic classification, a system which remains in use to this day, Darwin's *Loves* manipulates a structure shaped by European religious and ideological assumptions to unravel the binding understanding of a separate and distant nature, one that has been implemented to discourage ways of perceiving otherwise. Because of its incorporation of Linnaean thought, this early work of Darwin's is often disregarded by scholars in conversations of innovative natural philosophy. Yet, in employing a historicist rhetorical and cultural analysis, this thesis examines Darwin's botanical poem inclusively, engaging with his decentering of the Christian understanding of the hierarchy of species that has been maintained for centuries, to illustrate that in composing a realm of

personified flora he is melding the believed to be distinct worlds of the human and nonhuman to unite our species with an all-encompassing naturalism. Though this research is culturally specific, its sentiment may be carried forward to acknowledge the ideological histories and inheritances that influence our conceptions of other biological beings and our understandings of our own species as well.

Acknowledgements

This work would not be what it is without the continuous support of my supervisor, Peter Walmsley. I would like to thank him for introducing me to the realm of botanical literature and coming along with me over the years as I wandered through scholarship searching for a way to bring my many interests together. It can be difficult to remember the importance of making time for a life beyond your work when you take on a project like this, and so I want to thank him for being there to remind me. He also taught me how valuable it can be to relinquish control, something I was unsure I would be capable of at the beginning of all this, but certainly needed to learn. I will always be grateful that I have been able to get to know and work with someone who is such an unwavering source of honesty, encouragement, and kindness – there was no one else I would have wanted to go through this process with. I would also like to thank Susie O'Brien for illuminating the fascinating work being done in the environmental humanities for me and wanting to be a part of my exploration of the species relationality in this text. My thanks extend as well to the final member of my committee, Eugenia Zuroski, for offering her thoughts on my writing and her affirming words. The people closest to me, my parents and friends, deserve to be acknowledged for their untiring acceptance of my work habits and they deserve to be thanked for being there for me whenever I needed time to recharge. A special thanks is owed to my dad, who, taking from his mom, always said it never mattered what path I chose in life, as long as I was happy on it. There is one other person in particular who I cannot show my appreciation for enough, my partner and pal, Jake Knowles. I thank him for moving with me to pursue this opportunity and giving me nothing but love throughout this experience and long before it. I want to dedicate this work to the nonhuman beings who have been a part of my life thus far and continue to inspire me to work towards ways of living that acknowledge their wonder.

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Introduction

Perception and Place

There is a noticeable trend in the scholarship pertaining to Erasmus Darwin – that being, to reiterate the judgements set forth by the most prominent writers of his time. It seems that those we distinguish as the leading figures of the late eighteenth century, like William Blake, Lord Byron, William Wordsworth, and Samuel Coleridge all, if even just for a fleeting moment, found themselves captivated by the world created in Darwin's *The Loves of the Plants* – and the scholars interested in Darwin now are determined to make this known. Of course, this is something not done without purpose; positioning an author as being of interest to those we identify as literary greats indicates for the readers of the scholarship on that author, that, for various reasons, it is work worth examining. Though, much like their intrigue, the opinions of Darwin's poetic contemporaries portray the cultural presence of Darwin's writing as ephemeral. Composed by a physician with exuberant interests in the natural sciences during the rise of the Romantic movement, Darwin's work was labelled as unrefined verse. His conception of nature relied too heavily on his developing modern philosophical beliefs that proposed ideas of continual transformation – encompassing a human imposition on the distinctly natural landscapes the traditional Romantics sought to keep hallowed (Bewell 19-20). These opinions have resulted in a large body of scholarship that attempts to analyze Darwin's writing, very often in relation to the ideologies being expressed by his contemporaries, to argue his position as either progressive or wonted as it relates to a number of sociocultural tensions that were building in the Euro-Western world at the time. We can see this in the work of theorists like Janet Browne and Alan Bewell as they explore Darwin's navigation of gender dynamics and cosmopolitanism.

However, what I have not seen studied in depth, which I find surprising given the attention paid to the complicated role of religion during a time recognized for its growing secularism, and what I plan to examine in engaging with Darwin's *Loves*, is his exploration of religious cosmology and its influence as it pertains to understandings of the natural world.

Darwin was the grandfather of naturalist Charles Darwin, who we acknowledge today for his fundamental contributions to the study of evolutionary biology. It is clear, though, that this inclination to explore the planetary natural order began in the family a few generations before him. Darwin spent the majority of his life in England, aside from the years he spent studying medicine at the University of Edinburgh. As an influential figure in numerous scientific societies in England, including the Botanical Society at Lichfield, the Derby Philosophical Society, and the Lunar Society of Birmingham, Darwin surrounded himself with assemblies, of mainly men, whose passions for considering the natural world and Enlightenment innovation provided him with a space to alleviate his pressing conceptions of being (McNeil "Darwin"). For Darwin, understanding the world according to static creation, which could be articulated by a system of strict distinction was an essentially shortsighted approach. Rather than depending on, as was expected during this period and before, the conceptions of biological being raised in the biblical tradition, Darwin believed in an evolutionary process that meant all beings shared an origin. From this origin, all forms of life were connected, but this did not mean that change and growth were not evident, in fact, it necessitated their presence. Browne describes Darwin in the context of his thinking as one of those "men who were by nature liberal reformers, deeply committed in one way or another to the idea of improvement in all spheres of existence through the exercise and application of natural philosophy," an individual who sought something beyond the vision of the natural order perpetuated by "the Tory hierarchy and the established church" (Browne 595).

Amidst the rise of botanical inquiry in the eighteenth century, Darwin indulged in the study of botany for both practical and theoretical aims in the late 1770s. While creating his own botanic garden outside Lichfield and observing the behaviours of its nonhuman inhabitants, he tended to a translation of the taxonomic system created by Swedish botanist Carl Linnaeus (1707-1778) (Fara, *Erasmus* 9), becoming initially the most influential popularizer of Linnaeus in Britain.

Linnaeus' theorizing stands as something of an anomaly for the eighteenth-century natural sciences, for as Patricia Fara writes, "by 1799, over 50 different systems were [made] available, but Linnaeus' was the one that survived" (*Sex* 20). The son of a Lutheran pastor and gardener, Linnaeus established what is arguably the most recognized system of organism classification, one that remains widely employed today. Studying medicine and botany, which we will come to notice was a very common trend during the eighteenth century due to many medicines being botanical in this period, Linnaeus, like numerous other scholars, travelled widely to see first hand the wonders of nature. The year he finished his medical degree was the year he published his first edition of the *Systema Naturae* (1735), which would over time transform into the basis of his sexual system of species classification to be applied to all plant beings known to Euro-Western botany in his *Species Plantarum* (1753). Written originally in Latin, these works delineated a method for naming plants and animals binomially, a practice that has remained in use for over 250 years. These two-part labels established a hierarchy of class, order, genus, and species which would be used to distinguish individual forms of being across the categories he titled kingdoms. Of interest for this research specifically is that Linnaeus' subscription to Christian ideology, specifically the ways in which it attempts to demarcate differing forms of being, can be found in his attempts to organize the natural world – the ideals of Christian morality built directly into his scientific scheme (Fara, *Sex* 21). It is because of this

that some scholars position Linnaeus' impetuses to be far less objective than is often assumed of scientific theory, for he "saw his botanic project as part of a Christian economy and stewardship of nature" (Bazerman 36). As Fredricka Teute writes, Linnaeus' undertaking sprouted from "an Enlightenment restructuring that imposed a human intellectual order on a nature that increasingly had been construed as disorderly" (Teute 328). To enact such order, Linnaeus employed the language of human conduct to delineate vegetal beings according to their sexual structure, dividing males and females and classifying them according to metaphorical marital status based on their reproductive components. This meant referring to the courting female flowers as brides, the coming together of males and females as marriages, and the "plants whose flowers are not discernible" as clandestine (Darwin v). Beyond this, as Linnaeus aimed to classify all earthly beings, Browne interprets Linnaeus' creation of such a taxonomic system as his own form of biblical christening. He would act as the Adam of a planetary garden, wherein his identifications were "akin to religious baptism, almost as if the organism was not a part of the Christian world until it possessed its own particular species name" (Browne 607).

Despite, as we will come to see, the sway that Linnaeus' system held, his work did not go entirely without critique in its onset. Georges Louis Leclerc de Buffon, one of the most prominent French naturalists working during the period, attacked Linnaeus' system for representing the whole plant by only one of its parts, which would effectively alter the scope with which we use to view the natural world. As Richard Sörman writes, "Linnaeus' mistake, according to Buffon, is to present nature in his scientific work in a way that strongly deviates from the way nature presents itself to us in direct reality" (Sörman 149). His claim relied on the notion that Linnaeus' system, and Linnaeus in his work more broadly, used scientific language for the purpose of "standing in the place of nature" or "supplying nature's place" rather than

"bringing nature into presence" (144-5). In this, of course, is the sentiment which Teute and Browne identify in their interpretations of the Linnaean system. There exists in Linnaeus' rendering of the natural world an element of construction that positions nature as something to be created, rather than that which is itself creating. Darwin would come to feel similarly regarding Linnaeus' work, as his theorizing which proceeds *The Loves of the Plants* would do away with adhering to the inflexibility of the Linnaean system and instead focus on the ways in which he saw the world – as a place brimming with interconnected beings whose existence could not always be slotted into a categorical box based on religious ideologies. In challenging one of the most influential publications in the history of the natural sciences, Darwin was taking risks, for as I will explain, in attempting to highlight the problematic nature of Linnaeus' work, he would effectively have to travel back to the ideologies which allowed Linnaeus' theories ground to stand on.

Theresa Kelley has suggested that as Darwin's writing progressed, his divergence from the accepted theories of natural systems became greater and greater (Kelley 80). *The Loves of the Plants* was Darwin's initial publication. Released anonymously first in 1789 before becoming the second half of *The Botanic Garden; A Poem in Two Parts* in 1791, it was and continues to be the most closely aligned with the Linnaean system of classification. The work stands as a lengthy illustrated expressive introduction to botany and taxonomy, as the Botanic Muse who watches over its garden tells Darwin's readers of the lives of its inhabitants, each being a plant whose species that had been subject to Linnaeus' categorization. Thoroughly infused with discursive footnotes, which both detail the inspiration for his verse pertaining to each of the near one hundred species he lists in the poem's index and provide further specifics regarding the plants' behaviours, habits, and cultural positionality, *The Loves of the Plants* offers an amatory

reconceiving of plant relationships. Darwin's *Loves* is often not identified as being as conceptually innovative as his later work in *Zoonomia* (1794), *Phytologia* (1800), or *Temple of Nature* (1803) as Linnaeus' work was undeniably the propagator from which the *Loves* was able to grow, Linnaeus initiating the personification of plants through his explanation of their sexual conduct. Because of this, many scholars articulate Darwin's execution of this system, like Linnaeus' conception of it, as merely a means to display plant sexuality in an intelligible manner by modelling its existence after human society that does in many ways contribute to restrictive understandings of existence (Browne 600). I believe to assume this of Darwin's *Loves*, though, is to belittle the complexity of its design – for Darwin's expansion of this metaphorical system functioned as a method wherein the paralleling of humanity and flora allows for an illustration of a truer form of natural existence, one which reconsiders the ideologies that scholars like Teute and Browne believe to be embedded in Linnaeus' motivations.

Of course, many may think now that a poem is unconventional for the communication of scientific knowledge, just as many would say the field of scientific study holds no place for religious influence. In Browne's work though, she reminds us of the ways in which artistic expression and natural history were intertwined in the eighteenth century, noting the regularity with which the arts were informed by the sciences (Browne 593-4). Similarly, Britt-Louise Gunnarsson in *Languages of Science in the Eighteenth Century*, attests that the current distinctions we make between artistic and scientific texts were once not so easily made, the same being said of scientific and religious ideological convictions:

> The dividing line between science and literature was… less clear; scientists could convey their scholarly findings in a poem (Haskell 2007) or surround them with literary associations. Nor could a clear line be drawn between scientific and religious writing:

> many scientists, among them Linnaeus, place the exploration of nature in a religious context, and religious text models also made themselves felt in scientific writing. (Gunnarsson 8)

It was Darwin's literary endeavours that allowed him to eccentrically articulate his evolutionary beliefs, those which asserted a relatedness of all forms of life and pressed against the myths of biblical creation which, as I will examine, act as the foundations for Euro-Western understandings of the natural world. In his poetics, Darwin was able to explore considerations of nature which, as he perhaps thought the scientific writing of his time was having difficulty with, illustrated an interpretation of earthly being that did not rely on the religious perspectives of the natural world that aimed to maintain control over its order. The complexity and originality of Darwin's work lies in its exploration of cosmology, wherein his vibrant botanic poetry guides readers to take part in a literary transmutation and consider the continuities between species as they envision themselves as the vegetal other.

With this in mind, my first chapter will address the ways in which Euro-Western understandings of nature have, despite the insistence of objectivity in the Age of Reason, carried forward the religious origins that laid the foundations of our cosmological imagining of the natural world. Through a comparison of the ideological traditions of Genesis and Aristotle, we will see the ways in which the biblical species hierarchy was preserved by the Aristotelean theories of antiquity – those that become the basis for the study of the natural sciences that would continue in the centuries to come. Of course, in this section I will provide an explanation of the term cosmology and its employment so that we can look within the text to identify Darwin's creation of a new world order as an alternative cosmological approach to the Christian conceptions which were over time accepted as standard. In its portrayal of God granting human

beings authority over all other beings on the earth, these conceptions assumed a human mastery over nature through the telling of the Genesis myth. I will examine the ways in which the Genesistic parlance of Darwin's preface asks us to consider how the biblical origin narrative has shaped our perception of nature, as his incorporation of specific religious symbols serves to undermine the Judeo-Christian cosmology. In this chapter, we will see how Darwin attempts to draw attention to not only the influence of religious ideology, but its capacity to function as self-sustaining.

From here, I will move into my second chapter that will concern itself with the *anima*, which carries from Latin ideas of life and soul. As I introduce Linnaeus' system of classification as it was appointed in the eighteenth century, Aristotle's influence on the field of the natural sciences will be made evident. With this, an exploration will ensue that presents the two major philosophical approaches to natural physiology, the mechanical and vitalist, that would erupt as religious histories came face to face with the expectations being set in the scientific study of life. Though, as we will see, the ideological legacies of Christian thought remain in both philosophical perspectives, and thus, are of no real interest to Darwin. In this space, I will discuss Darwin's interpretation of the animated and the animal, delving into the Ovidian allusion of his proem and working through the constraining conceptions that Darwin believed we had reserved for other biological beings as a means to uphold the status of our species – those which allow us to maintain the order delineated by Christian ideology.

This will bring me to my final chapter, wherein by looking at these constrictive understandings we can appreciate Darwin's emphasis on vegetal beings' capacity for relationship building. Here, I consider the complicated element of singularity as it is thought of in terms of plant beinghood, wherein the Euro-Western tendency to assume plants' deficiencies according to

human standards has contributed to the ways in which we describe and accept interactions taking place between nonhuman beings. This will lead me to an examination of Darwin's willingness to attribute beinghood to the plants of his botanic garden, as he describes a ceremonial practice that not only allows these vegetal beings to demonstrate outwardly their connectivity, but does so in a way which furthers his cosmological divergence from Christian ideology. Engaging with his proposal of plant relationality and its metaphoric depiction of human experience, we can consider the effects of his construal of plant reproduction as human love, liberating sexuality, both vegetal and animal, from the restraints of religion so as to instead be understood physiologically. This is, for Darwin, a means to demonstrate the restrictive nature of Christian doctrine that has led to understanding all beings, including ourselves, with limitation.

Although *The Loves of the Plants* is ostensibly about plants, the exploration of botany which takes place within its pages can be seen as a form of human projection. Speaking to Darwin's choice of paratextual materials and disentangling the tendrils of his plant society, this examination of Darwin's work will display his rich reimagining of our relations with other biological beings to posit a vision of humanity aware of our connectedness to other species and the world around us. Darwin's manipulation of a metaphorical structure shaped by religious ideological assumptions serves to unravel the binding understanding of a nature separate and distant from humanity. My intent with this work is to demonstrate what I have not yet seen explored to this extent in the scholarly conversations pertaining to this literature in the context of the natural philosophy of its period or the field of environmental humanities that has since developed. I will examine *The Loves of the Plants* inclusively, engaging with Darwin as he decentres the Judeo-Christian understanding of the hierarchy of species by composing a realm of personified flora – melding the physicality of the human form into the natural world to unite

elements of our species with an all-encompassing naturalism and illustrate the ways in which religious ideology has influenced our perception of and place within nature.

Chapter One

In the Beginning

In order to properly address the intricacies of Darwin's reimagined nature, we need to understand how the natural order was understood in the Euro-Western world of the time in which he wrote. The eighteenth century is aptly titled the Age of Classification (Fara, *Sex* 20), as the cultures of natural history that emerged in Europe during the seventeenth century brought forth reinvigorated motivations to render their world fully transparent. For those in Europe, their world was the planetary world in its entirety, this notion lingering from the ideologies we will be exploring in this chapter. A significant step in establishing this form of transparency was the development of competent categorization. To be able to categorize rationally, there must be systems in place to act as the theoretical infrastructure that supports the basis of designation. With this, more and more of what had been assumed knowledge, by way of myth and history, would need to be reconsidered under the scope of observation and reason, or at the very least, appear to be reconsidered in order to demonstrate that the infrastructure itself was sound. As we will see, the systems of the natural order that prevailed in the eighteenth century, though propelled by the whirlwind that was contemporary scientific exploration, nevertheless embodied theories of periods past.

Of course, one could argue that an ideological system's ability to continue through centuries of shifting socio-cultural movements supports its validity, and for some even its cosmological objectivity. This argument, however, relies on a particular theoretical notion that I will elaborate on, and that, though written long after his passing, we can see Darwin manipulating to conjure an air of authenticity in his own exercise of world building. The

ideological system under consideration here is that which for the Euro-Western world was presented explicitly in the work of Aristotle, affirmed by Christian doctrine, and would continue in the literature produced by some of the most prominent figures of Euro-Western science, including Linnaeus, that told of inherent distinctions between natural kinds. By examining the ways in which Darwin chooses to ground *The Loves of the Plants* with introductory materials that demonstrate the influence of the origin myth of Genesis on the Euro-Western mind, this chapter will illustrate how Darwin employs biblical iconographies to undermine the very cosmology they stem from. For in doing this, Darwin is asking his readers to consider how these specific narratives have shaped perceptions of the natural world, influenced the development of its hierarchical order, and become so enduring.

From the Western Cradle to Kingdoms Come

In this section, I will be dealing with the similarities between two leading Western cosmological traditions, the Aristotelean and that of the Old Testament, as they pertain to human conceptions of nature and its nonhuman beings. We accept in the West the assertion that Euro-Western civilization was born from the ancient Greek world due to its wide-ranging record of inherited cultural characteristics, our approaches to the study of natural philosophy being just one of them. This is so much the case that Susannah Gibson writes "it is impossible to understand eighteenth-century life sciences without an appreciation for the work of one central figure: Aristotle" (Gibson 4). During his lifetime, Aristotle wrote several philosophical texts pertaining to the categorization of beings. Though he was not concerned with the classification of individual

species as many thinkers of the eighteenth century were,[1] he sought to identify the larger conditions of existence that would allow one to examine an individual being and determine whether it was a vegetable or an animal, the mineral kingdom as it would come to be understood not warranting his attention. In order to make this distinction, as well as further distinctions within kingdoms, one would need to take into consideration the presence of a digestive system, a reproductive system, internal fluids, sensibility, and motion, as he explains in his *History of Animals*. For Aristotle, humans remained separate from the categories of vegetable and animal for reasons that will be discussed in greater detail in the chapter to follow. However, for the purposes of my discussion in this section, I will note that there exists in Aristotle's categories of vegetable, animal, and human, a hierarchy – one based on the presence of a soul. In the context of natural history, the soul for Aristotle was an element that he believed all living beings contained, but in varying degrees.

For contemporary Western readers, basing the categories of being on the presence of a soul may sound rather biblical. Of course, Aristotle and the philosophers who proceeded him had various stances on the influence of divinity on the natural order of things, and as can be seen with the work of botanists and natural philosophers of the eighteenth century, Aristotle's reasoning held a level of sufficiency that allowed it to carry forward through the rise of Christianity in Europe (29) – due, arguably, to its resemblance to the biblical categories of being found in what would be the most influential written work pertaining to the organization of earthly existence, the Book of Genesis. As Paul Morris attests, during "the last two millennia the text of the Garden of Eden (Gen. 1.26-3.24) and the traditions of its interpretation have provided

[1] In Gibson's summary of his work, she claims that Aristotle believed such a detailed and unnecessary pursuit like the distinction of specific species of similar creatures would become "dull and repetitive for himself and his reader" (12).

the rarely disputed basis from which our explanation of the nature and status of humankind have been derived. Our primary relationships – between man and woman, humanity and deity, and humanity and nature – have been defined by our understandings of this biblical text" (Morris 21).

Let us consider the ways in which this narrative does in fact correlate with Aristotelean natural history, looking at the resonances and continuities that persist between both traditions' articulations of the kingdoms of living beings. An important thing to consider is that though Christianity was not officially adopted until 380 CE, the Old Testament and its origin myths were written far before that of Aristotle's texts, and thus, their narratives were present in the cultural conversations of Aristotle's time. In the biblical myth, after generating the Earth and the heavens which would look down upon it, God got to work on what would fill his expansive creation. While Aristotle may not have emphasized the need to distinguish the mineral world, in Genesis the formation of the land on a separate day established the first of the immaterial boundaries that this narrative creates in the passing of days to compartmentalize earthly existence. Next, would come the plants. In this passage specifically, the emphasis Aristotle comes to make on the difference between vegetal and animal reproduction is apparent.

> And God said, Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth: and it was so. And the earth brought forth grass, and herb yielding seed after his kind, and the tree yielding fruit, whose seed was in itself, after his kind: and God saw that it was good. (Gen. 1. 11-2)

Given that Aristotle believed a crucial distinction between vegetable and animal was the capacity to reproduce asexually or sexually respectively, with vegetable beings being those "whose seed is in itself," there exists little discrepancy between the two traditions in regard to this determining quality as a means of categorization.

> On days five and six, God turned to animal life:
>
> And God said, Let the waters bring forth abundantly the moving creature that hath life, and fowl that may fly above the earth in the open firmament of heaven. And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that it was good. And God blessed them, saying, Be fruitful, and multiply, and fill the waters in the seas, and let fowl multiply in the earth. And the evening and the morning were the fifth day. And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind: and it was so. And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good. And God said, Let us make man in our image, after our likeness… So God created man in his own image, in the image of God created he him; male and female created he them. (Gen. 1. 20-7)

These two days together encapsulate the creation of the animal kingdom, but there is a clear separation between the beings of water, air, and land. This aligns quite specifically with Aristotle's "common-sense classifications" that Gibson articulates as being the "'natural' groups such as fish, birds, [and] quadrupeds" (Gibson 12). It would seem in the progression towards a "likeness" to God, as demonstrated by these verses of Genesis, a being achieves a higher level of living importance. Aristotle establishes a similar sentiment in his conception of the chain of being. In this, beings were positioned on a hierarchical scale that placed humans at the top and all others below, their placement on the scale being determined by the human-interpreted efficacy of their constitutions. In his *History of Animals*, Aristotle notes the "imperfect" qualities that distinguish other beings from humans, whether it be the difference in their circulatory

systems or the shapes of their feet (Aristotle 6-11). Despite the ways in which these beings function successfully, it is their difference from human functioning that for Aristotle renders them flawed, which in the style of Genesis meant their likeness was further and further removed from God's.

Though in biblical creation there is not an entirely separate day dedicated to the creation of human beings, as we can see, the difference between human and nonhuman animals that is present in Aristotle's categories of being is apparent in the verses that follow wherein God speaks to Adam:

> Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth. And God said, Behold, I have given you every herb bearing seed, which is upon the face of all the earth, and every tree, in the which is the fruit of a tree yielding seed; to you it shall be for meat. And to every beast of the earth, and to every fowl of the air, and to every thing that creepeth upon the earth, wherein there is life, I have given every green herb for meat: and it was so. (Gen. 1. 28-30)

Here, it is explicitly stated in the myth of Genesis that it is by divine order that human beings are to hold dominion over all of God's other worldly creations. During the eighteenth century, the religious narratives that were sustaining the human-privileging hierarchy of living things, those that looked upon Aristotle with respect (Gibson 29) and dictated the cultural conduct of the Euro-Western world were only slowly being unravelled, with some tangled theories remaining entirely untouched by the lapping waves of rational discourse. In fact, as we will see in taking a closer look at Linnaeus' distinctions of the realms of being later on, sentiments from the Christian

tradition of earthly existence were carried right along into the world of science and natural philosophy in these ideologically integral moments.

The Role of Origin in Cosmology

The influence Genesis has on conceptions of the natural order is strong, as it is intricately integrated into layers upon layers of cultural development, but it is also an illustrative example of how essential origin stories are in the affirmation of cosmologies, and why it can be so difficult to see beyond them. To examine Darwin's attention to the cosmological as I would like to, both in drawing upon the pre-existing cosmologies of his time and presenting his own in response by way of the creation of his *Loves*, we will need to explore cosmology more widely. As a field of study, cosmology refers to the pursuit of understanding the universe as a united whole, and with this, it is also used to indicate a "particular account or system of the universe and its laws" ("cosmology, n."). However, because I am interested in considering Darwin's attention to the effects of Euro-Western cultural ideologies on conceptions of the nonhuman world, I want to turn to an explanation of cosmology offered by Robin Wall Kimmerer for the purposes of engaging with Darwin's work, for her perspective differs in that it is entrenched in her observations pertaining to stories of origin.

Through my analysis of Genesis and its impact on ensuing distinctions ascribed to the natural order of things as they present in Aristotle's work, we can see how in the West origin stories act as building blocks for the ideological formation of identifications of the self and the self's understanding of its worldly positionality. In Kimmerer's words, similarly, "cosmologies are a source of identity and orientation to the world. They tell us who we are. We are inevitably shaped by them no matter how distant they may be from our consciousness" (Kimmerer 7). We

can see in Kimmerer's phrasing that the roles of origin stories and cosmology are heavily intertwined, and for many, may be thought of as equivalent concepts. However, my employment of the term cosmology is guided by the understanding that myths of origin act as the conceptual infrastructure that supports cosmological stances, a cosmology then, is created from the ideologies presented in origin stories. The tale of Genesis offers an origin myth which details that human beings are to control all other life on our shared planet, and thus, the Christian cosmology that ensues will embody this belief. Kimmerer's interpretation allows us to see, though, that the influence of origin stories is by no means a quality of cosmologies that are exclusive to Euro-Western civilizations, and, as Darwin attempts to demonstrate, there exist ways of understanding the world around us that are not cosmologies based on human dominion. During her side-by-side comparison of biblical and Indigenous creation, Kimmerer introduces the story of Skywoman as "a constant star in the constellation of teachings we call the Original Instructions" (7). With nuance, she follows this statement with the clarification that these mythic guidelines function not as a map, but as a compass of sorts. In other words, though origin stories may not hold explicit pronouncements of where to go, though some do, they can nonetheless influence the ways we wander.

Kimmerer's delineation of cosmology here is also especially useful for my thinking in its acknowledgement of the deceptive authority cosmologies can often carry, as the more distanced we become from their origins, the harder it can be to dig down to the foundations they have been built upon. One may not notice where the light illuminating their path is coming from, but they follow the often dazzling ideological pull by force of the social climates these origin stories produce, and which in turn, perpetuate them. Some may say Darwin's choice to employ poetry to express his philosophical insights may harbour its own form of disorientation. But, as we look to

the conceptual structures supporting his verse, we can identify his awareness of the influential nature of obscuring or losing sight of the source of cosmological beginnings.

Darwin begins his work in *The Loves of the Plants* with a preface. Containing the voice of an omnipresent narrator, its purpose is at first glance to be a space wherein Darwin can describe for his readers the Linnaean system of plant classification, explaining the notions of classes and orders as well as detailing the qualities a plant must have in order to belong to each. Though many may contend that Darwin's writing is merely a vindication of Linnaeus' work (Browne 594), in his preface he provides his readers with the opportunity to look both at and away from traditional conceptions of existence that we see in Genesis and again in Aristotle. He provides an account of the "illustrious author['s]" story of origin with a Genesistic turn of phrase imposed upon the development of the vegetal nonhuman, as for Darwin, Linnaeus' cosmological claims build on that of the biblical myth:

> [O]ne plant of each Natural Order was created in the beginning… the intermarriages of these produced one plant of every Genus, or Family; and that the intermarriages of these Generic, or Family plants produced all the Species: and lastly, that the intermarriages of the individuals of the Species produced the Varieties. (Darwin vii)

One way to look at Darwin's language here is to interpret it as another means of perpetuating the notion of divine creation that strays only slightly from the original phrasing of Genesis, wherein the natural philosopher upholds a position, as Rosalind Powell phrases it, which is to be "biblically understood as a steward of other living creatures" (Powell 589). To me, though, what seems just as, if not more likely is that this description of a reimagined creation myth exhibits a repositioning of the anthropocentric modality of existence as it imparts an agency which is commonly reserved for human conception and reproduction by way of Christian thinking. Of

course, the validity of using a particular cosmological framework in an attempt to critique it does run the risk of being overlooked if not carefully analyzed. But, I believe what Darwin does in this instance, whether one interprets this language as I have or not, is emphasize the role of the origin myth in cosmological creation.

Édouard Glissant may be one of the most useful thinkers to look to in order to grapple with Darwin's choice to present his narrative with a mythic beginning, for his biblical phrasing serves the purpose of establishing authority linearly. He writes, "in the Western world, the hidden cause (the consequence) of both Myth and Epic is filiation, its work set out upon the fixed linearity of time, always toward a projection, a project" (Glissant 47). In this, Glissant speaks to a representation of Euro-Western culture that prioritizes the compulsion to project specific ways of being onto those beyond their world to bring them within its borders. He continues by explaining that this projection relies on a linear momentum that gains legitimacy by rooting itself in a fertile myth and travelling onward straight through time – creating a grounds to assert knowledges that are shown to grow from this rationalized soil. Identifying Christianity in particular as one of the most compelling instances of this linear filiation, Glissant describes the religion's contribution to perceptions of the Other, though for his theoretical purposes this refers to the human Other, rather than the Otherness of the nonhuman that I am predominantly concerned with. To me, this sentiment could have been something that Darwin would have aligned his thinking with, as he attempts to disrupt the linear trajectory of religious influence in the West by, as we will see, disturbing the expectations of being put forth in these religious ideologies. However, as Glissant moves on to critique the work of Darwin's grandson in

explaining the similarities between Darwinism and Christianity, I do not think they would have remained on the same page.[2]

There is an undeniable power in invoking origin as a means to validate the cosmologies they produce, or to create an origin myth that retro-actively supports already developed ideologies. Glissant's theories run parallel to Kimmerer's in that origin stories and myths are indisputably able to alter our conduct as a species. In attempting to present a new world, a new cosmology, Darwin must mobilize the power of origin for his audience. Of course, it cannot be avoided that a portion of this mythical reworking must be accredited to Linnaeus, his metaphorical system being Darwin's site of inspiration. But, it would be Darwin who would from this system build a world, one stanza and philosophical footnote at a time, that accomplishes more than simply introducing botany to the general public; he is offer a reimagining of being – one which reconsiders the understandings of being so prevalent during his lifetime and those he may have hoped to change.

(Back) To the Garden

Encompassed in the religious myth that Darwin so heavily draws from, are symbols that as the narrative's authority remains firm, carry with them ideological connotations. In his proem, a paratextual feature I will attend to more thoroughly in the following chapter, Darwin invites his

[2] Glissant does not say explicitly that Charles Darwin's biological theories are a filiation. Instead, he uses the language "continuous sequence" to describe them. Yet, he follows this with the assertion that it is merely "an objectivized vision of the old filiation" (Glissant 49), harbouring the same motivations as Christianity did to function as a vindication of our (planetary) history. While Glissant acknowledges an objective quality in Darwinism, one which is noticeably absent in the Christian understanding of human creation, he states that it is "scarcely important that Christian generalization originated in a choice, whereas Darwinism generalization was the result of an objective observation" (51).

readers to "walk in, and view the wonders of [his] INCHANTED GARDEN." (Darwin ix). Gardens are conceptually polysemic, particularly so when examined culturally. In the Euro-Western world, given the influence of Genesis, one is often hard pressed to avoid conjuring thoughts of Eden when asked to think about a garden – for while over time certain notions surrounding the garden held higher prominence, its biblical histories seem inescapable. Because of this, the garden is a space of leisure, pleasure, and of course, dominion. But what is important to consider is to whom do each of these perspectives apply?

Bewell focuses on the ways in which Darwin's text is "inseparably bound up with a new cosmopolitan or globalized nature that was increasingly appearing at the end of the eighteenth century," and this is not a statement I intend to dispute. The practice of gardening became increasingly popular from the seventeenth into the eighteenth century, following the rise of botanical study which had been gaining momentum steadily since the early stages of the Renaissance. With gardening, came the demand for heightened availability of particular ornamental species, and the production of plant nurseries was under way (Bewell 22). As species were being found and identified by botanists and natural philosophers, they were also being transported across the planet for both scientific examination and in many cases, cultivation – a topic I will be returning to later. While the colonial implications of such activities should not be disregarded, I find myself pressing against Bewell's emphasis on the harm of species relocation for the purposes of Darwin's verse. This is because, similar to the argument Kelley calls a "counterrhythm" to Bewell's stance, there is something to be said for the way "plants challenge the authority of the Linnaean system" by doing away with the Western conceptions of "who they are and what they do" with planetary freedom (Kelley 79).

Bewell writes that gardening and botanical play were by Darwin's time something of interest across "all social ranks" (Bewell 22). But each social class would approach these practices differently. Browne details that "for Darwin, as for other members of the intellectual leisured classes, reference to a botanic garden evoked a constellation of ideas and emotions that combined scientific purpose with recreational pleasure" (Browne 606). At the beginning and end of each canto, as the Botanic Muse moves in and out of her account of this vegetal realm, we are given glimpses of the garden that direct us to Darwin's employment of its imagery. In epic manner, Darwin begins with an invocation of his muse who he claims must have led Linnaeus in his work for the garden is a "secret haunt" that he perhaps would have otherwise not been able to experience (Darwin 1.33). In transitioning to the second canto, he also refers to the garden as a "green vault" (2.6). There is an air of concealment and seclusion surrounding the garden space in Darwin's *Loves*, that without botany remains unseen. The associations made to the garden space here are directly tied to the tension created by the myth of Eden. The Garden of Eden, though the site of humanity's great fall, was also the site of its conception and its most perfected state, wherein the human was not yet burdened by notions of labour or pain. In humanity's removal from the garden, there is a mythic establishment of a desire to return that incites the hierarchical dominance that becomes associated with the actions of the naturalist. As a space free of external influence, and yet, one orchestrated by a governing human touch, the botanic garden served as a manifestation of the Edenic landscape which Western humanity longed to rediscover.

As a botanist and author of such a world himself, Darwin is not dismissed from all charges of continuing such traditional thinking. Yet, as we will see, his manipulation of such traditions is enough to make me believe that his purpose was not to create just another wave in what Bewell refers to as the "flood of books on gardening and botany" that was taking place

towards the end of the eighteenth century (Bewell 25). Darwin's reimagining of the garden was an opportunity to establish a new way of interpreting the relations between beings that had been so confidently, and repetitively, presumed.

We can look to a specific instance in the text wherein Darwin is using a symbol from within the garden itself to propel his alternative view of the dominant Euro-Western cosmology. Centered in the myth of the Garden of Eden is the Tree of the Knowledge of Good and Evil. In the centre[3] of Darwin's garden, though, at the beginning of his third canto, he plants the Bohun-Upas, also known as *Antiaris toxicaria*.

> Round the green coast of Java's palmy isle…
> No flowery chaplet crowns the trickling rills;
> Nor tufted moss, nor leathery lichen creeps
> In russet tapestry o'er the crumbling steeps.
> No step retreating, on the sand impress'd,
> Invites the visit of a second guest…
> Fierce in dread silence on the blasted heath
> Fell UPAS sits, the HYDRA-TREE of death. (Darwin 3.220-38)

The figure of the Bohun-Upas loomed large in the early modern cultural imaginary, as it was being featured in exploration narratives like that of Franciscan friar Odoric of Pordenone and the *Travels of Sir John Mandeville*.[4] Bohun-Upas, as Darwin translates for us, means tree of poison in the Malayan language (79). As a vegetal species, this tree was known to those in Europe from

[3] Formally, Darwin centres the *Antiaris toxicaria* by placing it physically in the middle of his poem. In the second American edition from which I am referencing for the purposes of this work, he introduces the poison tree on page 78 of 144.

[4] See Tim Hannigan's "Beyond control: Orientalist tensions and the history of the "upas tree" myth" for an examination of these texts in relation to Foersch's account of the Bohun-Upas.

as early as the fifteenth century as a tree so lethal that to rest only briefly beneath its canopy would lead to death (Bane 33). Found originally in tropical regions of Africa and Asia, we know now that the *Antiaris toxicaria* produces an incredibly toxic cardiac glycoside that can cause numerous effects on the body, the most dangerous being to the heart (Robertson and Sytsma).

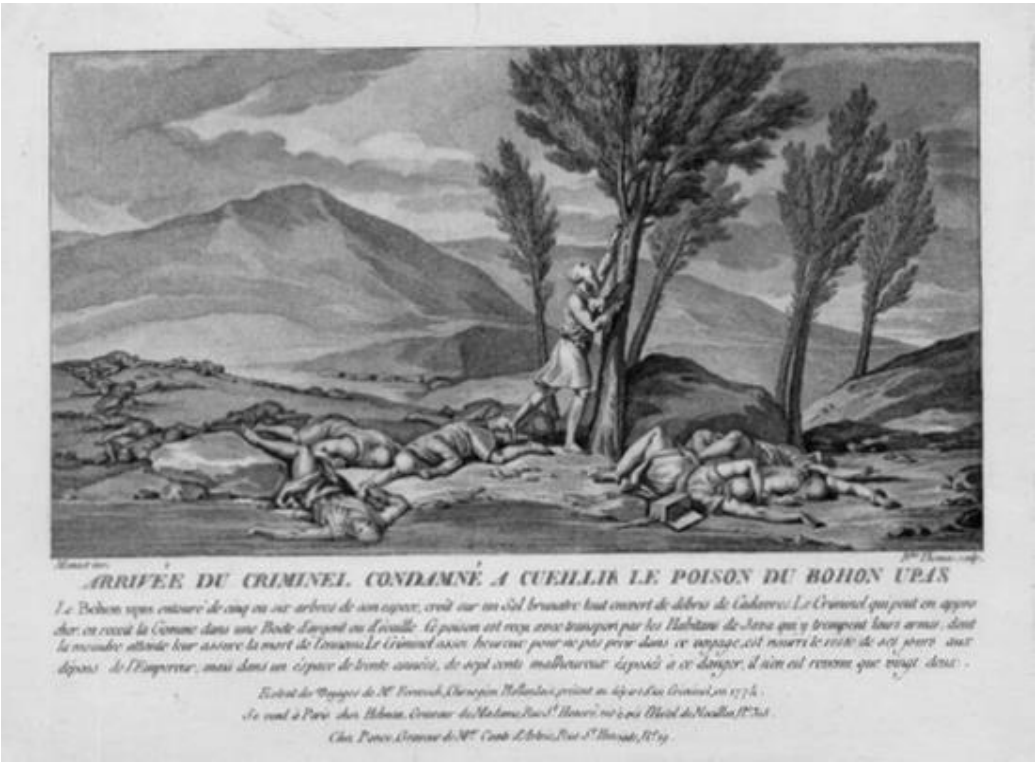

Illustration 1
Rosalie Thomas' *Arrivée du criminel condamné a cueillir le poison du Bohon Upas*, c. 1785

Darwin elaborates on his contemporary knowledge of the plant in a footnote to these verses, describing the nature of the species as it had up until his time been identified in the field of botanical study. Andrew Stauffer makes the case that much of the "upas legend" as it was known in the Romantic era was due to Darwin's poetic retelling of its image, as it would later be referenced by Blake, Coleridge, and Byron. Carl Ludwig Blume would attempt to amend the

popularized tales of the upas tree in his *Rumphia, Sive Commentationes Botanicae* with the illustration included here from 1835, which Stauffer calls a "corrective reaction to the feverish mythologizing of the earlier decades" (Stauffer 36). What Stauffer does not acknowledge, however, is that Darwin's use of this dramatic versification was not necessarily for the purpose of emphasizing the dangers of the Bohun-Upas, but to allude to the detriment of mythic origins themselves, as well as the problematic nature of the Christian origin specifically.

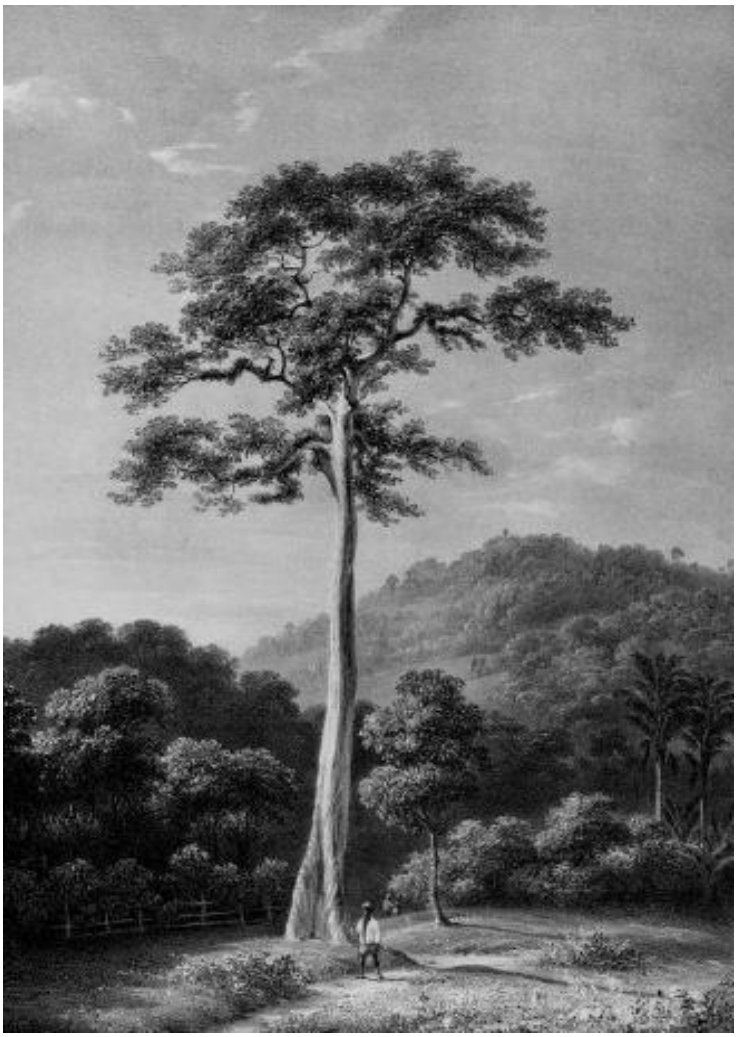

Illustration 2
Carl Ludwig Blume's "*Antiaris Toxicaria* (Table 22)"
Rumphia, Sive Commentationes Botanicae, 1835

Unlike the other species which Darwin chooses to expand upon in page-by-page prose, there are an additional nine pages dedicated to the Bohun-Upas in an appendix to the poem. In this section, Darwin features a translation of the Dutch surgeon N.P. Foersch's account of his experiences with the Bohun-Upas that was published in *The London Magazine* in 1783. Darwin is sure to include in this excerpt pertaining to the poison tree[5] Foersch's explanation that a great deal of the writing which exists already on this terrifying species has been "so tinctured with the *marvellous*, that the whole narration has been supposed to be an ingenious fiction by the generality of readers" (Darwin 127). In his verse, Darwin focuses on the deadly nature of the plant, personifying and in fact making monstrous, the toxicity of its secretions. In the notes, however, by way of the narrative he features, Darwin's emphasis is much more cultural, as he includes descriptions of the tree's use in creating poisonous weapons and acting as an alternative form of execution.

Stationed in Batavia in 1774, Foersch wanted to observe the realities of the Bohun-Upas more closely upon hearing accounts of its use. It was explained to him that criminals were often given the choice between standard methods of being put to death and a chance at freedom, if they were able to survive an expedition to gather poison from the Bohun-Upas. Foersch made arrangements to observe the work of a priest assigned by the Emperor to prepare the souls of these criminals prior to their journey. In his notes are the summarized details ascertained from

[5] William Blake wrote his poem "A Poison Tree" a few years following the publication of Darwin's *The Botanic Garden*. A poem interestingly filled with the burden of repression, it, as Philip Gallagher explores, can be read as a "counter-myth which exposes the biblical narrative of the Fall as a fraud by giving the 'true' etiology of the Tree of the Knowledge of Good and Evil" (237-8).

those who had returned from the tree who claimed the land surrounding the largest upas tree in the area was littered with the bodies of beings that came too close.

> From fifteen to eighteen miles round this tree, not only no human creature can exist… [but] no living animal of any kind has ever been discovered. I have also been assured by several persons of veracity that there are no fish in the waters, nor has any rat, mouse, or any other vermin, been seen there; and when any birds fly so near this tree, that the effluvia reaches them, they fall a sacrifice to the effects of the poison. (130)

Of course, Foersch sought the opinion of the priest himself in order to understand the cultural history of the tree and was given this response:

> We are told in our new Alcoran, that, above a hundred years ago, the country around the tree was inhabited by a people strongly addicted to the sins of Sodom and Gomorrha; when the great Prophet Mahomet determined not to suffer them to lead such detestable lives any longer, he applied to God to punish them: upon which God caused this tree to grow out of the earth, which destroyed them all, and rendered the country for ever uninhabitable." (Darwin 129-30)

In this myth, the upas tree is centralized culturally in a very similar way to that of the Tree of the Knowledge of Good and Evil, as both signify acts of disobedience followed by lethal punishment and an unchangeable alteration to the earthly environment. It is in this similarity that Darwin is able to use the figure of the Bohun-Upas to exemplify the dangers rooted in the origin myths of Christian cosmology.

Cheryl Blake Price notes that the word upas was inducted into English use because of its presence in the work of eighteenth-century writers, including Darwin, as "a metaphor for a person, object, or idea that has a poisonous, destructive atmosphere" (Price 311). Darwin's

mention of the upas tree, here, establishes a relation between the upas tree and the Tree of the Knowledge of Good and Evil as it becomes a central component to his elusive garden space, indicated by both his inclusion of Foersch's account and furthered by the language he uses in describing the tree itself. With no "visit of a second guest," Darwin plays with the thought of the singular instance of humanity eating the forbidden fruit in Eden, an act which warranted no further occasion for humanity to approach such an opportunity as they were banished beyond the garden gates. The "dread silence" surrounding the tree invokes the absence of humans in Eden after the fall. Darwin also specifically reiterates the singularity of the upas tree in his garden, though his readers are aware of the existence of more of its species. He writes that "from one root, the envenom'd soil below, / [a] thousand vegetative serpents grow" and further notes its "one trunk [that] entwists his tangled form" (Darwin 3. 239-43). This is a highly suggestive metaphor, as the upas tree in particular has been laden with stories of the demise of almost every living being to encounter it. For Darwin, the Tree of the Knowledge of Good and Evil is also a poison tree, a tree of death, as mythically it not only brought the possibility of death to humanity by consequence of consuming its fruit, but it stands alone as a powerful symbol for the divine institution of the anthropocentric subduing of the natural world – a death to cosmological possibility.

Darwin's evocation of the Bohun-Upas is made more critical in his addition of the phrase "HYDRA-TREE of death," as this broadens the tree's hazardous nature as well as the strength of its influence. As a layered reference, hydra would perhaps first bring to his readers' minds the image of the Lernaean Hydra of Greek and Roman mythology, the monstrous serpent offspring of Typhoeus and Echidna. With his rendering of the upas tree as serpent-like, wherein "in shining rays the scaly monster spreads / o'er ten square leagues his far-diverging heads" (Darwin 3.240-

2), the hydra of Darwin's garden does resemble this monstrous figure of antiquity, as well as one of the beasts found in the Book of Revelations of which it said to be based on the former. The hydra is also nearly indestructible, as the myths tell of the creature's capacity to grow new heads in the event one is severed. There is an expression in ancient Greek known as *hydran temnein* which means "to cut off a hydra" and would come be employed in situations wherein something is deemed next to impossible to achieve (Felton 340). Over time, its use grew and maintained its connection to the Greek creature, alluding to an object or being's destructive qualities or the difficulty of its uprooting ("hydra, n."). Fitting for a section of his poem dedicated to vegetal monsters, this allusion does more than speak to the dangers of the Bohun-Upas, given its metaphoric positioning as a representation of the Tree of the Knowledge of Good and Evil. To establish the relation between the upas tree and the Tree of the Knowledge of Good and Evil, and then proceed to relate this tree to the mythical hydra, Darwin is by metaphoric extension informing his readers that there exists a similar danger in the core of this religious creation myth – one that has been and will be difficult to displace.

Interestingly enough, the next layer of Darwin's reference includes the acknowledgement of a being that would conceptually stand against such a powerful ideological force. Of specific notice in the eighteenth century and coming to mind for those with an interest in the natural sciences, would be the classification of polyps, also known as hydras. The hydra, or polyp organism, is a being which, as Gibson describes, was by various definitions at the time of its discovery capable of being categorized into both the vegetable and animal kingdoms. Abraham Trembley's 1741 research on polyps "re-ignited debates about the nature of living things" (Gibson 46) and it is Trembley's work that illuminates both a continuation of Aristotle's

theorizing into the scientific realm of the eighteenth century and the importance of this organism in terms of its incorporation in Darwin's writing.

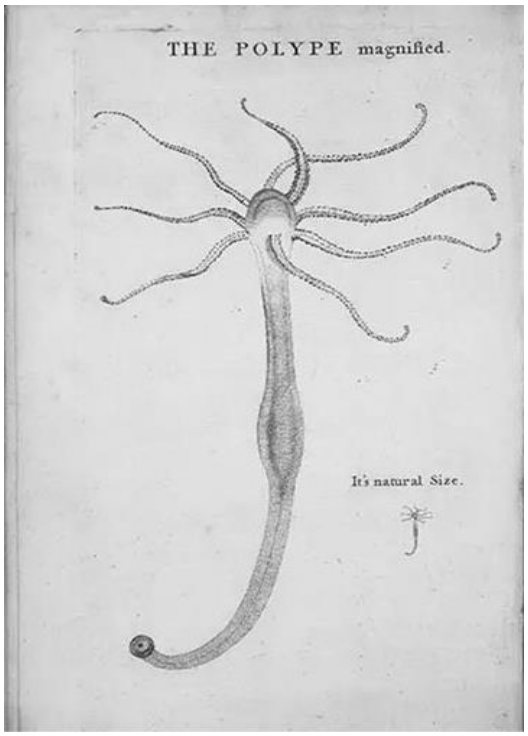

Illustration 3
Henry Baker's
"The Polype Magnified"
An Attempt Towards a Natural History of the Polype, 1743

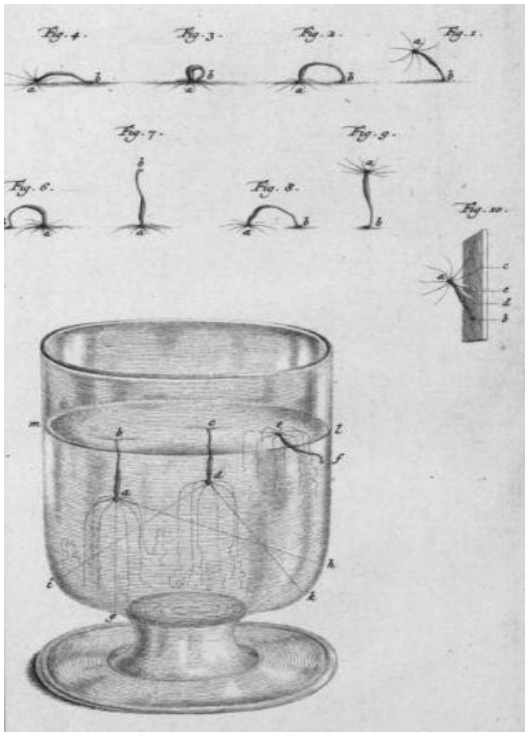

Illustration 4
Abraham Trembley's "Plate 2"
Mémoires pour servir à l'histoire d'un genre de polypes d'eau douce, à bras en forme de cornes, 1744

The hydra's physicality and behaviour was enough alike the mythical creature for eighteenth-century scientists to refer to this being by the same name. Appearing upon first glance to consist of a small trunk with a foot on one end and tentacles on the other, they often resemble a small emerging plant, as their "most common position is, to fix themselves by their posterior end to something, and so to stretch their body and arms forwards into the water" (Trembley 371). Arguably, Trembley's most significant contribution to polyp research was the result of an

experiment conducted to distinguish whether this being was either animal or vegetable (Gibson 48). The distinctive characteristics that supported the divide between kingdoms still closely resembled those Aristotle had delineated – as can be seen in Trembley's indecision surrounding his hydra (46). Trembley's experiment required cutting a polyp in two. What he discovered was that the organism was capable of developing, from a fragmented state, into multiple fully formed versions of its original self. Like a vegetable, the polyp was able to reproduce from a segment, as is the case during the propagation of a vine cutting rooting in water. We must also acknowledge here the connection between this mysterious being and the Lernaean Hydra's regenerative qualities. But, Trembley also observed that the polyps were capable of motion and digestion. For Aristotle, the having of a mouth and digestive track, or "internal roots" to use the language of Herman Boerhaave whom Trembley quotes, is crucial to the determination of animal status.

With all of this in mind, as Powell writes, the "animal-like and plant-like features [of the polyp or hydra] pose a significant challenge to neat categorization" (Powell 578). These organisms are physical representations of the inapplicability of kingdom classifications and are for Darwin an opportunity to demonstrate a connection between those classifications and their source in religious ideologies. In his exercise of relation, Darwin endows the Bohun-Upas with the criticality often applied to the Tree of the Knowledge of Good and Evil and in turn illustrates the biblical tree's significance as a representation of demise. By infusing the image of the Bohun-Upas with the cultural connotations of the polyp that were running rampant in the natural sciences of the eighteenth century, for it would not be until much later that the number of kingdoms would be expanded to accommodate such extraordinary beings, Darwin layers the metaphorical nature of his allusion to the tree in the garden. The hydra, as a figure which speaks to the gaps in the system of kingdom categories, centres Darwin's garden around the faults of the

Christian theories of species classification – and draws his reader's attention to the damaging narrative core of Christian ideologies and their influence on the natural world. As has been delineated, these ideologies have maintained their influence under the cover of progressing perspectives, from biblical, to Aristotelian, and settling, as we will turn to next, into the Linnaean systems of the eighteenth century. In working with Linnaeus' conception, though, Darwin does not act as merely another carrier of these continually assumed beliefs regarding the natural order. His implementation and manipulation of the Genesis origin story and its elements alert us to his reconsideration of the low-hanging ideological fruit that is so easily picked within the cosmologies they produce.

Chapter Two

Animacy and Animality

The perceptions of nonhuman beings initiated in the tale of Genesis and reinforced in Aristotle's work are those still hanging on in the scientific minds of the eighteenth century, whether they were aware of their ideological past or not. In Darwin's vegetal world, wherein plants are accounted for as something more than fuel for human bodies or commodities created by expanding botanical practice, as they are made to resemble humans, there is an open invitation to view these nonhuman beings through a lens that was reserved for the nonhuman animal, and even for humanity itself. Within Christian cosmology, this act pushes against the hierarchies that determine the sociocultural dynamics between species – as it allows for a glimpse of the similarities which may alter the ways vegetal beings are seen and are thus capable of disrupting the solidity of the entire cosmology. Interestingly enough, despite Linnaeus' insistence on the distinctions between plants and animals, the metaphoric world he established, and the one Darwin indeed draws inspiration from, blurs the boundaries he attempted to institute by way of his ability to establish a relationality between them.

Does, though, this analogy between plants and animals result in more than an impact on the consideration of vegetal life? In his opening proem, Darwin asks his readers to look upon his garden with the use of a camera obscura: "Lo, here a CAMERA OBSCURA is presented to thy view, in which are lights and shades dancing on a whited canvas, and magnified into apparent life" (Darwin ix). Translating roughly from Latin to "dark room," this device was very popular in the eighteenth century, though its invention far predates the period. The camera obscura functioned by projecting a reversed and inverted image through a small opening in a wall onto

the opposite side of an enclosed, dark space (Neri). While it would come to have many uses, the device would most famously be known for the capacity with which it allowed one to view an obstructed or difficult to observe image. In addition to being able to examine astronomical events like eclipses without the worry of harming your vision, the camera obscura was influential in providing accuracy to the recreation of the images it produced, granting also improved levels of illustrative perspective. As I mentioned previously, Darwin seemed aware that the origins of our cosmologies were often challenging to identify upon first glance. To deploy the analogy of the camera obscura, Darwin is both drawing attention to the difficulty of looking at the cosmologies present beyond his botanic garden, as well as the ways in which his work is not only an inverse of those ideologies, but perhaps a more accurate representation of structures within the natural world – something not to be looked at quickly, but carefully read. Further, it may seem unthinking, given the eighteenth-century desire to comprehend entirely the happenings of the vegetal kingdom, to assume that a relation made between plant and animal would be taken as merely an attempt to elevate the status of a vegetal species. But, as this assumption is reliant on the hierarchy that positions animals above plants, it is important to consider, as Darwin is asking us to in looking to the inverse of received views, how this relationality could go so far as to do away with the chain of being altogether – to perhaps replace a hierarchy with something more rhizomatic.

The ways of viewing plant life that were normalized in the eighteenth century, the beginnings of which were examined in the previous chapter, will be taken up here as we move into examining Linnaeus' contributions to the world of natural philosophy, as well as how they maintain much of the sentiment of biblical and Aristotelean traditions. As we will come to see, if these ways were to shift, it would produce substantial cracks in the foundations of the Euro-

Western anthropocentric understandings of existence based on the beliefs of Christian ideologies. This chapter will concern itself with the topic of the *anima*, a source of interest for many considering the distinguishing categories of life, both before and after the eighteenth century. In this space, I will discuss Darwin's interpretation of the animated world and the animal, wherein the implementation of the Linnaean system – as a theoretical revaluation of the biblical and Aristotelean systems – would incite disagreements among natural philosophers and cause Darwin's work, as something unexpected, to be uneasily received. Delving into an Ovidian allusion that expands for his readers even further the notion of perceiving in inverse, the intent of this chapter is to demonstrate what Darwin thought may be challenging for his readers to notice about the ways in which the West had delineated the natural order of things. By way of the eighteenth-century conventions surrounding considerations of being, he explores just how constraining the designations that we have contrived and reserved for other biological beings are – their limiting nature a means to uphold the status of our own species, all the while constraining it as well.

Considerations of the Soul

Prior to Aristotle's work, the meaning of the term soul was steadily developing. Until the end of the fifth century BCE, as Hendrik Lorenz writes, it was not only common to use the word soul as "what distinguishes the living from the dead and (not the same distinction) the animate from the inanimate, but also to attribute to the soul a wide variety of activities and responses, cognitive as well as emotional, and to think of it as the bearer of such virtues as courage, temperance, and justice" (Lorenz). For Aristotle, the soul is, as both Jeffery Nealon and Gibson interpret his use of the word, the essence of any living thing. In the previous chapter, I made brief

mention of the role of the soul in Aristotle's system of classification as laid out in *De Anima* (c. 350 BCE). Related to the Ancient Greek, *psukhe*,[6] *anima* is in Latin understood as the life and spirit of a being. As the root of the English word animate, *anima* is understood in English directly as soul. Against the materialist conceptions of earlier thinkers, Aristotle saw a world "full of purpose" (Gibson 9). It was this purpose that compelled him to believe that other forms of life shared some quality that resembled in one way or another the drive found in humanity to exist – and this, he settled on, was the soul. Similar to Darwin's later belief that there exists a relatedness of all forms of life, Aristotle proposed that the soul could be found in all living things in various degrees. While he did not go quite as far as Linnaeus would in acknowledging humans under the category of animal as we will see shortly, Aristotle was influential in establishing that humans were not the only living things harbouring signs of life that rendered them considerable as beings. That being said, his conceptual infrastructure which supported the distinctions between animal and human still perpetuate a human exceptionalism in the realm of natural philosophy.

Aristotle's differentiation of beings and his procedural criteria that I introduced earlier are based on concentrations of the soul as he interpreted them. He made sure to support his theories of the soul, also referred to as the tripartite soul, with physical experimentation and observation. As Lorenz claims, Aristotle's work in *De Anima* "comes very close to providing a comprehensive, fully developed account of the soul in all its aspects and functions, an account that articulates the ways in which all of the vital functions of all animate organisms are related to the soul." According to Aristotle, the grade of soul in a being would dictate its characteristics pertaining to the distinctions I made mention of in the previous chapter, including digestion,

[6] This would become the root of the English word for psyche.

bodily fluids, reproduction, sensibility, and mobility. With each level of being also containing the type of soul as the levels which precede them, his identifications were as follows. Vegetal beings were to be found on the lowest level, harbouring what he referred to as a nutritive soul, with the ability to grow and reproduce but little else. Animals were next, as they were seemingly capable of all that plants were but could in addition move freely throughout their environments with sense, giving them a sensitive soul.[7] At the highest level was human beings, who above all else had a rational mind, and therefore, a rational soul on top of having both nutritive and sensitive ones.

As Nealon is right to point out, the rise of Christianity modified Euro-Western meanings of the soul. In the biblical tradition, the soul represents a living individual. It was not necessarily, as is commonly thought, a separate entity from the body. But rather, similar to Aristotle's thinking, the soul was the life of a being. This is apparent in Genesis during God's creation of Adam: "And the LORD God formed man of the dust of the ground, and breathed into his nostrils the breath of life; and man became a living soul" (Gen. 2.7). Christianity would, however, come to adopt an understanding of the soul as immortal, a distinct entity within the body, upon an intermixing of Greek and Hebrew thought. In either sense, under this religious framework, the soul was granted with certainty only to human beings. While this may be a consequence of cultural perception rather than didactic scripture, it nevertheless reinforces the belief that even if other living beings have *anima*, it remains lesser than that which is present in humans.

[7] To have sense, for Aristotle, was different than the possession of a rational mind. Animals could detect food and threat, but not much else.

The Great Physiological Divide

Linnaeus' initial publication of *Systema Naturae* was in 1735; in the midst of its subsequent revisions, he wrote in his *Philosophia Botanica* (1751), "*lapides crescunt, vegetabilia crescunt and vivunt, animalia crescunt, vivunt, and sentiunt*" (1) – or, stones grow, vegetables grow and live, and animals grow, live, and perceive. After looking at Aristotle's delineation of being categories, Linnaeus' system appears far less innovative, despite, of course, the inclusion of humanity under the banner of animal. Amidst the rise of Linnaeus' work and the growing interest in plant beings, naturalists would come to be split. The divide fell between those who aligned themselves with either mechanical or vitalist philosophies concerning the vegetal world. As Gibson writes in *Animal, Vegetable, Mineral?: How Eighteenth-Century Science Disrupted the Natural Order*, "plants were most likely to be called 'Newtonian' and so described as hydraulic systems that followed mechanical laws; or they were living, feeling, perceptive beings that were capable of a certain degree of voluntary action" (Gibson 154). The contention erupting between these two perspectives rendered them essentially oppositional, and thus, as Darwin's work entered the scene, he was ridiculed for both his heavy-handed use of materialism, while simultaneously critiqued for his overt assertion that plants harbour a more elevated level of sentience, or soul, than some would like to believe.

The mechanical approach to plant physiology depended greatly on the idea of the Newtonian vegetable, a concept formulated by natural philosopher Stephen Hales. Hales' religious education was coupled with a study of natural philosophy, a combination that Gibson notes was considered a "well-rounded" form of education in the eighteenth century (155). To say plants were Newtonian meant that they relied on fluid movement and mechanical laws of motion. With a focus on the theories Isaac Newton had applied to our physical universe, Hales

undertook experiments to apply Newton's findings to the physiological composition of animal and vegetal life, which he described in *Vegetable Staticks* (1727). In the fashion of another influential thinker of the seventeenth century, René Descartes, Hales contended that vegetal beings could be thought of as machines in the same way that animals were for materialists, as he observed that a correlation could be seen between the fluid movement within both plant and animal bodies:

> By mere accident I hit upon it, while I was endeavouring by several ways to stop the bleeding of an old stem of a vine, which was cut too near the bleeding season, which I feared might kill it: having, after other means proved ineffectual, tyed a piece of bladder over the transverse cut of the stem, I found the force of the sap did greatly extend the bladder; whence I concluded, that if a long glass tube were fixed there in the same manner, as I had before done to the arteries of several living animals, I should thereby obtain the real ascending force of the sap in that stem. (Hales iii)

For Hales, though his experiments would prove that these plants and animals were not exactly the same in their internal functioning, they were similar enough to propel him forward on a journey of delineating the processes which for him demonstrated not only the "beauty and harmony" of the natural world, but the "being, power and wisdom of the divine Architect, who has made all things to concur with a wonderful conformity" (1). In this, we can see that Hales' work was influenced by the Christian ideologies that proposed a singular source for the natural world's design. This source, for Hales, was the "all-wise Creator," or the God of Genesis. It is interesting, however, that his goal then would be as follows:

> And since in vegetables, their growth and the preservation of their vegetable life is promoted and maintained, as in animals, by the very plentiful and regular motion of their

> fluids, which are the vehicles ordained by nature, to carry proper nutriment to every part; it is therefore reasonable to hope, that in them also, by the same method of inquiry, considerable discoveries may in time be made, there being, in many respects, a great analogy between plants and animals. (Hales 3)

To pursue this line of thinking, if humanity is included under the banner of animal as it would have been for Linnaeus, a connection could be drawn between human and nonhuman beings in their physical operation. Even if this did not include the human under the banner of animal, Hales' attempt to relate the workings of vegetable and nonhuman animal still blurs the borders between the kingdoms established by the very myths that maintain humanity is rightfully of a separate class of being. Of course, if humanity does remain of a separate class conceptually, this understanding asserts an overt anthropocentrism concerning the complexities of bodily functioning because it presents the human physical form as relying on something beyond the physiological systems that take place within plant and nonhuman animal beings – given that this something could then be assumed to be immaterial, this would ascribe vitalists with perhaps more authority than a materialist may like to admit.

In opposition to the mechanical philosophies of Newton and Descartes, vitalists expanded Aristotle's theories, extending the belief that plants were not simply alive but alive with the capacity to feel and perceive by consequence of an immaterial force shared by all living beings. Vitalism entered the scene of natural philosophy as debate circulated in Darwin's time of whether or not "the explanation of living phenomena" is "compatible with, or is not exhausted by, the principles of basic sciences like physics and chemistry" (Greco 16) – whether or not there was something else, another force, which harboured the ability to facilitate what was and would be recognized as life. Thomas Percival (1749-1804) dedicated himself to the idea of the perceptive

plant, believing "that plants, like animals, are endued with the powers, both of perception and enjoyment" (Percival 4). He argued that there existed little difference between the life of an animal and that of a plant based on the principles of "organization, life, instinct, spontaneity, and self-motion" (4), believing Linnaeus' system of classifications and others that reinforced similar restrictive distinctions were to blame for the fixed and arbitrary boundaries between living things.

For Percival, the fact that there had already been revisions made to being classification upon "the detection of error, in long established opinions concerning one branch of natural knowledge" meant that surely we should harbour "the suspicion of its existence in others" (6). Percival's prime example of this was the reassigned classification of many aquatic beings in the eighteenth century. He wrote that "corallines, madrepores, millepores, and spunges were formerly considered as fossil bodies: but the experiments of Count Marsigli evinced, that they are endued with life, and led him to class them with the maritime plants… [and] have since raised them to the rank of animals" (6). While it may seem that Percival's ideas are moving in the direction of Darwin's, his beliefs were also reliant on a set of religious assumptions. Of course, as we must remember, the presence of religion was to be expected in the natural philosophy of the time, but Percival's incorporation of Christian ideology was at the very least unique. In believing in a version of a benevolent God, he felt that one who would allow for the creation of happiness would ensure that all living things be capable of experiencing such a state of being (Gibson 161). That being said, we can see now how in this there is an inherent anthropocentrism in assuming it would be at the hands of a humanoid god that other living beings were created and could experience certain sensations as they would be felt by our species. Percival's disposition

towards the relationship between human and nonhuman was influenced greatly by his Christian cosmological orientation.

With an understanding of mechanical and vitalist thought, let us consider how Darwin's *Loves* engages with these philosophies. For Darwin, writing at a moment when literature was rethinking the natural world, his poetry harboured, by nature of its inspiration and subject matter, a materialistic sentiment that left many, especially the Romantics, dismissive of his approach to discussing the natural world. Prominent figures like Wordsworth and Anna Barbauld would find much of this fault in his "mechanical device of style," his "verse [being] a piece of mechanism as complete in its kind as that which he describes" – much of this opinion stemming from, as Noel Jackson argues, "Romanticism's rejection of didacticism (in theory if not in practice)" (Jackson 192). The basis of Jackson's argument concerning Darwin's tumultuous reception stems from his intermixing of science and imagination, as Darwin so boldly proclaims in his advertisement included at the beginning of *The Botanic Garden* (1791). This left certain members of the scientific community no choice but to label Darwin's poem as a vitalist imaginative work, for though it relied on a prescribed structure of the natural world, his creative reworking of that structure had gone too far. There does, however, exist more recent scholarship that identifies both philosophies running throughout the poem. Maureen McNeil argues that Darwin's "theory was firmly within the materialist tradition associated with Hartley and Priestly, and… his physiological theory was formulated around the model of the body as machine," yet he was ultimately "interested in defining distinctive organic functions and movements, and, thus can be regarded as a 'vitalist'" (*Under* 153). Melissa Bailes contends that the "critical confusion" surrounding Darwin is a result of "mechanism and vitalism [coexisting] in his poetry and prose,"

which to use the language of Peter Hanns Reill, encompasses "the imperative to mediate between extremes in which harmony function[s] as its overriding metaphor" (Reill 12).

If we are to look directly at the text, there exists evidence to support Darwin's allegiance to either of these philosophical parties, heightening my interpretation of Darwin's work as neither mechanical nor vitalist, but rather an approach which sought to keep both viewpoints on the periphery to focus on the possibility of a different perspective altogether. In his note on *Meadia*, also known as American cowslip, Darwin calls into question mechanical movement, pondering whether the ability for the flower to move in hopes to protect certain reproductive components is purely mechanical or demonstrative of a more intuitive level of sensibility, an instinct associated predominantly with those of the animal kingdom:

> The pistol is much longer than the stamens; hence the flower-stalks have their elegant bend, that the stigma may hang downwards to receive the fecundating dust of the anthers. And the petals are so beautifully turned back to prevent the rain or dew-drops from sliding down and washing off this dust prematurely; and, at the same time, exposing it to the light and air. As soon as the seeds are formed, it erects all the flower-stalks to prevent them from falling out, and thus looses the beauty of its figure. Is this a mechanical effect, or does it indicate a vegetable storge[8] to preserve its offspring? (Darwin 14)

This idea is brought up by Darwin again in discussing other bell flowers, like the *Hemerocallis* and *Amaryllis*. He writes in his notes that these plants have

> their bells nodding only, as it were, or hanging obliquely towards the horizon; which, as their stems are slender, turn like a weathercock from the wind, and thus very effectually

[8] The word storge refers to a natural form of affection – most commonly, as stated by the Oxford English Dictionary, "that of parents for their offspring" ("storge,n.").

> preserve their enclosed stamens and anthers from the rain and cold. Many of these flowers, both before and after their season of fecundation, erect their heads perpendicular to the horizon, like the Meadia, which cannot be explained from mere mechanism. (Darwin 20)

Here, Darwin is offering instances wherein the behaviour of these plants disrupts the expectations of mechanical physiology, at least as it may have distinguished plant from animal and nonhuman animal from human, in that these species exhibit similar conduct to that of humanity.

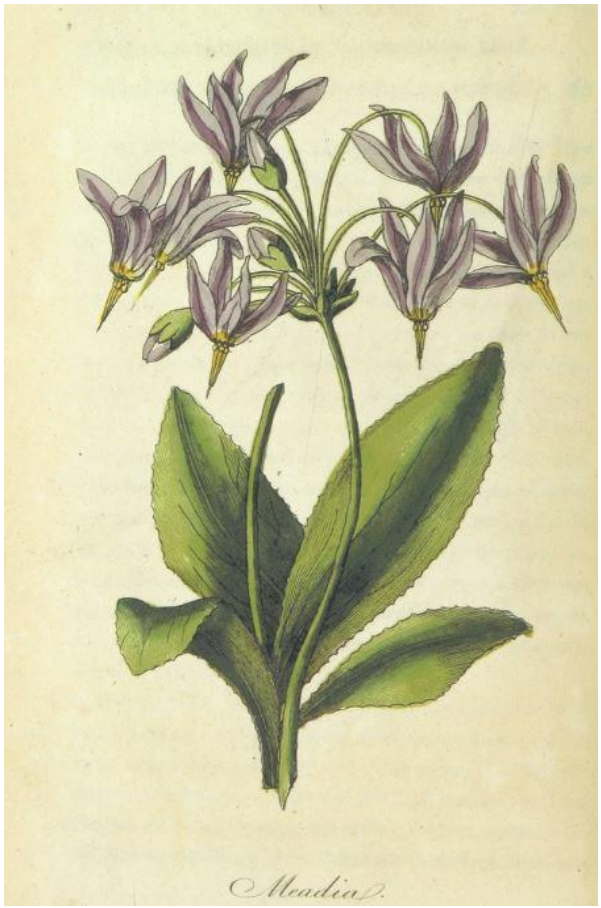

Illustration 5
"Meadia" *The Poetical Works of Erasmus Darwin*, 1806
Original engraving done by Frederick Nodder
for Darwin's *The Botanic Garden*, 1791

Another behaviour that Darwin contemplates across the kingdom boundaries is sleep. In making reference to the sleeping *Zostera* with "silvery sea-weed matted round her bed" (Darwin 1.265) and the chaste *Mimosa* who "shuts her sweet eye-lids to approaching night" (1.305), it is interesting that in his notes Darwin only attempts to define the notion of sleep as it is recognized in animals, wherein "will provides not in [its] bower" (3.74):

> Sleep consists in the abolition of all voluntary power, both over our muscular motions and our ideas; for we neither walk nor reason in sleep. But, at the same time, many of our muscular motions, and many of our ideas, continue to be excited into action in consequence of internal irritations and of internal sensations; for the heart and arteries continue to beat, and we experience variety of passions, and even hunger and thirst, in our dreams. (72)

In this explanation, Darwin is delineating sleep as we are familiar with it in the animal kingdom, a period of rest wherein faculties that keep our physical systems functioning are slowed and sometimes halted entirely. While plant sleep was still being explored scientifically during the eighteenth century, for Darwin to describe the rhythmic conduct[9] of plants closing their petals or "folding their upper surfaces together" (29) as being in a state of sleep, in turn endows them with the ability to be awake or aware otherwise. To maintain that plants exhibit this dichotomy also draws attention to the moments wherein the animal lacks particular sensibilities that are meant to distinguish us from vegetal beings, as "the organs of sense are closed or inert" during sleep (42). He continues, "we are deprived, in sleep, of the only two means by which we can distinguish the

[9] Today we have a better understanding of the ways in which, though different the sleep of human, plants do indeed have circadian rhythms. These regulate for many species their internal and external conduct by way of phytohormone biosynthesis which, like our natural responses to light exposure, create the hormonal rhythms that allow us to respond appropriately to our external environments. See Atamian and Harmer (2016) or Creux and Harmer (2019).

trains of ideas passing in our imaginations, from those excited by our sensations; and are led by their vivacity to believe them to belong to the latter" (43). What human beings lack in moments of sleep are the very abilities that certain theorists believe distinguish our species from others of the animal kingdom, and all other kingdoms as well. While I do not intend to argue that sleep as a quality of being neutralizes all differences between species, it is important to consider the ways in which the perceptions of similarities cause ripples in the sociocultural mind when they are acknowledged. But, as much as this may work in supporting the argument that Darwin is inclined to align himself with vitalist theory, as sleep in plants would indicate a level of external perception reserved for animals, there is not an entire dismissal in Darwin's work of the notion that plants are in fact machines.

In Bailes work, she draws attention to a specific passage in Darwin's second canto wherein he features examples of Linnaeus' Watch of Flora. The Watch of Flora was the sensibility Linnaeus attributed to certain plant species who would open and close their petals or leaves at specific times each day, creating a method in which time, as we understand it, could be followed. Bailes does this to assert a certain mechanical inclination in Darwin, wherein the figures of *Lapsana*, *Nymphaea*, and *Calendula* "watch with nice eye the Earth's diurnal way" (2.167)

> Her slow nutation, and her varying clime,
> And trace with mimic art the march of Time…
> First in its brazen cell reluctant roll'd
> Bends the dark spring in many a steely fold;
> On spiral brass is stretch'd the wiry thong,
> Tooth urges tooth, and wheel drives wheel along;

In diamond-eyes the polish'd axles flow,

Smooth slides the hand, the ballance pants below.

Round the white circlet in relievo bold

A Serpent twines his scaly length in gold;

And brightly pencil'd on the enamel'd sphere

Live the fair trophies of the passing year. (Darwin 2.169-82)

Contending that "configuring the Floral clock conceit in its most extreme form, Darwin analogizes nature to machinery so that biological organisms become metallic, systematic, and predictable parts of this mechanical 'watch' of nature" (231), Bailes positions Darwin as condoning the Cartesian theory that Hales intended to extend into the vegetal realm – as the forms of *Lapsana*, *Nymphaea*, and *Calendula* are rendered to embody the unnatural mechanisms of a clock. However, while I would not go so far as Bailes in lingering on the mechanical analogy that may lead readers to interpret Darwin's motivations as purely materialist, her purpose in this is of interest to me. To demonstrate that whereas many writers, of Darwin's time and before, would "turn [to] thoughts of the Divine" with "God as watchmaker" (232), she posits that Darwin effectively halts such a notion by extinguishing any contribution of the superstitious:

Here *Time's* huge fingers grasp his giant mace,

And dash proud superstition from her base;

Rend her strong towers and gorgeous fanes, and shed

The crumbling fragments round her guilty head. (Darwin 2. 183-6)

Darwin's emphasis on Time's grandeur in this instance works in two ways. As Bailes makes the focus of her analysis here, it speaks to how time has been "long used as evidence of God's craftsmanship" and is "now smash[ing] such religious associations, replacing them with human

understanding of observable… phenomena" (233). But it also brings us back to Darwin's understanding of the role of temporal linearity as I introduced with Glissant's theory in chapter one, as he ensures that it is superstition's base that receives the destructive blow, as that is where its power lies.

In considering the sentiments of both mechanical and vitalist philosophies that emerge in Darwin's writing, it is evident that a case can be made to argue his position on either side of the great divide – and because of this, I am further convinced of his intention to reside on neither exclusively. Both mechanical and vitalist philosophies hold the capacity to perpetuate the religious ideologies which Darwin saw as preventing a truer understanding of the natural world and the relatedness between beings. Despite mechanical philosophy's emphasis on objectivity and scientific observation, its beginnings are rooted in the exploration of differentiating human beings from nonhuman beings in a similar vein to that of the human exceptionalism attested in Genesis. Moreso, while vitalism attempts to reach a closer sense of connection between beings, with all life sharing a force that allows it to be qualified as such, its spiritual histories depend on an immaterial influence – which in the Euro-Western world of the eighteenth century, leaned heavily on Christianity.

The Proem

Though Darwin never employs the word soul in discussion of his garden species, he does indicate his intention to demonstrate their inherent animality – that which is not based on either mechanical or vitalist philosophies and their Christian nuances. In the proem which follows his preface, Darwin uses Ovid's *Metamorphosis* to announce his own literary endeavour of being transformation. The invocation of *Metamorphosis* is apt, given its own use of traditional myth,

creation, and complications of love. But the essential purpose of its incorporation is to illustrate the expectations associated with the different modes of being.

Darwin's employment of metamorphosis fosters a connection between humanity and plants that is for the latter quite liberating. He writes, "[w]hereas P. Ovidius Naso, a great Necromancer in the famous Court of Augustus Caesar, did by art poetic transmute Men, Women, and even Gods and Goddesses, into Trees and Flowers; I… restore some of them to their original animality" (Darwin vi). In this moment, Darwin is playful in his introduction of Ovid, as Ovid was a largely controversial figure to his eighteenth-century audience. James Horowitz writes in considering Ovid's cultural reception during Darwin's time that "in the eyes of eighteenth-century commentators… Ovid's grossest indulgence was his interest in physical transformation" (357). In the mythoi of Greco-Roman tradition, from which Ovid pulls his narratives of transformation, the act of metamorphosis is very often reserved for punishment or a sacrifice of human bodily form for the purpose of maintaining another quality of the self that may be in jeopardy: such was the case when Hades' mistress Minthe was transformed into mint at the hands of his wife Persephone[10] in rage over their affair or when Daphne, being pursued by Apollo, pleaded for the gods to "change [her] form" to preserve her vow of chastity and was transformed into a laurel tree.[11] But metamorphosis could also be a process enacted out of curiosity or usefulness, as Zeus would employ in attempts to seduce his numerous lovers.[12] Now, the word has become one with many meanings; metamorphosis is no longer a term that merely refers to moral myths of shapeshifting beings, as it has become representative of lifecycle and

[10] See Ovid's *Metamorphosis* Book X.
[11] See Ovid's *Metamorphosis* Book I.
[12] In order to gain the attention of his lovers, Zeus would often transform himself into something else, whether that be a swan, a bull, or a shower of golden rain.

evolutionary biological transformation as well – plants, in particular, are beings that undergo massive transformations in their life journeys.

Richard Buxton argues that Ovid's writing is in fact one of the most looked to creations for the cultural study of metamorphosis and the influence of its stories. He notes, that "fundamental to most tales of metamorphosis are two antitheses: that between continuity and change, and that between body and mind/spirit/soul" (9). As explained earlier, of course, understandings of the components of the latter, though similar, have changed over time. But for Darwin and his contemporaries, considerations of these same antitheses were propelling much of the work surrounding the classification of beings. Most significantly, understandings of nature relied on a continuity of the world as accounted for by the Euro-Western realm of natural philosophy and the categories of natural order that were widely accepted in and up until the eighteenth century relied on the distinctions directly related to a species' demonstration of a mind/spirit/soul in resemblance to our own. In Ovidian metamorphosis, it is often the case that a being's physical form will change, but its substance will remain unaltered – a notion that, as Marina Warner points out, "runs counter to notions of unique, individual integrity of identity in the Judeo-Christian tradition" (20). She elaborates by stating that acts of metamorphosis are acts of "monstrosity" when looked at through such a religious lens:

> In the Christian iconography of good and bad behaviour, the pagan gods' protean energies of transformation and sexuality were translated into hellish imagery… Within the Judeo-Christian tradition, metamorphosis belongs with monstrosity, as a defacement of divine handiwork; it marks out heterodoxy, instability, perversity, unseemliness, evil. As a philosophical and literary trope, as a theological principle, as cosmic and biological explanation, it distinguishes good from evil, the blessed from the heathen and the

> damned: in the Christian Heaven, nothing changes, whereas in Hell, everything combines and recombines in terrible amalgams, compounds, breeding hybrids, monsters – and mutants. (28)

For Darwin, Warner's reasoning implies that his entire exploration of transmutation is an act against the Christian understanding of bodily purity, leaving Darwin's work to be interpreted as essentially a book of Hellish creation. In a time wherein the natural world and its order were under observation, preserving the perspectives of statis would be crucial to maintaining the hierarchy established by Chrisitan ideologies. If transformation were both feasible and culturally accepted, the conception of species' status would be at risk of shifting, allowing for the possibility of nonhumans to be socially recognized as similar, if not the same as humanity – which would cause a rupture in the foundations of the cosmology that proclaimed otherwise.

To bring us back to Darwin's language, with this in mind, I want to narrow in on his phrasing "to restore some of them [them being plants] to their original animality," particularly his use of the word animality, to notice why Darwin would choose to use such an arguably risky approach in preparing his reader for the poem to come. Rooted in the Latin *anima*, Darwin uses animality to remind his readers of the claim made by Linnaeus that we as beings are to be biologically understood as animal. The most direct implication of this is, of course, that the Christian narrative which promotes the view that we more closely resemble God than the other living species we share our planet with is no longer valid. Moreso, in relation to metamorphosis here the term animality is tied to restoration. One could read restore in this prose as a reference to a previous human physicality, as if Darwin were simply attempting to reverse the work Ovid takes on to "transmute Men, Women, and even Gods and Goddesses, into Trees and Flowers" to signal a process of a being shifting from human to plant and back to human. I, however, read this

turn of phrase to imply that Darwin intends to restore these plants to a state of being seen differently, a state which may have persisted in the absence of Christian ideology that necessitated an unchanging nature. As Bewell suggests, in inscribing plants with this sense of *anima*, Darwin is attempting to free them from their prescribed "captivity narratives," no longer to be "prisoners… [in] vegetable mansions" (Darwin vi), as it grants them an agency conceptually reserved for human existence. The animation of plants which Darwin emphasizes here connects worlds that had been severed by Christian ideology. So, while he could have used an analogy which further affirmed such considerations – something along the lines of *I will provide breath as God did to humans to the plants of this garden to confirm they are of living soul* – he chose here to create space between the animation of vegetal beings and concepts of the biblical creation narrative, in hopes, perhaps, that his plants would be seen as something other than monstrous.

To Cultivate and Control

To use the phrase "captivity narrative," in delineating Darwin's motivations, Bewell is stirring up the cultural histories that remain tied to the genre, as these accounts often demonstrate the social and political dynamics of the cultures they arise from. Emerging in the early years of the seventeenth century, captivity narratives in the Euro-Western tradition are often the tales of Europeans who find themselves captive within Indigenous communities. Of course, as Bewell employs the phrase, they can also be understood as the sociocultural narratives that become forms of captivity for the beings they describe, as the narratives of insensibility and immobility have forced vegetal beings into a conceptual form of capture. For Bewell, the captivity narratives of the plants as Darwin sees them are "geographical, philosophical, and technological" (29).

Even beyond plants, the narratives of nonhumans often stem from the expectations surrounding their human-assigned category of being as it pertains to their role in the human cosmological order. A specific form of captivity that Darwin introduces to his readers is that of cultivation, wherein the British garden or hothouse can be seen as a form of containment for vegetal beings. Despite the various and exact conditions that are reproduced in botanical spaces, Darwin took the time to observe and note the impacts of non-wild environments on the species placed within them. Cultivation is a form of captivity that many may only associate with vegetal beings, and yet, we see through Darwin's exploration of the subject how the concept infiltrates the cultural ideologies of the Euro-Western world to demonstrate the ways in which other beings are susceptible to its effects.

One of the most explicit instances of Darwin's considerations of cultivation is in his imagining of *Ilex*, or the plant commonly known as holly.

> *Four* of the giant brood with ILEX stand,
> Each grasps a thousand arrows in his hand;
> A thousand steely points on every scale
> Form the bright terrors of his bristly mail.
> So arm'd, immortal Moore uncharm'd the spell,
> And slew the wily dragon of the well. (Canto I, 161-66)

In this scene, Darwin is making reference to the comic ballad "The Dragon of Wantley," wherein a knight in spiked armor slays a terrorizing dragon. Here, the spiked tips of the holly's leaves are rendered as its defensive weaponry, those which exist by the thousands on the body of the plant for its protection – the "wily dragon" being presumably a fantastical reimagining of a hungry herbivore looking for a meal. It is crucial to note, though, that this is a condition of the plant that,

in Darwin's time, was understood to be altered when under the influence of artificial conditions. He adds in his note on the *Ilex*:

> The shrubs and trees which have prickles or thorns, are grateful food to many animals, as gooseberry and gorse; and would become quickly devoured if not thus armed; the stings seem a protection against some kinds of insects, as well as the naked mouths of quadrupeds. Many plants lose their thorns by cultivation, as wild animals lose their ferocity, and some of them their horns. (Darwin 21)

This is not the only instance wherein Darwin describes a form of physiological defense taking place amongst his garden inhabitants, as shortly after this, in introducing his readers to *Draba*, or Alpine Witlow-grass, he attests that "all plants of this class possess similar virtues; they are acrid… [but] when cultivated… they become a mild wholesome food" (26). Like the *Ilex* and its prickled leaves, the unpleasant taste of the *Draba* would be a way in which this species could deter other beings from consuming it entirely. In the last decade, a study published by none other than the Botanical Journal of the Linnaean Society worked towards more accurately understanding the textural variations that can occur in the holly plant leaves. Though many species are capable of producing different types of foliage, in the case of the holly tree, as Darwin notes in his eighteenth-century observations, there is, among other contributors, a direct correlation between the presence of herbivory and the plants behaviour of producing spiked leaves.[13] A connection such as this holds tremendous implications for plant animacy, as it demonstrates a vegetal being's capacity to physically respond to perceptions of their

[13] See Carlos Herrera and Pilar Bazaga's "Epigenetic correlates of plant phenotypic plasticity: DNA methylation differs between prickly and nonprickly leaves in heterophyllous *Ilex aquifolium* (Aquifoliaceae) trees" (2013).

environmental conditions, rather than simply growing without reason – something which Aristotle and Linnaeus both would have perhaps refused to believe.

While cultivation often refers to the use of land for growing plant crops, it was also used in reference to human development in the Enlightenment. Within the world of botanical investigation, cultivation tends to be thought of as a means in which plant species are grown with anticipation of monitoring and manipulating their behaviours for the result of modifying them for productivity. These are the notions that tend to carry forward into the application of cultivating nonvegetal beings as well, wherein an external influence is used to develop specific abilities, knowledges, or beliefs ("cultivate, v."). Take Joseph Addison's use of the term in *Cato* (1713): "To make man mild, and sociable to man; to cultivate the wild licentious savage, with wisdom, discipline, and liberal arts" (Addison 28). Despite their contextual divergence, in both Darwin's evocation of the topic and Addison's, there is a strong conceptual dichotomy between the cultivated and the wild, wherein the presence of one negates the presence of the other. One may, of course, then point out that Darwin's plants are merely his captives in the hothouse of his botanical garden. As I have mentioned previously, the purposes of my argument are not to waive Darwin's participation in these practices, but rather to focus on what these practices allowed him to see and articulate in his poetic work – and what they did allow him to see and articulate were the ways in which the captivity narratives afflicting vegetal beings that stem from Christian ideologies can in fact be detrimental to other forms of being as well.

Illustration 6
Elizabeth Blackwell's "The Holly Tree (Plate 205)"
A Curious Herbal, 1737

In Darwin's notation, the attributes that distinguish cultivated and wild beings of the same species are noticeably, as in the case of the holly, those that make them, as Addison may contend, mild – or, more easily controlled. It is then, not a far fetched idea to consider Darwin's inclusion of delineating these differences as a means of species losing not only their ability to protect themselves, but to remain wholly themselves as they would without restriction. The qualities lost by way of cultivation can not only fundamentally change the species' characteristics, but they can actually be a detriment to their survival beyond the realm of human use. In many instances, in an anthropomorphic sense, the notion of cultivation is synonymous with advancement. Even

Hales in the conclusion of his *Vegetable Staticks* equates the notions of cultivation and improvement (Hales 376). This is because cultivation, of course, serves the purposes of the cultivator, who may view unprompted change as "cancerous" to use Nealon's words – this being why the "'wild' essence of uncontrolled growth… earns plants their position as the 'lowest' or most basic form of life" (Nealon 31). Let us remember as well, if we think back to the notions proposed in Genesis, that Christian philosophies of species hierarchies deem that humanity is to act as the cultivator, having been granted the ability to subdue the nature surrounding them. In this sense, Christianity promotes a human cultivation of the nonhuman – but, we can also look at the forms of cultivation that are pressed upon humanity under religious ideology as well. Within the realm of eighteenth-century literary creation, Blake outwardly considers the ways in which cultivation, though he does not use that term, by way of Christian ideology alters a specific human behaviour that Darwin would also posit is an essential element of life to all living beings. Because of this, I want to consider these ideas in Darwin's *Loves* in relation to those similarly presented in Blake's "The Garden of Love" (1794).

Published only a few years after Darwin's *The Botanic Garden*, Blake's poem engages with religion's oppression of sexuality. Paralleling the undertones found throughout the entirety of his *Songs of Innocence and Experience*, Blake's verse establishes two distinct models of the garden which are held in juxtaposition with one another. The first, or past, image of the garden is one that existed prior to the intrusion of a chapel, wherein Blake emphasizes the playful and free nature of the space (Blake 4). The second, or present, state of the garden on the other hand, harbours an overt sense of restriction as religious influence has laid its claim – with closed doors and a commanding "thou shalt not" hanging heavily above its entryway (5-6). In Blake's third stanza, the tensions between the two renderings of the garden reach their peak. As we previously

discussed, a space generally associated with growth, regeneration, and vitality for readers of the eighteenth century, is left brimming with death – "filled with graves, / and tomb-stones where flowers should be" (9-10). Blake's approach allows a binary to form, one which positions these two variations in opposition with one another wherein the introduction of Christian cosmology is the catalyst for their shifting states. In the establishment of the latter, the "binding" manipulation of the only remaining flora becomes a tool of the religious forces with which Blake's "joys [and] desires" (12) are regulated or repressed entirely.

For both Darwin and Blake, their own cosmological positionality does complicate these analyses. Blake, having a far different relationship with religion than Darwin, was not unconvinced of a divine role in the creation of our planetary world. Jane Rupert writes of Blake's relationship with Christian theology that for him, "humanity's loss in the fall included a loss of the integrity of the intellectual and moral faculties which blended together and acted as one whole… If reason paid homage to the imagination in its connection to particulars, paradise might be regained" (182). Interestingly enough, while this stance implies that Blake still relies on the narratives of Christian cosmology in his own understanding of existence, he is extremely aware of its capacity to instil limitations on those who follow it – particularly on their ability to consider, imaginatively, cosmological ways of being otherwise. Like Blake, Darwin explores the intrusive and detrimental nature of religious influence as he looks to Christian species ideology as restraining a progressive understanding of the nonhuman and human world. In providing his readers with a glimpse at the physiological changes which occur in certain species, both vegetal and animal, when they are removed from their original environment, from the stimulus of their natural ecosystems, he is alluding to the ways in which introduced religious ideologies, those which for the Euro-Western world at this time and earlier in the development of natural

philosophy are Christian, can have the same effects on humanity – this is in itself another demonstration of the similarities across modes of being.

"The Garden of Love," in its portrayal of these notions, is an exercise for Blake in articulating the restrictive energy of religiosity and the domineering influence of its institutional structure, as I will explore in my final chapter, that prevent a fulfillment of what Blake considers to be desires of human experience. For Darwin, the ideological infrastructures of Christianity that further the kingdom systems and their boundaries between beings are restrictive to not only human beings but all other forms of beings as we understand them. In looking at the development of natural philosophy as expanded in the eighteenth-century, it is clear that the myth of Genesis had not been forgotten. Linnaeus' work and the theories of physiology that ensued are in various ways still maintaining the image of a static hierarchy that positions humanity as the cultivator, retelling the narratives of other beings that inscribe them the status of lesser by our own accord. Endowing them with the capacity to change only as the species created in the image of the "all-wise Creator" would allow, affirms the sense that the control issued by humanity is meant to enforce a level of stasis over the natural world that would make control more easily upheld. Perhaps, then, the thorns lost through cultivation are not really lost; perhaps, they become repurposed by the governing cultural forces that seek to bind, as Blake says, with "briars" the behaviours of beings that jeopardize the cultivator's conceptual structures.

Chapter Three

Lasting Bonds

In Chapter One, I introduced the significance of origin stories and myth as they relate to cosmological world building and Darwin's engagement with Christian ideologies specifically. In Chapter Two, I explored the consequences of these ideologies as they pertain to the development and restriction of human understandings of the natural order in the eighteenth-century Euro-Western consciousness. In my final chapter, I intend to affirm the notion that Darwin's writing functions to generate new ways of thinking about the natural world, those that exemplify species interconnectedness and, in turn, demonstrate the ways in which religious considerations of being affect how humans are able to consider themselves in relation to other species and their environments. This line of reasoning considers *The Loves of the Plants* as a form of early ecological literature that offers not necessarily an irrefutable alternative to the perspectives offered by traditional Western approaches to natural philosophy, but rather an opportunity for the reimagining of a natural order that does not rely on specific religious cosmological regimes.

We know from the discussions of the first chapter that origin stories can act as the foundation for cosmological systems, and as Kimmerer suggests, these systems can vary down to level of an individual, but are also very commonly shared amongst members of entire cultures – and have led to divides between those of the "same species [and] same earth" (Kimmerer 9). The shared beliefs that run through religious cosmological systems are what hold their groupings together, and what allows for convenient methods of determining whether or not another human being can be aligned with a positionality within such a system. Of course, this cultural development is one of human derivation, and subsequently, an integral branch of almost all

institutions of belief has to do with the interactions between human beings. In Christian cosmology, proper decorum from with whom and why to how and when interactions with other members of our species are to occur is widely known. As we saw in examining Genesis, the interactions between human and nonhuman are also rather particular, as they operate one way, governed by a power dynamic that leaves very little room for deviation. The type of interactions that go unacknowledged, though, in this cosmological system are those between nonhuman beings, those beyond human interference anyway.

Part of the allure of Linnaeus' taxonomical system, and Darwin's adaptation of its language, is the transposition of human relationships onto nonhuman beings. How I believe Darwin takes this beyond simply pressing the constructed understandings of human conduct onto nonhumans has to do with, as was explored in the previous chapter, the relationality that this system in both its continuities and discontinuities illustrates between different modes of being, but also his expression of lasting bonds that stem not from Christian doctrine, but natural relations. This chapter will explore how our conceptions of nonhuman beings have influenced how we come to understand their abilities to interact and form relationships, while delineating the difference between the two acts themselves. I will conclude the chapter by examining Darwin's final scene in *Loves*, wherein his allusion to a ceremonial ritual that goes against the cultural morals of his eighteenth-century audience is his attempt to draw attention to the ways in which religious ideology has impacted our understanding of the natural world and our species' place within it.

To Be a Singular Being

Before discussing the formation of bonds between living beings in Darwin, we need to consider the complicating role of singularity in the poem. Much of the scholarship that already exists pertaining to Darwin's *Loves* aims to explore the gendered elements of his garden and the goings on within its world. Browne's "Botany for Gentlemen" provides a thorough examination of the ways in which articulations of male and female beings across species boundaries are linked to human social convention. The inclusion of gendered binaries was something that no doubt allowed for these metaphors to come alive for Darwin's Euro-Western readers in the eighteenth century – the sociopolitical progressive nature of his work being a topic of debate for many – as there are both traditional and unconventional representations of male and female behaviours throughout. As Browne focuses on Darwin's imagining of these vegetal beings, it strikes me that what she does not incorporate into her considerations is the difference, or possibility of a difference, between the vegetal species whose male and female components are located on separate plants and those whose are not to explore how Darwin's plants can be thought of as separate beings. This can, of course, cause confusion in speaking of the relationships of vegetal beings, for one sexual encounter as described by Darwin between a male and a female could in fact be taking place on one plant. While I have referenced and intend to continue referencing both his descriptions of inter and intra-plant relations in working through Darwin's motivations, it may be valuable to linger briefly on how this complication may also impact human understandings of vegetal beings as beings at all, given the criteria introduced in my previous chapters.

Inter or intra-plant relations are not the most accurate terms to use, though they carry the idea across. In his preface, Darwin introduces his readers to Linnaeus' division of the vegetal

kingdom. Separated into 24 classes, Linnaeus distinguished plants based, as we know, on their sexual structures. Within these classes, are two known as monoecious and dioecious. The suffix of these terms, oecious, comes from the ancient Greek *οἰκία,* which translates to mean house and is now predominantly employed in botanical diction to refer to the arrangement of sexual organs in plant species. In Linnaean fashion, this allows the parallel between human domestic structure to move fluidly between the realms of the vegetal and the human to ground human conceptions of ourselves in the perceived conduct of the botanical world. Monoecious plants, mono implying one, are those which have separate male and female flowers but reside on the same plant, or in the same house. Dioecious plant species, di indicating two, are those with male and female flowers that reside on entirely separate plants (Darwin v). Being that most vegetal species are monoecious (Petruzzello), it is easy to see how effective the correlation between the presence of both male and female distinctions within a house could be used to justify the cultural status of human behaviour in the Euro-Western world that saw a human household as properly consisting of both a male and female component – wherein monoecious species were to be known as "perfect plants" while dioecious species would be known as "imperfect plants."[14] The implication of this, for eighteenth-century domesticity, was that there would now be a reinforced sense of expectation surrounding the formation of gendered relationships, and what classified a "perfect" or "imperfect" creation of a familial dynamic. In turn, this language then constrains our view of self-fertilizing plants as complete, singular beings.

Both monoecious and dioecious species are featured in Darwin's practice of literary botanic curation. Though the circumstances of their personal narratives differ in Darwin's

[14] See John Ray's work on the division of plants as either imperfect or perfect and from the century following Linnaeus' use of the terms in his *Philosophia Botanica.*

retelling of their animated forms, there appears little discrimination between those species who are of one house or two. In his first canto, Darwin introduces his readers to *Vallisneria spiralis*, a dioecious plant known as eel grass:

> As dash the waves on India's breezy strand,
> Her flush'd cheek press'd upon her lily hand,
> Vallisner sits, up-turns her tearful eyes,
> Calls her lost lover, and upbraids the skies. (Darwin 1. 401-4)

In the second canto, we meet *Cyperus papyrus*, the monoecious paper reed:

> Papyra, throned upon the banks of Nile,
> Spread her smooth leaf, and waved her silver style…
> Sad o'ver the scatter'd ruins Genius sigh'd,
> And in infant Arts but learn'd to lisp, and died.
> Till to astonish'd realms Papyra taught
> To paint in mystic colours Sound and Thought. (2. 105-15)

In the personification of these vegetal species, both *Vallisneria* and *Cyperus* are described as mobile, being able to move their bodies to sit, lean, and wave. They are also endowed with the ability to perceive the worlds around them and respond according to their own prerogative, whether that be with sorrow at the absence of a "lost lover" or with the inclination to teach in the event knowledge need be shared – offering insight to nonvegetal life that demonstrates not only an ability to engage with other living beings, but also as "to paint in mystic colours Sound and Thought" they are presented as being able to manipulate conceptual entities as well. There is evidence in both of these passages that attests to Darwin's willful attribution of personification to

both monoecious and dioecious plant classes. Beyond and perhaps because of these qualities, in their personification these species are depicted with agency, both as singular beings regardless of whether or not they are capable of self-fertilization.

Illustration 7
"Vallisneria spiralis"
The Poetical Works of Erasmus Darwin
Original engraving done by Frederick Nodder
for Darwin's *The Botanic Garden*, 1791

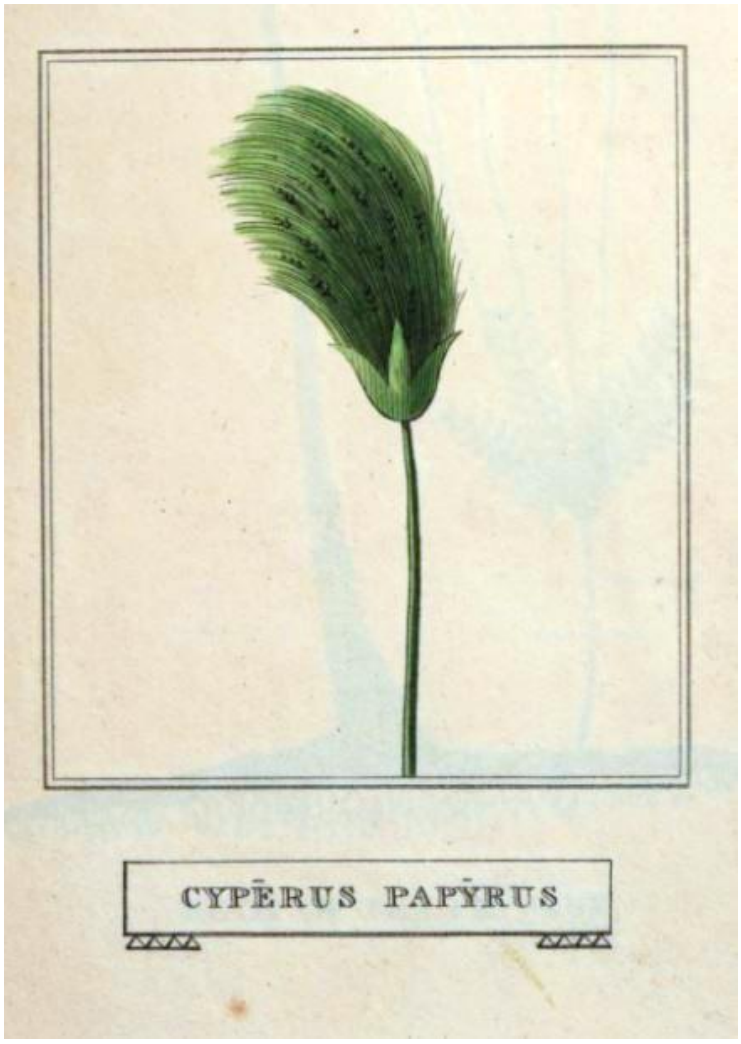

Illustration 8
Robert Duppa's "Cyperus Papyrus"
The Classes and Orders of the
Linnaean System of Botany, 1816

Of course, I am aware of the fault some may draw from the species I have a chosen to compare in defence of the argument that Darwin makes no distinction between monoecious and dioecious plants in terms of their identification as singular – that being that he chooses to illustrate *Vallisneria* as a woeful female figure longing for the presence of her partner. This will

lead some to believe that Darwin is implying that dioecious species remain incomplete even in their position as a singular component in the reproductive equation, that they lack a certain quality of independence. But, the example of *Vallisneria* is but one of multiple cases in Darwin's *Loves* wherein we see his interpretation of a dioecious plant. Take for instance his verse regarding Chinese hemp, or *Cannabis*:

> Slow treads fair Cannabis the breezy strand,
>
> The distaff streams dishevell'd in her hand…
>
> Quick join the threads, the dancing spole depends.
>
> Five Swains attracted guard the Nymph, by turns
>
> Her grace enchants them, and her beauty burns;
>
> To each she bows with sweet assuasive smile,
>
> Hears his soft vows, and turns her spole the while. (4.115-26)

In this scene, the dioecious *Cannabis* is not portrayed as an incomplete being yearning for another incomplete being, but as a figure aware of the presence of male counterparts that, nevertheless, offers them a "bow" and an "assuasive smile" before continuing with her work. My decision to include the *Vallisneria* initially, rather than forego these explanations and simply include the latter verse describing *Cannabis*, is based on the very reason I felt the need to offer an alternative, because of Darwin's rendering of *Vallisneria* as an entity who "calls [for] her lost lover" – as it renders the vegetal being capable of forming a connection to be longed for at all.

Though, as Nealon explores, in philosophical discussions of the perception of nonhuman beings, it is not always that nonhumans are deficient in the qualities that human beings use in defence of their superiority. As has been discussed, we learn more and more about exceptions to these traditional perspectives all the time. Instead, he writes, "it would seem, much of the

vegetable kingdom fails the test of life not because they lack agency, sensation, communication, or whatever [else] but because plants are not always singular beings. Only singular organisms can have phantasmatic worlds and therefore be alive" (Nealon 78). This stance, of course, embodies the complexity that we face as beings who assume what it means to understand the notion of a singular being and is in two ways problematic. To "have phantasmatic worlds" in this context can be thought of as another phrase that refers to our harbouring of cosmological realms, meaning, we create ideological conceptions of the world that exist beyond what physically encompasses us. In granting such power to the nonphysical, to mandate that a being must be able to develop or abide by a constructed image of the world, that would be recognized by humans specifically as constituting such, is overtly anthropocentric and can lead to precisely the issues that Darwin is making reference to with his challenges to Christian ideology.

The more implicit issue with this conception of classifying life is that it runs the risk of implying that every being exists in not only a singular form so to speak, but also as a static form. If a being is at one point deemed incapable of acknowledging the presence of a phantasmatic world, as human beings are capable of doing, do we permanently ideologically categorize these beings as lifeless? This seems to be the case, and yet, as observed by a multitude of theorists of natural philosophy in the eighteenth century and thereafter, humans themselves, in their formative stages as fetuses and infants, have been likened to vegetable beings for their inability to be anything but nutritive in such states. Of course, I am not proposing that a plant, during the course of its lifecycle, may be able to develop a human-like conception of a phantasmatic world, nor should it have to. But, I would hate to belittle the possibilities of evolution by limiting my perception of beings to only ever being understood as what they appear to be at a particular point in time, as I believe Darwin would have as well. This idea that a form of being is to only be

understood as it exists at a particular time is a direct consequence of the Christian ideologies that propel understandings of the natural world and its order as a still creation, those that would come to push back against the theories of evolution Darwin's grandson would come to delineate. Remembering our discussions of change and transformation as they are viewed through a Christian lens from the previous chapter, humanity under Christian cosmology seeks a static nature, one easily classified, and thus, easily controlled.

Throughout his *Loves*, Darwin introduces his readers to a variety of plants who fall under various classes, who may be seen as both singular and multiple beings as he personifies them. While this certainly adds a layer of complexity for humanity in distinguishing whether or not plant beings are one individual or multiple individuals living in one physical form, it highlights the depths in which other beings, specifically vegetal, have taken the brunt of human attempts to order nature for the purpose of naturalizing their own order (Teute 322). Darwin's concern is not whether plants should or should not be seen as singular beings, but that the religious ideologies that have stakes in the response to this question are what should really be examined. In one of his footnotes, Darwin writes that "perhaps all the productions of nature are in their progress to greater perfection" (Darwin 15). In this, he alludes to not a stability and hierarchy based on current forms or singular beings but the opportunities that all beings share in their capacity to change and evolve, which is something we seem to only associate with humans – for change elsewhere in nature may result in a loss of the control that comes with a cosmological stance reliant on a particular image of the natural world.

Interactions and Relationships

Perhaps, then, it is our assumption that nonhuman beings are only able to interact with the material or non-phantasmatic world that contributes to the ways we identify their relations to other beings. I have used both the word interaction and relationship in describing my intentions with this chapter, though never interchangeably, and it is critical to note why in order to understand just how radical Darwin's exploration of nonhuman relationships truly was and still may be. According to the Oxford English Dictionary, interactions are defined as reciprocal experienced actions, those wherein an influence is made on each participating entity involved. Interestingly enough, this term does not seem to have been in regular use prior to the early nineteenth century when it was normalized into scientific and philosophical terminology, despite the much earlier use of its prefix and root ("interaction, n."). Relationship, in contrast, appears far sooner in the English vocabulary. While its definitions vary and its employment is vast, the word relationship has similarly been used to refer to the experiences between participating entities, but it relies on the distinguishing component of an acknowledged "connection" – the establishment of which are to be "based on… interactions" ("relationship, n."). From these definitions, relationships, as they are most commonly understood, are the result of interactions that have been socially recognized by one or more participants as a connection. But, what happens if we have deemed an entity incapable of recognizing connection altogether? Does this mean that their repeated interactions with other beings fall short of the classification of relationships simply because they are unable to understand or articulate their understanding in such a way that is deemed suitable by the standards humans have created?

In these questions, I am referring to the cosmologically driven interpretations of nonhuman beings that have led to many of the assertions, discussed in the previous section and

chapter, coalescing in the minds of the Euro-Western world as assumed and accepted. We know, of course, of exceptions to these interpretations – those like the polyp who complicate and disrupt the stability of such cosmological interpretations of the natural world. As the centuries have passed, adjustments have been made to accommodate these exceptions, and yet, contemporary scholarship pertaining to the formation of nonhuman relationships seems no more collectively certain of how to approach the matter than that of Darwin's time, though it arguably has a larger breadth of theory to draw upon. Even confident writing like that of Donna Haraway's work on companion species and intraspecies relationships remains subject to criticism for its anthropocentric illusion of togetherness, which to some still maintains the vindication of experimentation on and the killing of certain beings for the greater human-determined good (Kompatsiaris 7). It was actually reading a critique of Haraway's work that led me to raise these questions regarding our understanding of nonhuman relationships. Panos Kompatsiaris writes in his discussion of Haraway, that bonding, or "making kin" beyond the species boundaries as is repeatedly, and rightly so, encouraged in the environmental humanities can often be found guilty of "romantici[izing] the agency of repressed nonhumans" (10). As he argues in his review of Haraway, despite advocating for their recognition, Haraway legitimates the continued targeting of some species for exploitation. Of course, one can make the same case against Darwin's work, as he ascribes human expressions of personhood to nonhuman beings in order to evoke considerations of relationality, all the while himself relying on the knowledge obtained by the exploitation of nonhuman beings in the pursuit of scientific information. However, while Darwin's descriptions of nonhuman relations, particularly in the verses of his *Loves*, are rather romantic – both in their focus on the expression of love between beings and the connection to the historic, cultural movement – his purpose is not to convince his audience of a human-like agency

that we have overlooked in these nonhuman beings that would, as Haraway has been accused of, present an inauthentic sense of beinghood upon them. His purpose is to explore the presence of an agency that allows for the formation of relationships at all, however similar to humanity's they may be, to remind his readers of the connections between species that have been lost in the human exceptionalism of Christian species ideology.

Today, in the environmental sciences, the term relationship is used to describe interactions between nonhuman species under the banner of ecological relationships, those recognized as competition, predation, parasitism, commensalism, and mutualism. These types of relationships, though, are an instance where the term's meaning is slightly reemphasized, for the ways in which humans have categorized nonhuman relationships has more to do with the material integrity or physical interactions between beings than any sort of acknowledged cognitive connection. Interestingly enough, in looking for examples of the descriptions of ecological relationships, I stumbled upon a textbook, entitled *Introduction to Evolution and Human Behavior* (2022) that was made available by Boise State University and contained within it an entire chapter dedicated to ecological relationships. The publication claims to be primarily concerned with anthropology, though it lists biology, life sciences, and applied ecology, as its other points of focus. Under each of these five categories an example was given to demonstrate for its readers how this type of relationship worked. To describe competition, wherein "one individual or population tries to control resources," they offer the example of two foxes fighting over a single rabbit. To describe commensalism, wherein "one [organism] benefits while the other is neither harmed or helped," they offer the dynamic between most nesting birds and tree species, as birds "receive protection from sun and predators… yet the tree is neither benefiting nor harmed" (Volsche and Hasnain 267-9).

For almost every example of an ecological relationship, only nonhuman beings were used to portray their meanings. The exception to this is found in the paragraph pertaining to mutualism, as the authors include an example of the mutualistic relationship between the Hadza men and the *Indicator indicator*, or greater honeyguide bird, in the collection of honey from wild beehives (270). But what I noticed was that this section on mutualism quite literally acts as a buffer between this chapter's first and second subheadings wherein the text turns to focus solely on human examples of reciprocity as it pertains to relationship building. To delineate the notion of reciprocity after having just introduced mutualism is logical, as they write that fairness is something especially significant in mutualism, and fairness "is largely based on the concept of reciprocity" (272). In transitioning to the topic of reciprocity, the only examples to be found were those pertaining to human actions, as reciprocity is also a concept wherein "recognition by two parties" is a necessary component, much like the term relationship itself. Each of these ecological relationships pertain merely to observations regarding physical survival. Though these ecological terms are used metaphorically in certain cases to describe human relationships, these categories have become the dominant ways in which we look at nonhuman inter and intraspecies dynamics, and while some may be relatable to human bonds because of this, the language we use disassociates the nonhuman from the human in their capacity to perceptively recognize connections.

Rarely do we discuss human relationships with strict attention to the ecological terminology that we ascribe to other beings' interactions. Much of this is a consequence of the theories brought up in the previous chapters, for our perception of other beings acts to perpetuate our superiority by way of their inferiority, and their inability to connect with other beings intellectually and emotively as we do. In the case of nonhuman animals we now know this to be

in many cases invalid. Many species are very capable of creating emotional bonds and display many habits, like humans, that require intelligent levels of perception. But Darwin does not forget about the physical synchronicities that may drive the building of relationships as we now identify them ecologically. He writes that "there is a wonderful conformity between the vegetation of some plants, and the arrival of certain birds of passage." The correlation between the arrival of the swallows and wood anemone in Sweden was documented by Linnaeus, as was observed the appearance of marsh marigolds and cuckoo birds (Darwin 30):

> All wan and shivering in the leafless glade
> The sad ANEMONE reclined her head;
> Grief on her cheeks had paled the roseate hue,
> And her sweet eye-lids dropp'd with pearly dew.
> See from bright regions, borne on odorous gales,
> The swallow, herald of the summer, sails…
> Tears with rude kiss her bosom's gauzy veil,
> And flings the fluttering 'kerchief to the gale. (1. 315-20)

Here, Darwin acknowledges the external, material conditions that bring certain beings together, as the coming of warmer weather attracts the swallow and is favourable for the blossoming *Anemone*. In his notes to accompany this section, he indicates that beyond "their sensibility to heat," vegetal beings are also "influenced by their acquired habits" (30). Darwin uses the example of vegetal species being moved and planted in differing climates to further this idea, as they become used to certain soils or moisture levels they may exhibit differing behaviour to similar species who have always been in that space. While these idiosyncrasies do demonstrate

that, like humans, nonhuman beings may have interactions based on conformity, they are still behaviours that reflect merely physical awareness.

However, beyond these instances which can be attributed to correlations of sense, as Aristotle may have described them, Darwin makes the decision to use examples of relationship building that would typically never be associated with vegetal beings. The relationships that are featured between nonhuman beings in Darwin's poem are vast, particularly given botany's inclination, from Linnaeus on, to focus heavily on their sexual interactions. As Teute writes, Darwin "offered images of fraternal, sororal, and heterosexual bonds of social affection," in addition to an "array of sexual options" (Teute 339). But Darwin also takes the time to wonder about the familial extent of vegetal affection. Let us think back to Darwin's writing on *Meadia* that I offered in chapter two as an example of his questioning of mechanistic philosophies: "as soon as the seeds are formed, it erects all the flower-stalks to prevent them from falling out, and thus looses the beauty of its figure… does it indicate a vegetable storge to preserve its offspring?" (Darwin 14). In this instance, Darwin is relating the action of *Meadia* to that of a human mother, who may protect her child no matter the cost to her own physical wellbeing, out of an inherent affection. To use the word "storge" in this context is interesting, as it is a term that has conceptually moved between the human and nonhuman animal realm to describe familial love that is often thought of as instinctual or grown from exposure to a "caring and nurturing" dynamic (Colman). For Darwin to propose that this type of connection could exist in plant beings, however, implies a level of similarity between the vegetal and animal kingdom that was believed to be impossible – as plants, being nutritive, certainly were not thought capable of perceiving such a connection even with their own offspring.

Despite Darwin's interest in the interconnectedness of various species by way of their capacity to form relationships, he is not ignorant of the predatory, or non-"romanticized" interactions among nonhumans, as Kompatsiaris says in critique of Haraway. As has been mentioned, Darwin includes multiple conversations of herbivory in the *Loves*, a form of predation that demonstrates the delicate balance between species, as we saw with the *Ilex*. Another instance to consider though, is Darwin's mention of the lichen and deer populations, wherein he is further emphasizing the ways in which beings are connected, not necessarily through love or emotional connection, but at a baser level that humanity is not exempt from, though in distinguishing ourselves by our ability to recognize connection we attempt to be. Darwin manages to include in this example the influence of lichen presence on human beings as well as the deer populations, as of course, the lichen become the only means of survival for larger herbivores and those herbivores being "said to support some millions of mankind" (Darwin 118). Here, we can stop and think about the ways in which Darwin's drawing upon reliant interactions and relationships, which may be predatory in nature, still allow for considerations of likeness across kingdoms. For in this instance, the lichen is for the deer what the deer is for humans and other nonhuman omnivores and carnivores – as such, they exist to other species as a means to an end.

We have endowed ourselves with the title of the superior species due to the capabilities of our rational soul, to use Aristotle's thinking, as a consequence of the religious ideologies that govern our perception of the world. Darwin, in recognizing both the physical interconnectedness of species that we have come to acknowledge today, as well as allowing vegetal beings to carry on relationships without question as humans may understand them in his verse, is conceptually pushing against the ideologies that would come to result in this linguistic dissociation we see

today in discussing human and nonhuman beings. If we are the only species capable of recognizing relationships, as Kimmerer phrases it, we should be able to recognize that the belief in the exile from Eden has left us in an "abusive relationship" (Kimmerer 9). But for Darwin, in aligning plants with humans and acknowledging the other forms of ecological relationships between beings that we know now we are not excluded from, he is providing his readers with the opportunity to explore interactions and relationships between all beings beyond the confines of religious ideology, all the while pointing to its detrimental effects.

The Vegetal Wedding

The relationships we are privy to most in *The Loves of the Plants* are those of romantic desire. Darwin, in contributing to the discussion of botanical reproduction, deploys a naturalized sense of sexuality to disrupt notions of moral behaviour as a device used in Christian doctrine to separate us from other species. The alignment in Linnaeus' work so astutely applied to plant and human reproductive organs, allows Darwin to encourage his readers to think of human sexuality as he writes of the relationships taking place within his botanic garden. Browne writes that Darwin's personification of stamens and pistols is an attempt to "introduce a real, physiological element into a highly abstract scheme." What Browne describes here is often used as a description of metaphoric thinking, wherein something familiar is used to understand that which is unfamiliar. Though she is referring to the abstract as, in Darwin's time, the still partially concealed world of plant biology, I believe her words can exceed this notion to speak to Darwin's understanding of existence more broadly. Darwin attributed "sensation, movement, and a certain degree of mental activity" to even the simplest of life forms as a way not only to establish his theories of evolutionary progress (Browne 602-3), but also to affirm a continuity

between all living species. As they pertain to it, this was Darwin's way of positioning sexuality, and for most species, sexual reproduction as a natural component of existence, rather than something that should be controlled by abstract religious determinants of right and wrong.

Within the Christian cosmology, sexual activity is governed by the contrived moral ascriptions to human milestones, that in the Euro-Western world revolve around marriage as it is socially and religiously constructed – as a sacrament, as a rite within the Church, and as a legal and economic contract. It is, then, only right, that in a text brimming with instances of vegetal sexual activity, a wedding must be in order. But rather than begin the telling of his *Loves* with a nuptial agreement that would under Christian ideology allow for subsequent sexual activity, Darwin chooses to conclude his poetic work with not a traditional Euro-Western wedding, but a vegetal Otaheite or Tahitian wedding. In portraying the coming together of "a hundred virgins" and "a hundred swains," with "fond Adonis lead[ing] the sprightly trains" (Darwin 4.489-90), Darwin uses the *Adonis*, a member of the buttercup family, as a plant with "many males and many females [that] live together in the same flower," to stand in as a representation of the Areoi – a society on the island of Tahiti that Darwin describes as approximately 100 females and 100 males who partake in one collective marriage agreement (Darwin 123). In offering a form of ceremonial commitment that does not rely on Christian conceptions of marriage, Darwin instead attempts to illustrate ideas of representing love which seem to him much more natural:

> As round his shrine the gaudy circles bow,
> And seal with muttering lips the faithless vow,
> Licentious Hymen joins their mingled hands,
> And loosely twines the meretricious bands. —

Thus where pleased VENUS, in the southern main,

Sheds all her smiles on Otaheite's plain,

Wide o'er the isle her silken net she draws,

And the Loves laugh at all, but Nature's laws. (4. 501-8)

During the eighteenth century, Darwin's readers would have encountered representations of Tahitian customs, and particularly their sexual practices; as Fara writes, it was in this period that an expedition took place which would "change the pattern of British science" (*Sex* 2). What existed beyond the vastness of the ocean was often open to the imaginations of geographers in the European world, influenced by the long-standing theories of *terra australis incognita*.[15] But in August 1768, James Cook headed out on the *Endeavour* for what would be the first of his across-the-ocean voyages. Funded predominantly by the Admiralty with encouragement from the Royal Society to officially observe the transit of Venus, Cook was accompanied by a crew and a group of scientists and artists led by naturalist Joseph Banks to explore the lands of the South-Pacific. Fara points out that Banks was required to pay for his and his crew's passage on the ship as the collection and relocation of foreign plants was not the priority of the voyage (3). Nevertheless, many of the specimens brought back were unknown to Europe at the time of the expedition, and the documented experiences of the island portrayed Tahiti as a form of strange utopia to those of the Western civilizations, not only in the beauty of its landscape, but in the conduct of its societies. Though edited editions of Cook's logs and Banks' journals are available to us now, the account that would be published first in 1773 was a narrative constructed from

[15] Translating from Latin to mean, "unknown Southern land," the theory of *terra australis incognita* dates back to antiquity and supposed that as the planet must be balanced, a large land mass must exist in the southern hemisphere to balance that of the northern hemisphere.

their writing by John Hawkesworth. Commissioned by the Admiralty, this publication would become recognized as the "authorized" edition of the accounts of their exploration (Dromart 83).

We know that many species revealed to the growing realm of the natural sciences throughout Cook's voyages and Banks' exploration had never before been seen by Europeans. Because of this, it was perhaps not a large leap for some to think of these species as lost to humanity in the exile from the garden. Remembering the connotations of the garden as discussed in chapter one, the experience of entering the island of Tahiti, for those familiar with the conditions of European climate, may have felt to those of the eighteenth century as though they were traversing their paradise lost. Hawkesworth writes about the fruitfulness of the landscape that "all these, which serve the inhabitants for food, the earth produces spontaneously, or with so little culture, that they seem to be exempted from the first general curse, that 'man should eat his bread in the sweat of his brow'" (Hawksworth 186). Here, we see the emergence of Christian understandings of vegetal species seeping into the relations of this secluded, othered world. The association has been made between the vegetal growth of the land and the labourless abundance written of in Eden. The profusion, innocence, and fecundity of this Eden would manifest as well in European conceptions of Tahitian sexuality, which for Darwin, would be useful in signaling to his readers the possibility of a conception of existence that was not burdened by the restrictive mythos of Christian creation.

As Cook and Banks observed the plants and nonhuman animals of the South-Pacific islands, so too did they observe their human inhabitants. European ethnography tended to contrast the ways of the Western world and those of the Indigenous populations encountered, despite attempts to remain the objective observer. The most striking detail which would become tied to the people of Tahiti as juxtaposed to the behaviours of the West was their acceptance of

sexual exploration, which Fara extends to describe as something they believed to be "one of life's major objectives" (4) – how ironic that awareness of this land was made to Europeans on a voyage to lay eyes upon Venus. We see Darwin employing this allusion, as his marital ceremony caused Venus to "[shed] all her smiles on Otaheite's plain," to affirm through an alternative divinity the bonding of the Areoi. This is furthered by Darwin's inclusion of Hymen, who in a literary context is often brought in to signal the enactment of marriage, that being his affinity in the Hellenistic tradition. In Hawksworth's narrative, we are presented with an image of the Areoi that closely resembles Darwin's note, as a society "in which every woman is common to every man; thus securing a perpetual variety" (207). Hawkesworth continues, however, to explain what happens should a woman become pregnant among the Areoi: "if any of the women happen to be with child… the poor infant is smothered the moment it is born, that it may be no incumbrance to the father, nor interrupt the mother in the pleasures of her diabolical prostitution" (208). Here, of course, the objective stance of the narrator is absent, as the cultural practices of the Tahitians collide with that of the Christian foundations of the Euro-Western world.

This idea of a collective ceremonial union was entirely opposed to understandings of marriage in eighteenth-century Europe, the biblical traditions holding sway in public perceptions of marital relations: "Let marriage be held in honor among all, and let the marriage bed be undefiled, for God will judge the sexually immoral and adulterous" (Hebrews 13.4). But, in the workings of church and state, the expectations surrounding marriage became defined under civil constitution. In Enlightenment Britain, the Marriage Act of 1753 sought to administer the overseeing of marital bonds to the state. Even though it further solidified the church's authority by declaring that valid marriages could only be performed by ordained priests, the legislation would inevitably come to be vindicated by what was seen as natural law – which as we have

discussed, was greatly influenced by those analyzing and translating the natural order. This is not to say that the efforts to control acts of marriage held purely negative intentions, for the introduction of considerations of consent can very easily be argued as a beneficial constraint. However, what we are able to identify in this civil action is the link between the religious conceptions of marriage and their continual presence in the perceptions of marriage and relational expectations in the eighteenth century and even today. Because of this, Darwin's employment of a socially unacceptable union speaks volumes.

As Teute attests, during the later years of the Enlightenment reason and desire were held "in dynamic tension" (339). Many of us now understand the variety of purposes marriage holds; it can be a site of companionship, unconditional love, pleasure, and reproduction. In the monogamous Christian tradition, of course, this was all to be found in one other individual, and the benefits of marriage were to be experienced in a specific order so as to retain moral integrity. The stiffness of the conceptual practices surrounding marriage in Christian cosmology are played with as Darwin specifies that Hymen "loosely twines the meretricious bands" (4.504). Of course, to describe wedding bands, which in the Christian tradition symbolize the fidelity and commitment of two parties coming together in matrimony, as meretricious, Darwin is presenting these practices as those with no integrity or value in realities beyond the Christian cosmology and in what he would describe as the natural world. As botany became a site for both men and women to explore variations in the natural order of things, the manipulation of the anthropomorphic system Linnaeus had put in place, that which perpetuated the ideas of Christian conduct, was used to discuss and criticize the conventions of relationships as they were socially accepted. Teute makes the point that friendship among men and women "stood as a radical option to marriage." Darwin, in his exploration of not only sexual relationships between male

and female beings, but as previously mentioned, members of all sexes for a multitude of connective reasons, demonstrates a world of relationality that was supported by the natural world of his garden, as Linnaeus attempted to support Christian ideologies in his delineation of nature, and could extend into humanity in the absence of "established civil and religious prescriptions" (339). The evocation of the Areoi demonstrates an entirely alternative system that does not assume monogamous reliance, but rather, invokes a level of liberation, of course much more openly erotic than anything else, that those of Darwin's original audience could perhaps not even fathom.

In this scene, Darwin sought to reinforce the notion that love and sexuality, as they so often become intertwined, can be "faithless," not, according to this reality, tenets of existence which should adhere to the principles of an external force. As extreme as it may seem to us, the dichotomy between the Western and Areoi relationality of sexual reproduction forces us to examine the religious rulings that have led to understandings of sexual activity and pursuits of pleasure. In the Christian cosmology, sexual activity is that which takes place between man and wife for the purposes of creating new life. Tahiti would come to represent a world of free love, a place wherein the confines of Christian religious doctrine were unknown and thus unrestrictive, whose inhabitants to those of the Euro-Western world would be deemed "condemned on moral grounds" (Dromart 84). The behaviour of the Areoi as described by Darwin and Hawksworth does not link sexual expression and reproduction with morality as is the case in Christian cosmology. But, Darwin uses the ways in which the cultural dynamics of the Areoi would be viewed in the West, to mock the traditions of Christianity as he supposes would be done by beings whose perceptions are not obscured by the constraints of religious ideology or perhaps the importance of immaterial belief at all. In this writing, Darwin intends for us to continually

engage with the connections to be seen between plant and human life. This experience allows us to consider the effects of his metaphoric understanding of plant reproduction as human love, delivering human and plant sexuality from religious control to a physiological space – for as Darwin claims, they should be a matter of none other than "Nature's Laws." To posit that plants in fact have a prolific and unrestrained sexuality from which we may learn, Darwin's reimagining serves the purpose of exposing us to ideas that may allow us to return to a state of nature, a state wherein the moralities that we ascribe to aspects of our biological being do not place us in a position of superiority that maintains difference between human and nonhuman beings. As Linnaeus attempted to solidify traits of human order with the natural world, so too does Darwin, but with the intention of exemplifying not a social order that through the inverse supports Christian ideology, but rather, the possibilities that exist beyond it.

Conclusion

Beyond Botany

To write about vegetal species' ability to form relationships holds much more significance than some who read Darwin may realize, because despite the notion that *The Loves of the Plants* is a poetic narrative about a garden space and Botanic Muse, in the generating of cosmology there is no generic difference between the narrative Darwin produces and the biblical myths that have been used to uphold our ideological stances. Of course, conceptually and ideologically, Darwin's exploration of cosmology seeks to point out the detriment that these religious narratives and rigid ideological histories can have on continuous understandings and interpretations of not only the natural world but humanity's place within it – rather than, apart from or above it.

In this work, I have delineated how the distinctions made in Genesis regarding the order in which the Earth and its inhabitants were created supports Aristotle's projection of existence, and subsequently the Linnaean system of kingdoms and its hierarchy. What is perhaps the most significant and dangerous element carried forward in these theories of the natural sciences is that with each new addition as proclaimed in Genesis, there seemed to be an inclination to assume these creations became more complex, more advanced, and thus, held more moral value. For those during the eighteenth century, and thereafter, who held onto the belief that these distinctions were not necessarily the work of the human mind, but of divine creation, a disruption of these distinctions could, and would, unsettle their entire cosmological footing and the social orders they maintained. As I have intended to point out throughout this research, I do not mean to excuse Darwin of participating in the world of eighteenth-century natural sciences that still very

much contributed to the perpetuation of many of these ideals, but what Darwin's work was able to do was question the ways in which these ideals came to be, and what would happen if they were no longer abided by – or if, it was made known to just what extent their ideologies influence our conduct as a species.

Gibson articulates this notion well in her consideration of a fourth kingdom, a place for beings like the polyp and others who seem to disrupt the simplicity of the period's understanding of the classifications of being. If the boundaries between plant and animal kingdoms, for example, could be compromised by species unable to fit into the categories of nature, evidence that God's natural order was not absolute, could this mean that all the distinctions made between beings may be misinterpreted, or even not divinely imparted at all? Gibson reminds us that "no human society has ever existed without divisions… [and] most societies throughout history have attributed their different strata not to human desire for order or segregation, but to a divinely imparted system" (Gibson 175). It can be argued then, that these divinely imparted systems, those that like Genesis tend to appear in the origin myths of religious systems, are what tend to allow us to pardon our species from the institution of detrimental classifications and the ethical consequences that come with them.

I have argued here that Darwin's conceptual aims go far beyond botany – for the exploration which takes place has more to do with dealing with our own perceptions of the natural world, than attempting to grasp its specificities any further. This examination of Darwin's work has intended to reveal his rich reimagining of our relations with other biological beings that is perhaps overlooked in the existing scholarship pertaining to his *Loves*. Though this study is culturally specific, as Darwin's exploration of cosmology is tied to the influence of Christian species ideology and its progression through the various intellectual movements of the Euro-

Western world, my hope is that this thinking can be applied across geographies, demographics, and religions to acknowledge the ideological histories and inheritances which linger long after their conception and emerge in cultural production, demonstrating their influence on our relationships with the environment and our ideas of self. By exploring Darwin's radical relocation of the human within nature, as his garden plants become the central figures within this realm, we see how human perspectives pertaining to the natural world and its order develop and can potentially shift. Darwin's endeavour was to inspire a mode of thinking that would allow us to recognize this – to invoke within us what he may have considered a form of natural consciousness.

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