ORGANISM, ENVIRONMENT, LITERATURE: MARY SHELLEY'S INVESTIGATION OF NATURAL & SEXUAL SELECTION IN *FRANKENSTEIN*

BY

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TABLE OF CONTENTS

LIST OF ABBREVIATIONS

In Citations:

Botanic Garden: *BG*

Frankenstein: *F*

Loves of the Plants: *L, Loves*

On the Origin of Species: *Origin*

Temple of Nature: *ToN*

Zoonomia: *Z*

ABSTRACT

This thesis examines Mary Shelley's debut novel *Frankenstein* in tandem with the evolutionary theory presented across Erasmus Darwin's poetry and scientific publications. *The Botanic Garden, The Temple of Nature,* and *Zoonomia* are not typically considered when inquiring of Shelley, and evolutionary theory has been neglected as an effective lens for potential interpretations of *Frankenstein*. This project seeks to highlight how the earlier Darwin's texts are perhaps taken up and considered by Shelley, and foregrounds their potential influence on the creation of her novel. Darwin's poetry acted as a vehicle for transporting evolutionary understanding to the public mind, and his theories in *Zoonomia* specifically highlight how male specimen evolve through a type of natural selection when competing for the females in their environment. Here, Erasmus shows an early understanding of how sexual selection may work, although it lacks complete empirical footing. Among the various scientists her work may consider, Shelley appraises and deliberates Erasmus' theories in particular, creating a narrative that imagines an evolutionary step backwards, from dual-sex to single-sex reproduction at the exclusion of the female sex. This thesis therefore considers the gender politics of both Darwin and Shelley's writing, and frames itself through a feminist lens as it explores Shelley's response to Erasmus, and her reinterpretation of Romantic evolutionary thought.

"What terrified me will terrify others;

and I need only describe the spectre

which had haunted my midnight pillow."

-Mary Shelley, *Frankenstein* (1831, iv.)

INTRODUCTION:

In Between Eden and Evolution

Critics of the Victorian period have given lengthy study to the lasting impact that *On the Origin of Species* (1859) has had on nineteenth-century literature and culture, but Charles Darwin's groundbreaking text did not have an immaculate conception. While holding significant weight and influence over the post-1859 debates about life and natural order, and extending well into the twentieth and twenty-first centuries, *Origin* is ultimately a product of post-Enlightenment and Romantic thought. Having established itself in the matrix of all developed life sciences, we therefore less readily read evolution's influence as originating in the Romantic era. Surveying any kind of Romantic evolution, however, is not simply identifying eighteenth-century 'forerunners' to Darwin's publication. Romanticism itself holds a unique liminal position that dovetails with the end of the Enlightenment, marking the shifting public attitude from the Biblical Eden towards a more widely accepted understanding of what would become Darwinian evolution by the middle of the century. By reexamining organicism, vitality, natural philosophy, and the course of life through the less-acknowledged notions of change and transformation in the Romantic period, readers become equipped with the tools to explore the incredibly unstable definition that evolution held in scientific and cultural discourse before Charles Darwin so effectively systematized it in 1859.

In spite of an emergence of some critical interest towards Romantic science in the last few decades, studies around evolution in this period continue to be, as Hermione de Almeida indicates in 2004, "a very large—largely untouched—field for future study"

(131). This omission is illustrated in part by the fact that the label 'evolution,' whose biological and cultural meaning we now take for granted, lingered in Romantic writing in a fetal, embryonic form. Furthermore, it wasn't until after the arrival of *Origin* that the individual subjects of science would sharply discern themselves from one another—Darwinian evolution and the friction it brought would begin to separate the natural sciences into more distinct fields, almost as if by the unconscious selection that *Origin* strived to survey. Yet whereas Charles Darwin's theories would spearhead this debate in the Victorian period, the Romantic pre-Victorian era examined evolution as a rather amorphous subject, one that was explored by a variety of thinkers and writers in a very diverse range of fields.

Therefore, it comes as no surprise that before the arrival of *The Origin of Species*, the evolutionary debate is a difficult one to trace. From a modern standpoint, there seems to be a lack of any centralizing conception of evolution in Romanticism because of the shadow that Charles Darwin later casts over the entirety of the subject. Coleridge's earlier *Hints towards the Formation of a More Comprehensive Theory of Life* (1816) did its best, as the title suggests, to unify some of these theories, but ultimately the text remained just that: a series of "hints". Swedish botanist Carl Linnaeus between 1735—1785 proposed several hypotheses in his thirteen editions of *Systema Naturae,* claiming amongst other things that perhaps God had created a few 'starter species'[1] in a type of clockmaker experiment, but while still deistic in nature, this theory failed to account for variations among species. What would happen if an entirely new type of animal was created as a

[1] This is also termed the *Nulla Species Nova,* and is interspersed throughout his texts. This is elaborated on in Ruth Habbard's *Have Only Men Evolved?* on p. 155 of Jane Kourany's *The Gender of Science.*

result of complex breeding across genus or animal families? Linnaeus theorized that there could be no such thing, and that anything that was not created in these 'starter species' was thus an imperfect variant of the originals, or even a type of monster. James Hutton in Scotland, the father of modern geology, wrote in his *Investigation of the Principles of Knowledge* (1794) a sharp and clear early definition of what natural selection may entail, but did not progress much further than these speculations:

> .. if an organized body is not in the situation and circumstances best adapted to its sustenance and propagation, then […] we must be sure that, those which depart from the best adapted constitution will be the most liable to perish, while on the other hand, those organized bodies will be best adapted to continue, in preserving themselves and multiplying the individuals of their race. (Vol II, 501.)

Each thinker seemed to be getting closer to a theory that could consolidate the mass of indistinct ideas about the formation of life, but they remained evasive and at arms-length from what Charles Darwin later achieved. Perhaps amidst all of this Romantic noise, the most significant lightning rod for proto-evolutionary thought stayed within Darwin's bloodline, through his grandfather Erasmus Darwin (1731-1802). Erasmus generated a flourishing expanse of qualifying data over the course of his life that eventually made it possible for his grandson to categorize the enormous swathes of evidence gathered from Romantic scientists across Europe. Uniquely, the earlier Darwin published some of his scientific treatises in the form of poetry, yet his grandson had initially been reluctant to admit that any of his inspiration came from the former Darwin's theories. To Charles Darwin's credit, he gradually changed his mind on this subject: in his biography of his grandfather, *The Life of Erasmus Darwin,* Charles wrote that "the more I read of Dr. Darwin the higher he rises in my estimation". This is highlighted on pages 59-60, where Charles writes that Erasmus had "vividness of imagination," "uncommon powers of

observation," and applied these traits in a "surprising" diversity of subjects. Much of Devin Griffiths' work in *The Age of Analogy: Science and Literature Between the Darwins* maintains an influence between the two figures, as Griffiths writes that every so often in Charles Darwin's field notebook, he would scrawl the word "Zoonomia" amidst his writings, connecting his ideologies towards the evolution of species with his grandfather's 1794 publication (1). Yet before the theory of natural selection truly grew into its proper terminology in the mid-eighteen hundreds, Erasmus' theories of evolution acted as a surrogate for emanate concepts that hadn't yet established strong scientific or philosophical expression. Romanticism marks the time that evolution was beginning to find general laws to organize itself**,** and as it was, Erasmus Darwin's theories has grown legs, but not yet learned to walk.

While this outwardly unorganized period of time may seem unimportant in the big-picture ideas of evolution that would, to use Ruth Hubbard's language across her essay *Have Only Men Evolved?*, "penetrate" (155) the feminine-categorized nature of the nineteenth century, this thesis begins to explore Romantic evolution's potential usefulness; it posits that perhaps the Romantic understanding of the formation and reformation of life was that much more powerful because of its fluid and inconsistent understanding of itself. It may be, in fact, that Romanticism's conception of evolution represents the non-linear and random mobility that both Darwin's attempted to account for in their theories, and also therefore, tried to contain. The Oxford English Dictionary trails the definition of "evolution" to the middle of the eighteenth century, and amidst several interdisciplinary definitions, the biological meaning of the word is defined as: "Emergence or release from an envelope or enclosing structure; (also) protrusion,

evagination"[2] ("evolution," [OED]). Therefore, even in a distinct biological definition, we can pick up a sense of awareness that life unwinds in constant and sudden, less predictable manners through a definition that prioritizes unrolling, opening out, and revealing in the process of development. Romantic evolution thus hosted a shifting definition that both transmuted and transcended what it yearned to define, yet also was described with the feminine language of unwrapping and unfolding that was writ upon a nature that masculine science strove to conquer.

It's fitting that this definition lends itself so freely to the exploratory spirit that Richard Holmes uses to define the Romantic period, what he calls the "Age of Wonder."[3] David Knight also maintains the same notion in his introductory essay for *Romanticism and the Sciences* (1990), where he asserts that Romantic science's most distinguishing and important characteristic was that it "lacked sharp and natural frontiers" (13), did not bother to adhere too strictly to the paradigms of the previous scientific revolution, took artistic liberty when needed, and was therefore open to intermingling with a variety of ideologies. Erasmus Darwin of course stands out when we consider how that definition is framed; as a polymath, a successful doctor, a scientific innovator, a prolific writer and charismatic botanist, Darwin had become a widely known figure across Europe during the close of the century in several fields of study—King George III even invited him multiple times (unsuccessfully) to become his personal physician. Desmond King-Hele,

[2] The OED also goes back to cite that the first recorded use of "evolution" was defined as an amendment or change of position in 1616, and then occasionally used to describe the regulated movement of a machine part. Only later did it begin to develop biological significance, and when it did, it came with a variety of other mathematical and algebraic definitions as well. All of this information is found in Jonathon B Losos's introduction titled "What is Evolution" in *The Princeton Guide to Evolution*, on pg. 4.

[3] This being indeed, the title of his lengthy exploration of the Romantic era: *The Age of Wonder: How the Romantic Generation Discovered the Beauty and Terror of Science*. The text delivers generously on its promise within the title.

perhaps the most fruitful modern scholar on Erasmus Darwin with no less than four separate books on the doctor, writes in his introduction to Charles Darwin's biography of Erasmus (*The Life of Erasmus Darwin*) that perhaps he had achieved more in his lifetime than anyone else between 1731-1802, as he can even be credited for "devising the method of steering used in modern cars, [and] in his amazing insight in many branches of physical and biological science… [he] was even the first to explain how clouds form." (ix-x). When Samuel Taylor Coleridge met Dr. Darwin, he heralded him as the most synthetic of thinkers at the dawn of the modern scientific era, claiming that Erasmus held "a greater range of knowledge than any other man in Europe, and is the most inventive of philosophical men." (Letters, 1:152). His theories and his legacy are excellent examples of how evolution represented a type of significance in the broadly political, cultural and scientific natures of the Romantics, and often mirrored a response to how those thinkers inquired of science without borders.

The evolution that Darwin posited was malleable, and could be applied to a variety of understandings in this powerfully mercurial form. At the same time however, this ideology was somewhat uncontained, and while of course met with very heated and vigorous resistance, its uncontrollable nature resulted in claims that were extrapolated from the science and often used to further a type of political agenda. This thesis in particular concerns itself with one of the multiple personalities that developed from Romantic evolutionary thought as a consequence of both the Darwins: the foundational theories of sexual selection. Within the definition of evolution, there would later come to exist natural selection, defined again by the OED in the mid-nineteenth century as "the process whereby organisms better adapted to their environment tend to survive and

produce more offspring"[4] ("natural selection", [OED]) and following *that* definition is an understanding of sexual selection that claims natural selection rises through sex preferences for certain characteristics. These terms were not given their specific names until Charles Darwin would write them in *Origin*, and then later elaborate on them in *The Descent of Man* (1871), but as scholars are quick to point out, the bedrock of these definitions is also found in the earlier Dr. Darwin's publications. Charles Darwin famously claims that in sexual selection, a female's choice of a mate influenced the course of evolution, and the 'prize' of this sexual contest was not survival, but leaving more offspring. Erasmus Darwin writes something similar in his earlier *Zoonomia*, in regards to the agency that evolution seems to withhold from the female sex; Erasmus speculates how males compete over female specimens, furthering notions in evolution that prioritized men over women in a type of sexual dimorphism. He additionally writes that male desire and imagination were more important to the seed in-utero than that of the female imagination, beginning to erase any kind of female influence from the picture. While the roots of this research attempt to fasten themselves to biology, it also provides a rough edge for the problematic claim that there exists an asymmetry between the two sexes, and that evolution is a patrilineal phenomenon. These speculations of Erasmus Darwin at times become problematic from a feminist perspective. Indeed, many evolutionary contemporaries of the Romantic era, Erasmus included, assumed this female submissiveness on a biological level to be true.[5] Only with the rise of modern feminism

[4] This again is found in the earlier mentioned *The Princeton Guide to Evolution*, and elaborated on in the section entitled "Natural Selection and Adaptation" on 191-196.

[5] For more research towards this patriarchal understanding in early theories of evolution, consider David Buss' *The Evolution of Desire: Strategies of Human Mating*, Helena Cronin's *The Ant and the Peacock: Altruism and Sexual Selection from Darwin to Today*, and Patricia Gotway's *Evolutionary Biology and Feminism*.

would evolutionary scientists begin documenting female choice in our own species in an unbiased manner, examining active strategies that women pursue when choosing mates.[6] The scientific attitude in its unformed Romantic state clearly did not separate itself from men's social prejudices, however progressive they may deem themselves to be. Patricia Fara writes in *Sex, Science and Serendipity* that Erasmus Darwin was overly concerned with sex and how it could be used in terms of biology, and sums up his legacy as follows: "Darwin held unorthodox theological views and became notorious for challenging the Bible's account of creation; moreover, he fathered two illegitimate children, wrote flirtatious poetry, and regarded sexual energy as the driving force of the universe." (17). His work, therefore, in both his poetry and his science, furthered a problematic attitude that was inherently infused in developing theories of evolution, and made possible the development of his grandson's theories which would take that attitude and turn it into a universal understanding of a global taxonomy.

Amidst these growing controversies that characterized the Romantic evolutionary understanding, another global event occurred that demanded the attention of both the public and scientific communities. Between the lives of Erasmus and Charles Darwin, a volcano known as Mount Tambora secluded in the Dutch East Indies (now present-day Indonesia) violently erupted in the largest observed explosion in recorded history.[7] Tambora's eruption reached a climax on April 10th 1815, and an unimaginable amount of

[6] Notable recent research again includes' Buss' *The Evolution of Desire,* Sarah Hrdy's *The Woman That Never Evolved*, and Geophrey Miller's *The Mating Mind: How Sexual Choice Shaped the Evolution of Human Nature*.

[7] Again, that is in recorded history, not the history of the globe. Clive Oppenheimer in his 2003 scientific article "Climatic, environmental and human consequences of the largest known historic eruption: Tambora volcano (Indonesia) 1815", found in *Progress in Physical Geography (2)*, elaborates on this phenomena on pages 230–259.

dust and ash dispersed into the earth's stratosphere, significant enough to reduce global temperatures by almost a full degree the following year.[8] Several climate anomalies followed this massive shift in atmospheric temperature; a persistent dry fog plagued the Northeastern United States, Atlantic Canada dropped to a record cold, and Indian monsoons increased twofold—but most significantly in the following year, northern hemisphere countries experienced what historians call the "Year Without A Summer"[9] in 1816. Because of the shift in temperature due to volcanic ash and material in the earth's stratosphere, low temperatures and heavy rains plagued Europe and resulted in a failed harvest in England, a widespread increase of poverty across the continent, and what Clive Oppenheimer observed to be the worst European famine of the nineteenth century.[10]

It's in this dark and sunless atmosphere, in the summer of 1816, that Mary Shelley hid from the weather in Lord Byron's summer home near Geneva, Switzerland. Also present at the summer retreat were Byron's physician John Polidori, Shelley's husband Percy Shelley, and possibly Mary's stepsister, Claire Clairmont. The group was confined to the interior of the cabin in part because of the climate anomalies that Tambora's explosion had caused, and it's in Lord Byron's summer home where the widely-known 'ghost story' contest takes place. Three literary geniuses were present in the cabin, and the conversations by the fire to pass the time were dominated by developing ideas in

[8] The information found regarding this full-degree shift in global temperature is in Richard B. Stothers' 1984 publication "The Great Tambora Eruption in 1815 and Its Aftermath" in *Science,* p. 224. He also goes on to explain the disastrous effects that this eruption had around the world.
[9] Also referred to across English history as the "Poverty Year" and "Eighteen Hundred and Froze to Death."
[10] Several historians maintain this phrase, but a great elaboration is found in Gilian D'Arcy Wood's in-dept analysis, *Tambora: The Eruption that Changed The World* on page 9. The term is also found in the earlier mentioned *Progress in Physical Geography,* and is also used by Albert Gore who observes that "The 'Year Without A Summer' in 1816 produced massive famines and helped stimulate the emergence of the administrative state", in his 2000 publication *Earth in the Balance: Ecology and the human spirit.* (p.79)

radical science. Byron, Polidori, and Percy Shelley each held significant inquiry in the scientific community, and not only was a florid economy of information maturing towards evolution during this time, but debates of Vitalism had gained new traction since Johann Blumenbach's earlier publications, and Humphry Davy had begun to revolutionize the discipline of chemistry and was regularly speaking at The Royal Institution in London. Percy Shelley in particular was incredibly invested in all of this information. His friend Thomas Jefferson Hogg writes in his memoir on Percy that his room at Oxford was overwhelmed with scientific books and papers, and that the floor was stained with various hues "which frequently proclaimed the agency of fire, [he possessed] an electrical machine, an air pump, the galvanic trough, a solar microscope … magnets and electrical machines … to ascertain by actual experiment the value of some new idea that had rushed to his brain." (47). Fueled by this discussion and confined by the unusually cold weather, the group therefore set themselves a ghost-story-writing competition. Lord Byron penned a short piece about a dying explorer called *Augustus Darvell* (dated June 17, 1816); Percy wrote his poem *Mont Blonc*; Polidori composed *The Vampyre*, which initially was so unsuccessful that he lied and said Byron was the writer in order to sell it; and Mary Shelley constructed—very slowly, but over the next fourteen months—her cult-novel *Frankenstein, or The Modern Prometheus*. The very first line in the 1818 introduction of the text curiously reads: "The event on which this fiction is founded has been supposed, by Dr. Darwin, as not of impossible occurrence." (*F*, i).

Because of Mary's very detailed journals, the actual writing of *Frankenstein* can be traced fairly well during her time in both Switzerland and later in England at the Great Marlow on the Thames. What is less clear in her journaling is where she specifically

collected her ideas from, and how significant of a role Erasmus Darwin's theories played in the writing process. It is somewhat odd that Darwin, one of the only named scientists in the entirety of Shelley's novel, is largely neglected from the scholarship surrounding *Frankenstein*. Although perfectly placed for even a simple comparative analysis, there is an unsatisfactory amount of critical discussion and scholarship that reads Shelley's *Frankenstein* in tandem with any of Erasmus Darwin's texts. Scholars typically nod to Erasmus when their work considers science in *Frankenstein* (which is what Holmes does in his *Age of Wonder*), but after their acknowledgement, authors then seem to only devote passing remarks to Darwin when writing on Shelley. It appears Darwin is present, but perhaps not fully realized, as a greater scholastic conversation towards evolution within *Frankenstein* seems yet to be had.

There are a few reasons for this critical silence; while there are obvious parallels between *Frankenstein* and evolutionary theory, and the idea of a creature built to be superior to the race of man is clearly invested in what it means to be of a 'species' at the time, critics of *Frankenstein* suggest that the philosophers who birthed chemistry and Romantic galvanism have (by virtue of their proximity and importance to the Godwin's) outshone Darwin as a potential analytical frame. This is indeed the route that Holmes's *Age of Wonder* takes in its chapter "Dr. Frankenstein and the Soul", which argues that Shelley's most significant ideas towards the novel can be traced back to the year 1812, when her father William Godwin, a well-connected man in the scientific community, took her to hear Humphry Davy give several lectures at the Royal Institution in London. These scientists are much closer to Shelley's direct circle than Darwin, and therefore, scholars spend their time investigating potential avenues with Davy and Galvani, only

making cursory references to Erasmus' evolutionary theories. In terms that this thesis is one of the first to explore[11], few examine Darwin's theoretical texts as frames of analysis, but hardly any speculate that the poetry Darwin wrote may have had significance to Shelley.

Even so, there is noteworthiness in the fact that Erasmus Darwin is the only authentically named figure in both the 1818 and 1831 introductions to *Frankenstein*. Shelley recalls the conversation between Lord Byron and her husband in the 1831 edition—as a "devout but nearly silent listener" (*F*. ii) Mary Shelley writes that one evening:

> various philosophical doctrines were discussed, and among others the nature of the principle of life, and whether there was any probability of its ever being discovered and communicated. They talked of the experiments of Dr. Darwin (I speak not of what the doctor really did or said that he did, but, as more to my purpose, of what was then spoken of as having been done by him), who preserved a piece of vermicelli in a glass case till by some extraordinary means it began to move with voluntary motion. (ii)

Even though Shelley notes that bringing to life a piece of vermicelli to a conscious and organic being is probably a fiction, the Darwinian theories of creation and evolution have remarkable pertinence to her purposes in *Frankenstein*. Erasmus is most recognized for his research towards evolution, growth, and sexual reproduction in plants. Shelley upholds this work, as Victor Frankenstein contrasts, conflicts, and concerns himself with

[11] One of the only other notable explorations of Darwin in *Frankenstein* is a piece by Anne Mellor, who devotes part of a chapter to *Zoonomia* in her text *Mary Shelley: Her Life, Her Fiction, Her Monsters*. It considers Erasmus as a potential frame of thought, but *Zoonomia* is largely the only text of Darwin's that she analyses, and doesn't consider the ramifications of sexual selection or female choice in the novel. It's in that respect that this thesis seeks to separate itself from her work, which is elaborated on in the introductory paragraphs of the second chapter.
Moreover, Barash & Barash in their text *Madame Bovary's Ovaries* seek to write a comprehensive Darwinian reading of literature, spanning generations of novels from *Ulysses* to *The Godfather*—however, their analysis neglects to mention *Frankenstein*.

evolutionary principles, turning his character into a satirized executant of a Darwinian step backwards on the evolutionary hierarchy.

Perhaps more compellingly illustrating the connection between Mary and Erasmus is Percy Shelley, whose journal confirms that he read Darwin's *The Botanic Garden* in July of 1811, and records from booksellers Hookham and Hickman show that he ordered *The Temple of Nature* and *Zoonomia* in December of 1812.[12] While Percy and Mary Shelley indeed have separate literary and political imaginations, and while one reading the works of Dr. Darwin does not necessarily mean that they relayed its information to the other, it is very clear though Percy's later work that Darwin's philosophies remained at the front of his mind through the periods in which his wife was writing *Frankenstein*. Not only to the text's introductions attest to this, but a large amount of research has been done examining Percy Shelley's *Prometheus Unbound* in the context of Darwin, as well as "Queen Mab" and poems such as "The Cloud" and "The Sensitive Plant" which very explicitly engage Erasmus' botanical research towards plant reproduction.[13] It is a shame that this branch of speculation hasn't been extended to Mary Shelley, because it is probable that Mary read a good amount of Darwin's work, while confirmed that her husband read nearly every publication Erasmus produced. Mary Shelley did not have a simple passing familiarity with science either, as *Frankenstein* clearly conveys. It occupied the very forefront of her imaginative thoughts. While Percy

[12] This information along with Shelley's journal is recorded from PB Shelley, *Letters*, I. 129.
[13] The influence of Erasmus Darwin on Percy Shelley's poetry is greatly expanded in Carl Grabo's, *A Newton among Poets: Shelley's Use of Science in "Prometheus Unbound*, pp. 22-74; Desmond King-Hele's *Shelley: His Thought and Work* pp. 162-64, as well as his *Erasmus Darwin*, pp. 144-51; Kenneth Neill Cameron, *The Young Shelley: Genesis of a Radical* pp. 121, 24o; Robert M. Maniquis, "The Puzzling Mimosa: Sensitivity and Plant Symbols in Romanticism," *Studies in Romanticism*. 129-55.

critically interacted with Darwin's texts, Mary Shelley very obviously both celebrated and critiqued this evolutionary science in her debut novel.

This thesis therefore seeks to provide an entry-point of analysis in Mary Shelley's interpretation of Darwin's work, but through her feminist lens. The feminist reader may be the most astutely prepared to engage with these structures when science employs gender as a major variable or value; this is perhaps most prominent when evolutionary biology concerns itself with reproductive matters. By seeking out evidence of sexual selection in Darwin's research and the ideologies of femininity that he strove to capture, we seek to read Shelley's text as a response to these theories. With the increasing popularity of *Frankenstein* as a feminist text,[14] this avenue of scholarship seems particularly inviting to examine in the context of Romantic evolution, whose science is built on an asymmetrical relationship of the sexes.

Therefore, to fully discern this aspect of Victor Frankenstein's scientific campaign and its ramifications, this thesis divides itself into two parts: the strategy of the first chapter is to examine the basic principles of evolution and sexual selection found in each of Darwin's major works: *The Botanic Garden* (1789), *Zoonomia (1794)*, and *The Temple of Nature (1803)* particularly lend themselves well towards a conversation about an unfurling, nebulous definition of evolution and its ramifications towards femininity. Darwin's position on sexuality highlights the complexity of belief surrounding the nature of evolution in the Romantic period, as he denies that female desire and imagination play

[14] It's not until the rise of feminist criticism that Shelley's text becomes increasingly popular again through the interpretation of this new lens. "I have been reading *Frankenstein* as a woman's text concerned with women's issues" (1) writes Johanna Smith in *Feminist Aspects in Frankenstein*. The bicentenary date of its publication in 2018 reaped, as critics assumed, a small earthquake of publications devoted to feminist aspects of Shelley's novel.

an equal role to male desire and imagination in terms of reproduction. The second chapter then seeks to connect these notions to *Frankenstein*, and by examining evolution within Shelley's text, we can see how the author resignifies Darwin's claims, by imagining the monstrous product of a birth without a woman, and then continuing to imagine her female characters with little to no choice in evolutionary and reproductive matters. This foregrounds her interpretations of gender through Romantic 'selection', and how she complicates (and perhaps contributes to) the evolutionary theories that surrounded her.

What this thesis also maintains is that the science of this revolutionary period of history wasn't simply absorbed into the literary community, but was deeply negotiated by the authors of its time, including both of the Shelley's. British Romantic writers didn't just observe the explosion of scientific study across Europe during their lives, but were well-versed in its controversies, and often deeply entrenched in debate and analysis on behalf of the public imagination. Adrian Desmond in his text *The Politics of Evolution: Morphology, Medicine and Reform in Radical England* argues that evolution and sexual selection, as much as its conception lies in scientific voyage and analysis, was also just as much a product of the sociopolitical turbulence that Romantic writers grappled with. The form of the literary novel hosted the perfect arena for social, scientific and political values to contest with one another, and Shelley's text is exactly this: the ultimate laboratory that is able to reflect the very evolutionary modification and mutation that Romantic science was fighting to understand, and by comprehending, contain. The work of this thesis shows through *Frankenstein* how both Shelley and the Romantics provide a pivotal lens for the development of evolutionary thought in the early 1800s. Reading her

novel through Erasmus Darwin's philosophical and scientific discoveries significantly enriches the content of both Darwin and Shelley's writing, as well as shows how diverse *Frankenstein* operates as a frame for gender conflict. Perhaps most powerfully, it shows how speculation can aid the evolution of things. Recognizing the way in which Mary Shelley struggled with the questions developing in the scientific community aids us in understanding the Romantic imagination.

CHAPTER 1:

Erasmus Darwin: Gendering Scientific Discourse in the British Literary Imagination

As the invention of the microscope became more and more powerful over time, lenses both figuratively and physically gave scientists new eyes to examine and defy the previous conservative viewpoints that considered the origins and transformations of the natural world. The revolution in scientific views of sexuality came in the late eighteenth century, and Londa Schiebinger writes that "from the 1750s through the 1790s, anatomists called for a finer delineation of sexual differences" (189). This chapter looks at the Romantic period through the figure of Erasmus Darwin, who Devin Griffiths writes to be "the most important British advocate of evolution before the publication of the *Origin of Species"* (51), and critiques his writing towards sexual difference. It seeks to trace how his evolutionary attitudes were conveyed through research on flowers and botany in his poetry, but also examines a new sense of prominence and importance towards the sociological implications between studies of nature and interactions with the public and private spheres of Britain. The increase of attention towards evolution brought with it a new understanding of sexuality, in particular the female sex, which science has always very strictly policed, and at the helm of this induction of evolution was the first Dr. Darwin. Moreover, this chapter seeks to examine how his poetic and scientific publications engendered an understanding of the female sex through flowers and animals, and how popular language in botany and zoology contributed to an understanding of a passive female sexuality. The reevaluation of women's reproductive organs at this time "was simply one element in a much broader revolution" (Schiebinger 190). Schiebinger's

chapter "More Than Skin Deep: The Scientific Search for Sexual Difference" goes on to explain in its introductory paragraphs:

> The revolution in views of sexuality did not limit sexuality to reproductive organs; sex would henceforth permeate the entirety of the human body. This *resexualization* of the body, along profoundly different lines from that of the ancient Galenic world, brought forth a host of new questions to the scientific community. Prominent among these was whether, *apart* from genitalia, there are significant differences between the sexes. By the 1790s, European anatomists presented the male and female body as each having a distinct telos—physical and intellectual strength for the man, motherhood for the woman. Yet even in this age where males and females were considered essentially perfect in their difference, difference was arranged hierarchically. Despite the revolution in views of sex and gender differences, the age-old dominance of men over women remained in force (in spite of opposition to the fundamental premise of the revolution—that sex pervades the body.) (190)

To what extent did this sex that permeated the body have anything to do with the various ornamented feathers that male peacocks would develop, while their female counterparts remained relatively plain? Can the same be said for the weapons that male boars and insects develop to compete over the females of their species? By fully unearthing this attitude, this chapter lays bare the scientific scene so that the following chapter can highlight how Mary Shelley responded to these attitudes through her fiction, and then exaggerated this creation of species which lacked in female agency.

Therefore, the strategy of this chapter is to examine Erasmus Darwin's complicated and compound legacy as a unique product of a unique time, and demonstrates how this legacy was larger than simply his scientific discoveries, but also had deep involvement in social and literary dimensions, particularly in the context of gender. Charles Darwin would later retool these theories of evolution and build them from a sound conceptual and empirical foundation, but with the information available through Erasmus, an emergent understanding of natural and sexual selection would have

been available to the public mind during the final decades of the eighteenth century. This also allows room for the speculation that Mary Shelley, when writing *Frankenstein*, would have had access to the scientific understanding of sexual selection through the earlier Darwin's work, which she explored through the creation of her monsters. To this end, this thesis reviews Erasmus' theories of progressive evolution and sexual selection before interpreting Mary Shelley's response to his theories in *Frankenstein*. This chapter situates itself using several feminist perspectives amidst the likes of Ruth Habbard's *Have Only Men Evolved?* and Londa Schiebinger's *The Mind has No Sex?*, each of which aids in tracing the role that gender continues to play in evolutionary studies.

Erasmus Darwin in his collections of poetry and scientific and medical text had created an atmosphere of influence over the cultural paradigm of Romanticism that Mary Shelley instinctively plunged into in her writing. This environment can be seen across his major works, particularly in his didactic poems *The Loves of the Plants* (1789), *The Economy of Vegetation* (1791-2), and *The Temple of Nature* (1803) which all exhibit how Darwin utilized a verse form to convey his theory of evolution. His theoretical text *Zoonomia*, (1794-6), a hefty two-volume medical textbook would build on these pieces, but also foreground his more controversial theories of evolution. *Zoonomia* in many ways recast Darwin's earlier poems as evolutionary epics that had previously been disguised as polite experiments with flowers, sexuality, and verse. In doing so, Erasmus' work not only divided the religious models of creation and evolution, but also shifted the narrative in how reproduction and sexuality present themselves in a biological context, one that feminism inherently finds problematic. The later theories of evolution that would come from Charles Darwin through his grandfather were considered to be "the single most

important idea in the whole of science"[15], because it situated where humankind rested in the universe—but this fixation would place women in a position of further marginalization. Therefore, in order to present this tangled mass of information, this chapter moves chronologically through Darwin's works, highlighting within each one the question of sexual politics. The first installment examines *The Loves of the Plants,* the second returns to *Zoonomia,* and the final portion looks towards *The Temple of Nature.* It is through a close reading of Darwin's most famous publications that we can examine the kernels of a sexual politics that embedded themselves in early evolutionary theory.

I. Women and Femininity in *Loves of the Plants*

The earlier Darwin is somewhat of a peculiar figure to historians. Patricia Fara writes that Erasmus "is usually portrayed as a representative of comfortable, provincial stability" (13) with a benevolent and quiet demeanor, while simultaneously occupying the title of the grandfather of hotly-debated evolutionary theories in the 1800s. Two decades before the turn of the century, and nearly eight before his grandson would revolutionize science, Erasmus Darwin began researching the publications made by Comte de Buffon in his *Histoire Naturelle,* which spanned over forty volumes of biological musings. Buffon, also notably a figure who Mary Shelley would have her Victor Frankenstein turn to during his studies at Ingolstadt (who he "still reads and studies … with delight" on pg. 40) spends the majority of *Histoire Naturelle* investigating the progressive degeneration of life forms, and what specifically constitutes a uniform species and how that may be

[15] Expanded in John Gribbin's text *The Scientists: A History of Science Told Through the Lives of Its Greatest Inventors* on page 319.

subject to change due to environmental factors—but ultimately, however, Buffon subscribes to the earlier Linnaean understanding towards an "immutability of a species"[16] despite being one of the first scientists with significant weight to propose theories on hybridity and extinction. These are the suppositions that are taken up by Darwin, whose life and extraordinary range of success and failures in his works, traversing literary, scientific, and political tradition, make him an incredibly difficult figure to work through.

After the passing of his first wife, Erasmus Darwin married a gardening enthusiast named Elizabeth Pole who inspired him to experiment with botany, writing and translations. Still working as a doctor in the summer of 1770, Darwin began to translate Carl Linnaeus' large catalogue of plants from its original Latin into English. While engaged in this self-imposed task, Erasmus started to investigate the idea of using poetry as a means to make botany and classification more accessible to the public mind. He would write three tomes of poetry over the course of his career, including in each poem incredibly detailed footnotes that made possible for readers to interact with a wide range of scientific concepts, aiding science's translation into a more common understanding. *The Love of the Plants, The Economy of Vegetation,* and *The Temple of Nature* each acted as three genres of text wrapped into one: they were an imaginative poem, a field guide, and a primer for definitions like "pistil" and "stamen", all readily available in the common reader's hands. James Vernable Logan states that the function of these poems was "written primarily with the purpose of introducing to the general reading public the very learned notes in which all three of his long poems are as voluminous as the text

[16] This is particularly noted in *Fundamenta Botanica* (1736) where Linnaeus asserted that there are only "as many species as the Infinite Being created in the beginning." (157).

itself, and which would never have commanded the popular attention had they appeared alone or unadorned." (110).

In the preface of his first poetic collection, Darwin writes that this is purposefully the general design of his poetry: to "enlist Imagination under the banner of science" (*Botanic Garden*, ii). This is made possible because the imagery, analogy and metaphor inherent in poetry can present "looser analogies" instead of "stricter ones, which form the ratiocination of philosophy" and science (*BG*, ii). Essentially, this allows for Darwin to re-inscribe what he termed the "stricter" analogies in a Linnaean sexual system of classification towards a "looser" understanding, which is the subject matter of his first poem, conveyed by metaphors of nymphs and attendant swains and their sexual liaisons. Beginning then in *The Loves of the Plants*, Darwin attempted to classify flowers by describing them in purely sexual terms, but also by explaining that sexual reproduction is the driving force of nature, and that by extension human beings exists as sexual beings within that nature, not something separate from it. This was, as Michael Page describes, "a bold, radical departure from the largely dominant worldview that held static notions about human sexuality and humanity's place in nature." (28). Darwin's poems imported this information as follows:

> *Two* knights before thy fragrant altar bend,
> Adored Melissa! And *two squires attend*
> Meadia's soft chains *five* suppliant beaux confess
> And hand in hand the laughing belle address.
>
> (1.59-62)

Immediately after this stanza is a footnote description of both the Melissa and the Meadia: the Melissa a "Balm. In each flower there are four males and one female; two of

the males stand higher than the other two"; and Meadia: "Dodecatheon, American Cowslip. Five males and one female" (*Loves* 6). While using his own fictive sexual metaphor, Darwin is providing an account of botanic classification emphasized through romance.

Yet implicitly embedded in this poem and its treatment of flowers is a problem: with women confined mostly to passive roles, Darwin's presentation of femininity throughout the entirety of the text is rather regrettable. The catalogue of poetry is intriguing but not necessarily inspiring, as Darwin unfortunately begins to offer a prescription of femininity instead of a description of human nature. *The Loves of the Plants* which was meant to introduce ideas of evolution and plant reproduction to the public mind, instead exposes the theoretical branches of developing science and their deep allegiance with patriarchal ideology. Janet Browne in her article "Botany for Gentlemen and '*The Loves of the Plants*'" argues that within the poem, the women that Darwin created were entirely appropriate for the pastoral setting he envisaged for them. With one exception, there are no intellectual women in Darwin's verses, "no educated poetesses like Anna Seward; no artists like Angelica Kaufmann . . .; no one like Maria Edgeworth, well known personally to Darwin as a girl; no Mary Wollstonecraft or Madame de Staël" (Browne 616). This world that Darwin yearned to bring to the public very obviously excluded women from participating in the conversation, and by not employing any of these types of women in texts that are explicitly designed to convey evolutionary theory, Darwin confirms women as occupying a passive role in his science. To the Romantics unfortunately, Darwin's stiff-necked adherence to this double standard makes perfect sense, as his message is both firmly sanctioned culturally but also based

equally firmly on the biological asymmetries between men and women that Romantic culture had begun to exploit. Londa Schiebinger's chapter "More Than Skin Deep" for example, examines how illustrations of the female skeleton between the years 1730 and 1790 were drawn specifically to emphasize woman's procreative function with larger pelvic areas than the male skeleton, and a smaller skull suggesting that woman is intellectually inferior to her counterpart. This furthered an understanding of male anatomy as a standard of measure, and is discussed in the later parts of this chapter. Ultimately, the women that Browne quotes in her article were the leading and outstanding women of Darwin's day, and therefore, they are very likely the women that Darwin should have been considering when he penned *The Loves of the Plants,* yet are reduced mainly to reproductive purposes.

Browne's article brings to our attention the lack of female agency in *The Loves of the Plants* as a whole, with one major exception. The narrator of the poem is portrayed as the goddess of botany, who is highly intelligent, and her didactic presentation of the poem "displays a deep and varied knowledge of contemporary science and the world about her" (617). Her intellectual ability and wise demeanor opens her character up to a possible interpretation of Darwin's potential endorsement that at least *some* women belong in botany, evolutionary theory, and the scientific pursuit—but ultimately, not all women do. Browne confirms this, stating that it seems to show Darwin's "genuine regard for educated women", (617-18), but it ultimately falls flat against the majority of negated female presence within the poem, and seems to be a weak attempt towards inclusivity.[17]

[17] An interesting counterargument towards Darwin's progressive nature is presented in Desmond King-Hele's various biographies of the doctor. King-Hele's text *Erasmus Darwin: A Life Of Unequaled Achievement* writes that against the other patriarchies of science, that Darwin could be perhaps crediting

Schiebinger writes that while Enlightenment and Romantic science had promised to remain neutral in its research, this exclusion is almost to be expected. Indeed, her final chapter of *The Mind has No Sex?* is appropriately titled *The Exclusion of Women and the Structure of Knowledge*, and expertly concludes her critique of who has the privileged voice in science—Schiebinger writes that while "impartiality was claimed on both sides of the debate," (226) the male understanding of science didn't adhere to this in the slightest:

> Jakob Mauvillon, for example claimed that he had freed himself from all personal prejudices […] in a book in which he asserted that women must remain subordinate to men. Carl Pockets, too, insisted that his nine-volume work on sex differences (in which he asserted that learning masculinized women) was "impartial" and "purely empirical." (266)

A gender analysis of *The Loves of the Plants* highlights how it personifies a patriarchal document that endorses strict descriptions of femininity and masculinity, as well as confines the reader in basic female and male sex roles. The female images portrayed in *Loves* ultimately can be reduced down to the enormously polarized tropes of the virginal maiden the immodest temptress, indicating that no real woman exists between these poles.

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women for their biological significance and role—in doing so, King-Hele cites that Darwin helped his two daughters plan and build a boarding school for girls. The author neglects to mention, however, that Darwin's views were ultimately problematic, because he thought that educating women was only beneficial for men, and therefore valuable on that premise alone. Darwin's *Plan for the Conduct of Female Education* proposed that the boarding school operate on a simplified scientific vocabulary and an abbreviated system of terms in scientific academia for those who would attend the school. Moreover, this singular instance of Darwin advocating for women's education does not exonerate him from participating in (and indeed helping construct) scientific discourse that sought to further marginalize the female sex. While claiming to include women in the scientific conversation, Darwin ultimately set to moderate women from roles society deemed only men should occupy.

A tempting argument arises that Darwin was simply using women to personify flowers in his poem, and that the true 'science' of *The Loves of the Plants* is indeed indebted strictly to flowers, and may perhaps say nothing about femininity in general. It is important to remember therefore, that sexual analogy in *The Loves of the Plants* and botany as a whole field is understood to be commentary on sexual and social arrangements of humankind. Alan Bewell very persuasively argued in *Jacobin Plants* how eighteenth-century botany was directly correlated to male and female sexuality, which:

> Was so imbued with sociosexual implications that no botanical description was entirely removed from these concerns, and most were explicitly oriented towards them… the important impact of Linnaean botany did not reside in its promulgation of a specific social theory, but instead in this legacy of analogical thinking. The issue was not one of whether to draw analogies between human beings and plants, but what kind of analogy should be made. (134).

This understanding of early botany is also supported by the recent scholarship of Greta LaFleur, Monique Allewaert and Theresa Kelley, who compellingly highlight how influential botany was in the eighteenth-century public discussion in regards to classification and sex. LaFleur writes that the term "botanizing" clearly demonstrated "that the implicit sexuality of botanical taxonomy also spurred an explicit cultural awareness of botany as not only a science of sex but also an outlet for human sexual practice" (94). Botany therefore provided a controversial new vocabulary towards human sexuality, and it is therefore helpful to look at selection and sex roles among plants when discussing early notions of human evolution. In light of this understanding, a poem which previously may have seemed arbitrary to Mary Shelley and her project in *Frankenstein* can be understood in a new light, as *The Loves of the Plants* not only marks the outright

emphasis on women's sex in Darwin's work, but was also the beginning of a widely successful transmission of this information to the British public sphere. King-Hele writes in his *Erasmus Darwin: Life of Unequalled Achievement* that *Loves* was wildly successful, describing it as a "bizarre tale of gaudily dressed characters engrossed in various forms of polygamy" (222) that perhaps made him famous in the literary world overnight.

King-Hele also offers a counterargument to critics who viewed Darwin as a non-progressive in terms of sexuality, claiming that perhaps the poem holds subversive potential by describing the wide variety of sexual relationships that occur in plant life. On the same page, King-Hele suggests that "most pleasant of all for many of Darwin's readers was their entry into a genuine world where sex was multiplex." (222), but while eroticism unquestionably imbued Darwin's work in *Loves* and may optimistically look towards a redeemed feminist understanding of not just female sexuality, but liberated sexuality, Darwin's polygamous characters are disappointingly cast as femme fatales and foreigners in the more suggestive stanzas. Moreover, none of these characters have a happy ending—Ninon, one of his femme fatales, seduces her own son (1.125.13) which causes his suicide, and the polygamous wedding of the virginal Mimosa happens in an eastern harem (1.256.26). These characters ultimately have a negative depiction of female sexuality instilled in them, implying that the 'proper' sexual reproduction of his nymphs, mapped onto humanity, may rest in conventionality.

With only the femme fatale and the exotic woman to characterize polygamy, Darwin's positive images of this conventionality are earlier portrayed in the flower

Axontha, which Browne again analyzes to symbolize Britishness, monogamous marriage, and wholesome country lifestyles where flowers exist in harmony with one another:

> Two gentle shepherds and their sister-wives
> With thee, ANTHOXA! Lead ambrosial lives;
> Where the wide heath in purple pride extends,
> And scatter'd furze its golden lustre blends,
> Closed in a green recess, unenvy'd lot!
> The blue smoak rises from their turf-built cot;
> Bosom'd in fragrance blush their infant train,
> Eye the warm sun, or drink the silver rain. (1.185-92.10)

This sharply contrasts with most of the male characters of his poem, who seem to be celebrated in their sexuality. Masculinity in *Loves* is consistently portrayed as sexually aggressive—the Zephyr flower for example "tears with rude kiss [the Nymph's] bosom's gauzy veil/And flings the fluttering kerchief to the gale" (1.287-88.28). We thus disappointingly arrive at the conclusion that *Loves*, in its desire to further the conversation of evolution and sexual taxonomy, operates in tandem with a regressive conception of femininity which encourages its female characters to remain strictly bound in terms of reproduction, which would come to be Darwin's driving force of the universe.

Darwin would then bind *The Loves of the Plants* with his second major poem, *The Economy of Vegetation*, and stitch them together into the collection called *The Botanic Garden*. His second poem was only about half as long as his first, but it had a more ambitious scope addressing science, industrialization and politics. It is, however, less overtly about sex than *Loves*, but its magnitude deserves emphasis: Darwin's transition of biology into poetry had captivated the public mind. *The Critical Review* anonymously published reviews of *The Botanic Garden* in its November issue in 1789, stating that *Loves* had successfully transfigured Linnaeus' "harsh and unpleasing" text into an

"elegant and flowing language" (375). Between critics and other poets, it produced a large amount of discussion which legitimized Darwin as an author in a matter of months; even if the reviews weren't positive, Darwin was attracted the attention of the literary world. Horace Walpole called *Loves* "the most delicious poem on earth" while Coleridge wrote that he "absolutely nauseates [at] Darwin's poem."[18] The only complaint among the general public readership seemed to be its price—*London Review* wrote that its single critique was that the expensive illustrations in the text lacked a "cheaper edition." (74). The synthesis of poetry with scientific discovery had proven very quickly that it was a brilliant and successful hybrid, and if Darwin's goal was to convey this information to the British public for observation (while still claiming that it belonged to a select elite to participate in), he achieved it both quickly and effectively.

II. Femininity, Passiveness, and Monstrosity in *Zoonomia*

After the success of *The Botanic Garden*, Darwin then published the first edition of his *Zoonomia* (1794-6), which hosted more contentious ideas about physiology, disease, and the general course of life. It's in *Zoonomia* that Darwin's audience is able to remember that he is first and foremost a medical doctor, as the textbook shapes itself mostly as a guide to treating illness, yet large theoretical portions still occupy its pages. This publication is rich in the bedrock of developing theories on sex differences and sexual selection.

[18] Both of these quotes are pulled from Bewel, *Erasmus Darwin's Cosmopolitan Nature*, on pg. 19.

Zoonomia was exceptionally unique and critically acclaimed by the same audience that absorbed his poetry. Yet in spite of its praise, *Zoonomia* also represented a crossroads in Darwin's reputation, because he was able to express to the public his controversial thoughts towards the progressive evolution of species he had been speculating for years. *Zoonomia* recast the information conveyed in *The Botanic Garden* and put it into perspective, bringing its undercurrents of evolutionary thought into the foreground of his earlier poems. Darwin's existence as a pleasant, agreeable but peculiar small-town poet began to change as critics accused him of confounding the physical process of evolution and the religiously held understanding of life as a gift from God.

Throughout *Zoonomia*, Darwin expressed life as a constant struggle for survival, and the means of that survival were realized through a sexual drive. There are a few particular passages that present themselves in this respect to the feminist scholar. The first passage highlights what his grandson would later term male-male competition, but Erasmus Darwin precursors this by claiming the slow advancement of species as a direct and straightforward outcome of male evolutionary competition over female bodies, and the female's choice of mating with the winner of that competition in the animal kingdom. He writes:

> A great want of one part of the animal world has consisted in the desire of the exclusive possession of the females; and these have acquired weapons to bombard each other for this purpose, as the very thick, shield-like, horny skin on the shoulder of the boar is a defense only against animals of his own species, who strike obliquely upwards, nor are his tusk for other purposes, except to defend himself, as he is not naturally a carnivorous animal. So the horns of the stag are not sharp to offend his adversary, but are branched for the purpose of parrying or receiving the thrusts of horns similar to his own, and have therefore been formed for the purpose of combating other stags for the exclusive possession of the females**;** who are observed, like the ladies in the times of chivalry, to attend the

car of the victor. (I, p. 503)[19]

The work of this passage does a couple things; not only does it again cast the females of a species into something to be won by male competition, thereby forsaking the female sexes choice in the matter, but it also seems to suggest that females don't evolve. Our modern understanding of Medellin genetics show how female and male genes play equally important roles in the developing traits of offspring, but in Darwin's account only the males develop "thick, shield-like horny skin" or branched horns to combat with one another. Of course female deer do not develop horns, and peahens don't develop the elaborate tail feathers that peacocks and other birds do—but they in their own unique ways evolve from natural selection in their patterning and coloration, and the implication that worthwhile or valuable traits only evolve in male organisms to fit the need for aggressive male-male competition presents obvious pitfalls. The entirety of Ruth Habbard's *Have Only Men Evolved?* is devoted to examining the later Darwin's androcentrism through this notion, and by extension the thinkers leading up to him, which obviously includes his grandfather. Charles Darwin would further this idea when examining the social insects like bees, ants and wasps that "in many cases, victory (over the female) depends not so much on general vigor, as on having special weapons confined to the male sex" (*Origin,* 69). In the same paragraph Charles would go on to write that the female will usually "sit by, an apparently unconcerned beholder of the struggle, and then retires with the conqueror." It may be tempting to argue in defense of

[19] Anne Mellor touches on this exact quote in her text *Mary Shelley; Her Life, Her Fiction, Her Monsters,* but does not explore it very far as an avenue of potential analysis. Instead, she begins to talk about it in context of electrochemistry and finishes off her argument with a critique of Davy. It appears in portions of her text that Erasmus Darwin again takes a backseat to other scientists, as he seemingly falls out of the line of Mellor's text. This is further examined in the second chapter's introduction, which describes the ways in which this project differs in its handling of *Zoonomia.*

Charles Darwin that bees and wasps do indeed act that way, but the very language that the scientist uses to describe the events of competition thereby disqualify him from having any kind of objective voice in the matter. Habbard writes in her text:

> Make no mistake, wherever you look among animals, eagerly promiscuous males are pursuing females, who peer from behind languidly drooping eyelids to discern the strongest and handsomest. Does it not sound like the wish-fulfillment dream of a proper Victorian gentleman? (160)

Animals, just as much as plants, act as an effective backdrop for both Charles and Erasmus' understanding of sexual selection in relation to man. Charles notably starts his "Selection in Relation to Man" installment in *Origin* by writing a particularly bold phrase: "Man is more courageous, pugnacious, and energetic than woman, and has more inventive genius." (*Origin,* 857). The argument is this in a nutshell: that if the males' mental and physical qualities were constantly sharpened, polished, or upgraded through their competition for female counterparts, then "woman's minds would have become vestigial if it were not for the fortunate circumstances that in each generation daughters inherit brains from their fathers." (Habbard, 162). This effectively usurps woman's creative power in the generation and regeneration of life through her reproductive capabilities, something that Victor also does in the creation of his monster by omitting a female presence.

Also in *Zoonomia,* Erasmus Darwin would claim that sexual reproduction is explicitly patrilineal. In his second section, Darwin returns to flowers and writes that while the male plants go through a great deal to produce the seeds, the female plant does not hold an incredibly important role in reproduction:

> The paternal offspring of vegetables, I mean their buds and bulbs, is attended with a very curious circumstance; and that is, that they exactly resemble their parents ... whereas the feminal offspring of plants ... is liable to perpetual variation ... The mother does not contribute to the formation of the living Ens in animal generation, but is necessary only for supplying nutriment and oxygenation. (2.2, p. 213-14)

Predicating this phrase with the condition "only" is again problematic. Yet this aligns with another theory that Schiebinger examines in her eighth chapter, regarding Alexander Monro and his description of the female skeleton. Writing that the female bones appeared "incomplete" and "deviant" (194) to Monro, Schiebinger traces how the sexuality that is now viewed to permeate the entirety of the human body is emphasized by Romantic scientists on the pelvis. Illustrations and depictions of the female human skeleton mark the procreative functions of the female, which "makes women's pelvic area larger and stronger to lodge and nourish their tender fetus."(196). Additionally, as previously mentioned, the female skull was depicted as smaller than the male, and was exaggerated almost to the point of caricature. These parts of the body "emerged as sites of political debate: the skull as a mark of intelligence and the pelvis a measure of womanliness." (196), and further naturalized woman's role as mother, caregiver, and vehicle for her offspring, who was "only" necessary for nutritional value. The purpose of this pelvis, the singular body part drawn superior to man, was "ultimately to provide passage for the superior skull. The woman was simply designed to oblige man."(211).

Also in the second section of *Zoonomia*, and perhaps of most obvious relevance towards Shelley's *Frankenstein*, Erasmus Darwin begins to hypothesize about monstrous births and deformities, claiming that this is always a result of either the excessive or insufficient ability to nourish the seed by error of the female:

> "Or they are changes produced by the mixture of species as in mules; or changes produced probably by the exuberance of nourishment supplied to the fetus, as in monstrous births with additional limbs; many of these enormities of shape are propagated, and continued as a variety at least, if not as a new species of animal." (2.2, p. 215).

While simultaneously claiming that the female imagination has little or less impact on the seed in utero than the male, Darwin also begins to speculate that the 'blame' of monstrosity in birth is a problem originating in the female sex. Couldn't there, shouldn't there be room for readers to take this into account in *Frankenstein?* To inversely show a truly monstrous birth of a species *without* a woman, combined with the inability for Victor to give his offspring nourishment, love and security—Shelley is undoubtedly investing her text in the dialogue of reproduction that is undergoing significant scientific reevaluation by the likes of Darwin and his contemporaries. Deformities can indeed occur by lack of proper nourishment, but the 'blame' does not rest on the female sex in Shelley's world. Moreover, this claim of Darwin's is inherently contradictory. If evolution were patrilineal, only the female members of the family would be responsible for any sort of change or variance, and the theories of natural selection claim that a species is always evolving for the better. Females alone then, would be responsible for any kind of positive mutations in a species, and could be attributed for progress.

Zoonomia is ultimately another example of how male-dominated science uses its language to establish men as superior to women, while simultaneously justifying this exclusion of femininity and beginning to remove women's importance in society. Darwin insisted in *Zoonomia* "that the world has long since been mistaken in ascribing great power to the imagination of the female, whereas from this account of it, the real power of imagination, in the act of generation, belongs solely to the male" (6.3, p. 264). Mary

Shelley's has Victor Frankenstein explicitly interact with these notions of male imagination and a patrilineal evolution, as well as the overall lack of a female choice in terms of sexual selection to her advantage when she imagines them playing out in her novel.

III. Eve and Evolution in *The Temple of Nature*

A close reading of *The Temple of Nature* shows how the text truly represents a synthesis of all his previous works, and how Darwin's points made in the earlier *Zoonomia* operate off an imbalance of the sexes that is extended from his plants and animals into a social sphere. The poem is published in the year following Darwin's death, and whereas in earlier poems evolutionary theory, while important, was more implicit to the storyline, *The Temple of Nature* finds itself to be a place that Darwin is willing to propose his most radical and complex theories of the progression of species.

The Loves of the Plants and *Zoonomia* do not require too in-depth of a summary for the unfamiliar reader as the previously quoted sections pretty comprehensively capture the essence of the works, but *The Temple of Nature* is a little more complex, and requires some explanation. Over the course of four Cantos, each of which are extensively annotated in their margins, the reader explores a variety of sensations occurring through a physical Temple of Nature, and the overall project of the poem furthers Darwin's stance towards both an emerging Romantic consciousness of evolution and an economy of sex. In the first Canto, Darwin recites his early understanding of how the universe came to be, and also lays bare Darwin's compiled evidence of evolutionary theory thus far. The second Canto expands on this, maintaining that sexual reproduction is the channel by

which evolution is able to take place. The third Canto then expands on the second, describing how humanity and the human brain has evolved to be decidedly different from other minds in the animal kingdom, and the last Canto optimistically celebrates how evolutionary success has brought humanity to its current position in time and the universe. *The Temple of Nature,* similar to *The Loves of the Plants,* is conveyed through female interaction with the reader—female characters speak with and visit the goddesses of the Temple, and it appears again that Darwin might be attempting to create a space for discourse on the female engagement with science, but ultimately his poem works to compromise that integrity and subdue the feminine within its subtext. *The Temple of Nature* follows his earlier format of poetic writing in tandem with later appendixes, ranging on the topics of magnetism to Biblical origins, but the centralizing ideas within *The Temple of Nature* can be reduced down to an explanation of evolution through reproduction. This chapter focuses specifically on the second Canto.

While spending a large amount of space in the first Canto laying out his conception of an early 'Big Bang' theory, it strikes the modern reader as odd that Darwin would then take the time to introduces his reader to the "MOTHER OF MANKIND" in Canto II, or the Biblical creation of Eve. (ll. 140). However, after reading over her passages, the audience can quickly tell that Eve has largely been repurposed from her Biblical origins and written to be a sexualized being from the moment she's created. Darwin writes:

> So erst in Paradise creation's LORD,
> As the first leaves of holy writ record,
> From Adam's rib, who press'd the flowery grove,
> And dreamt delight of untasted love,
> To cheer and charm his solitary mind

> Form'd a new sex, the MOTHER OF MANKIND.
> —Buoy'd on light step the Beauty seem'd to swim,
> And stretch'd alternate every pliant limb.
> (55-62)

This passage of Eve's creation takes place before Adam has awoken from his dream of "untasted love". It is very obvious how Darwin then visualizes Adam's counterpart, as an individual who must be both desirable and sexually available for Adam. Her title of the "MOTHER OF MANKIND" is also remarkable, starkly paralleling Eve with a Mother Nature. This characterization is also not maidenly—even when her appearance has yet to be completed, sexuality is entwined with creation. Adam's sexuality has appeared even before Eve has been created: he "dreamt delight of untasted love" yet his partner does not yet exist, and humanity, extended through all living things through Eve/Nature, is writ as sexual in its origins. This is the same Romantic nature that Victor Frankenstein also seeks to pursue "into her hiding places" (*F*. 41), and "penetrates into her recesses to show how she works" (35).

The instant sexuality Adam exhibits towards Eve carries Darwin's Canto very swiftly into the next stanzas about children. In Darwin's account, the first humans do not engage in any type of marriage ceremony, wedding, or ritual of any kind, and instead their humanity is infused in Eve's response to her sexual creation; the man sees the woman, wants her, pulls her close, and "The conscious Fair betrays her soft alarms,/Sinks with warm blush into his closing arms,/Yields to his fond caress with wanton play."(*ToN*. 56). Through the desire of the man, therefore, the woman is sexualized and realized after she's created. Adam doesn't speak over the course of the poem like he would in the Bible—the pair do not name the other living things, they do not show any desire to marry

one another, and over the course of the second Canto don't particularly represent the origins of a larger, more numerous creation that would outnumber the stars and the sand. Adam is solely in search of reproduction, and Eve is solely reduced to the vehicle through which that can happen, in a species constantly looking towards a greater perfection. This behavior parallels the monster who demands that Victor "deliver into [his] hands a female" (*F*. 135), and whose only requirement for this female counterpart is that "she must be of the same species, and have the same defects" (130). Other than that, the monster is not selective of any kind of features, and is willing to mate with a creature who he thinks "will not deny herself to me." (135). Again, the monster is reduced to simply a vehicle for reproduction.

Across each of his publications, Erasmus has accounted for a gendered metaphor of Western evolutionary theory and practice that falsely believes it holds a degree of objectivity, constructing nature as a feminine entity that is both exploitable and the passive object of male desire while exhibiting little to no assertiveness herself. This cause is undoubtedly taken up in Shelley, who shows that this pattern of exclusion from the evolutionary cycle can indeed produce monsters, both human and inhuman. Victor operates in junction with these theories and metaphors, as Shelley ultimately has his creation pursues *him* to the hiding places he has been attempting to capture. The next chapter examines how the exclusion of femininity from evolutionary thought, and the removal of female choice and agency in sexual selection aids in both Victor and the monster's downfall. Even though the revolution of views in sexuality and gender during Darwin's age was bringing an appreciation to woman's unique sexual character, it was widening the hierarchically arranged difference between the sexes. And if Shelley's work

truly is a warning about impending events and scientific hubris then evolutionary theory and its ramifications towards femininity cannot be excluded from Shelley's injunction.

CHAPTER 2:

Frankenstein's Feminist Response to Evolutionary Thought

As the overwhelming corpus of critical scholarship growing around *Frankenstein* has shown, Mary Shelley's novel engages with a multitude of psychological, sociological, and political issues, holding a significant amount of import in each of these lenses of examination. The rubric for inspecting Shelley's work always includes some type of consideration of science, whether it be the dialectic of 'nature' and 'nurture', the theories of Luigi Galvani, or Davy's developments in modern chemistry. Darwinian evolution however, as explained in the introduction of this thesis, is critically ignored across most *Frankenstein* scholarship. One of the only examinations that considers Erasmus Darwin's work in *Frankenstein* is recorded in Anne K. Mellor's text *Mary Shelley: Her Life, Her Fiction, Her Monsters,* and it takes Darwin's *Zoonomia* as perhaps part of Shelley's inspiration, like the first chapter of this thesis does—however, it does not consider Erasmus under the same terms. Mellor ultimately casts Darwin in a benevolent light, claiming that Victor Frankenstein's work is a "perversion" (299) of Erasmus', and that had he adhered to the standard of evolutionary theory under Dr. Darwin, his experiment would have perhaps been successful: "Implicitly, [Shelley] celebrates the former, which she associates most closely with the work of Erasmus Darwin, while she calls attention to the dangers inherent in the latter, found in the work of Davy, Galvani, and Walker." (299). Darwin ultimately only occupies a portion of Mellor's text, as she also goes on to consider how Victor represents the "bad science" (300) of vitalism and galvanism, and writes that Shelley primarily praises Darwin for his

developments in evolutionary theory. While she does consider femininity in both texts, Mellor only briefly touches on the notion that sexual selection in particular may in fact play a role in *Frankenstein*. This thesis approaches sexual selection with much wider swathes across Erasmus and Shelley's work, and separates itself from Mellor's text by highlighting how the import that Erasmus brings in regards to femininity in evolution is ultimately satirized in Shelley's response to Darwin, not praised.

Being among the earliest of literature in the English canon to thematically examine the creation of a new species, *Frankenstein* undoubtedly also scrutinizes the procreation of patriarchy. Shelley bids her "hideous progeny to go forth and prosper" (vi.) on the final page of her 1831 introduction, invoking both the engagement of maternity and creation that is rudimentary to the text. The present chapter discusses Shelley's analysis of this 'female nature' and the masculine entities of evolution in the context of Darwinian science, and begins to examine how Shelley responds to the gendered schism that is fundamental to evolutionary thought. *Frankenstein* is not simply a cautionary tale against the reaches and excesses of scientific discovery, but it critiques the sexist ideology Darwin posits when his *Zoonomia* claims the lack of an equal need for the feminine in reproduction and the evolution of species.

Where Anne Mellor's text does align with this research in part, however, is in this feminist critique of science. The juxtaposition between Mellor and Frances Bacon, the father of the scientific method, is stark; in 1603 Bacon states what could be interpreted as his mission statement, professing that he has "come in very truth leading to you Nature

with all her children to bind her to your service and make her your slave,"[20]. Mellor shrewdly critiques this ideology, highlighting how Bacon problematically associates the aspirations of modern science with a type of sexual politics; that the assertive and enterprising male scientist searches to seize and enslave a nature that is passive, fertile, and feminine. She does not, however, seem to extend this critique to Darwin. Carla Fehr in *Feminist Philosophy of Biology* expands on Mellor's claim by writing that the 'feminist scientist,'[21], or feminist biologist therefore, is ultimately tasked with examining the influence of gender values and the removal of gender bias throughout biological research and practices.

Johanna Smith in tandem with Anne Mellor maintains the statement that many modern scholars agree with on *Frankenstein:* that it is not strictly a Gothic novel, or a work of science fiction, but an overtly feminist novel as well, and thus open to a variety of lenses of interpretation. Feminist criticism need not simply be applied to the text; rather it is written into it purposely by Shelley in her already polymorphous and blended chronicle. The question of genre appears to be as important to *Frankenstein* as it was to Erasmus Darwin's biological poetry. Johanna Smith writes in *Cooped Up with 'Sad*

[20] Mellor pulls this quote from Benjamin Farrington's *Centaurus* and appears in the chapter "Temporis Partus Masculus: An Untranslated Writing of Francis Bacon," on p. 197.

[21] It's largely agreed upon that the foundations of this smaller branch of feminism were established by Dr. Ruth Bleier, who penned *Science and Gender: A Critique of Biology and Its Theories on Women* in 1984. While sporadic publications began to appear the decade before that pushed for widespread feminist interpretations of scientific practices, Bleier's text acted as a unified and concrete reaction to the principles that modern science has founded itself upon, and ranges from critiquing the mechanisms of cell biology and sex selection to an analysis of the meaning of words such as "gender" and "sex" under a scientific paradigm. Yet while incredibly productive in its work, the field as a whole is fraught with conflict; for example, Johnna Dominguez writes in "A Fine Line: Feminism and Biology" that the feminist scientist struggles particularly with moments concerning biological determinism, whereby sex terms of male and female are intrinsically confining. It is incredibly culturally rewarding however, and indeed fertile territory in a literary landscape to apply biological feminist critiques to periods of history when science had highly unstable definitions of how it categorized itself, as Mellor does with Bacon in 1603.

Trash': Domesticity and the Sciences in Frankenstein, that "feminist interest in *Frankenstein* would throw light on the novel's darkest passages", perhaps to areas that had not yet been interconnected throughout the text. While others claim that *Frankenstein* is an invocation on women's rights in general, lending to Shelley's mother's political work in *On The Vindication of Women's Rights,* feminist scholars of *Frankenstein* agree that the novel displays significant overtones of the repression of women in the private and public spheres and criticizes the patriarchal role of men within the text. Where this thesis seeks to expand on this ideology is in the way that this feminist role is employed by Shelley. The larger function of her text is to use the scientific information she displays in *Frankenstein* to examine and criticize the romantic scientific method and its 'empirical' outcomes, which negated the concept of femininity. Indeed her feminist critique rests in the well-mined egalitarian and gender-neutral DeLacey family[22], but it also uses evolutionary theory as a vehicle to convey her claim on a larger scale, and towards science as a whole.

Perhaps the most important figure in this text then, is the looming specter of the aforementioned Erasmus Darwin and his powerfully atmospheric involvement in *Frankenstein*. He provides Shelley with the most powerfully variable and volatile platform to convey her nightmare; that being evolution, that she in turn uses to create a political novel about evolutionary science and its understanding of gender. This is achieved through an emphasis of femininity in Erasmus Darwin's evolutionary theories,

[22] This trail is expored by Marjean Purinton in her "Ideaological Revision: Cross-Gender Characterizing in Mary Shelley's *Frankenstein*" which maintains that the DeLacey family personifies gentle, feminine qualities in their gender rolls and political ideologies, and the monster can potentially learn these while he's observing them.

as well as discourse towards the anxiety of maternity and the female's selective role in evolution.

We therefore can read *Frankenstein* as a text that that anticipates feminist critiques of the scientific patriarchal evolutionary process discussed in the previous chapter. Shelley attributes part of the inspiration to her text and her decision to negotiate with radical science to conversations between Lord Byron and her husband Percy, recalled in the introduction of this thesis, that covered in detail Darwin's theories and "philosophical doctrines […] among others the nature of the principle of life and whether there was any probability of its ever being discovered and communicated."(*F*, ii). Therefore, in order to achieve the narrative effect that would "curdle the blood,"(*F*, vii.) as she desired, Shelley extracts and develops Erasmus Darwin's theories and lays them bare in a textual experience that allows evolution, through means of selection, reproduction, and creation, to be investigated through the feminist lens.

I. Establishing the Idea of "Selection" in *Frankenstein*

Before approaching any notion of experimental science, Shelley subtly has her protagonist Victor Frankenstein introduce his familial dynamic to the audience. Her purpose for this is twofold; the first to show how Victor came to arrive at his masculine understanding of the scientist, and the second to perhaps foreground an understanding of sexual selection anchored to the success of offspring. The very first thing the audience is presented with is an odd marriage between Victor's father and his best friends' daughter Caroline, who "possessed a mind of an uncommon mold" (*F* 20). Little description is given to the events that lead to this marriage, but a great deal of attention is given to

fetishize how Victor's father "strove to shelter her, as a fair exotic is sheltered." (21). In rhetoric that is no doubt the language of evolution, Victor claims himself to be his parents "single offspring" until Caroline shows intense desire to possess a daughter, and meets Elizabeth Lavenza, in an impoverished cottage on the shores of the Lake of Como. No more than five years old, Shelley takes great care to note that Elizabeth is already a genetically pleasing child:

> "Among these there was one which attracted my mother far above the rest. She appeared of a different stock. The four others were dark-eyed, hardy little vagrants; this child was thin and very fair. Her hair was the brightest living gold, and despite the poverty of her clothing, seemed to set a crown of distinction on her head. Her brow was clear and ample, her blue eyes cloudless, and her lips and the moulding of her face so expressive of sensibility and sweetness that none could behold her without looking on her as of a distinct species, a being heaven-sent, and bearing a celestial stamp in all her features." (22)

To refer to the child as "of a distinct species" is perhaps the most inviting portion of the text when considering a type of sexual selection. Beneath the veneer of nineteenth-century England lies the same prejudices of beauty that later prove to become biological in their choices; beauty indeed translates to healthfulness, and thus, even in cases of adoption, individuals are highly likely to behave in ways that increase their kin's fitness. Not their physical fitness, although being healthy, smart, and strong may certainly weigh in one's behavior—but rather fitness in the term of a fundamental evolutionary bottom line, of successfully projecting genes into the future. This term wouldn't exist until the later Darwin's *Origin of Species,* but Shelley's characters, and indeed European culture, are not ignorant to the concept even though they may not yet have the language to describe it. The Romantics are cognizant that beauty rests as a genetic marker whose ancestors (or more accurately, unbeknownst to the Shelley-Byron/Romantic entourage,

their genes) have been successful at copying themselves and then projecting those copies into the future. Such individuals are, in short, more fit than others. It is for these reasons, beauty as a marker of biological success, that Elizabeth is adopted by the Frankenstein family, and pruned to become Victor's later wife. Yet this also implicitly prequels a notion that the rest of the novel deprives its female characters of—the presence of a female choice, something that both Victor and his monster neglect, and Erasmus Darwin denies his female characters also. In Charles Darwin's work, this would prove to become one of the driving forces behind an evolution of a species. Elizabeth presents an interesting paradox in this respect; she is indeed 'selected' by the mother to become part of their kin, but as an infant, obviously doesn't have much of a choice in the matter. Moreover, Victor immediately negates Elizabeth's ability to later 'choose' him as a mate by claiming her to be his "pretty present" and a "promised gift […] since till death she was to be mine only."(23), not insignificantly furthering the notion of a female nature that is to be won or conquered, and that she has no choice but to marry Victor.

Therefore, growing up next to a female who not only represents a whimsical and "majestic" (24) nature, who also hosted a "a calmer and more concentrated disposition" (24) and "busied herself… with the aerial creations of the poets" in an aloof, somewhat coy manner, Victor believes himself to possess Elizabeth as his property, an idea that does not change with maturation. In this, both Victor's foundational understandings of women and the discipline of science are established, as on the same page moments after describing Elizabeth, he begins to yearn to investigate "the hidden laws of nature" and how they will "unfold" (24). It's startlingly apparent that adult-Victor, who is recounting his life's story to Walton on a ship in the arctic tundra, views his developing

understanding of femininity, nature, and science in a singular frame of time, that being his youth. All three of these things are therefore linked for him. Moreover, Victor's description of absorbing his base theories of science parallels the language that Darwin uses to argue the evolution of species over thousands of years: in his adolescence he is "occupied by exploded systems, mingling, like an unadapt, a thousand contradictory theories, and floundering desperately in a very slough of multifarious knowledge, till an accident again changed the current of my ideas."(28).

This viewpoint leads Victor to become obsessed with the notion of creation and origins of life. In yet again another nod to Erasmus Darwin, Shelley writes through Victor's voice:

> "One phenomena which had peculiarly attracted my attention was the structure of the human frame, and indeed, any animal endued with life. Whence, I often ask myself, did the principle of life proceed? It was a bold question, and one which has ever been considered a mystery, yet with how many things are we upon the brink of becoming aquainted… I revolved these circumstances in my mind, particularly to those branches of natural philosophy which relate to physiology." (38)

These questions will later parallel the same questions which the monster asks of himself when he confronts his creator. Alone in the wilderness, the creature ponders in the second part of the text "Who was I? What was I? Whence did I come? What was my destination? These questions continually recurred, but I was unable to solve them." (104). As if paralleling the nineteenth-century public mind, which grappled with similar scientific musings, the monster finds the answer in the laboratory notes left behind by his creator the scientist, just as the public looked towards natural philosophers and their publications,

which hosted a growing plethora of evidence that argued for origins as a set of physical laws that nature followed instead of a divine creation.

Victor's paramount claim, however, comes a few pages after his expression of interest towards physiology, and instead of a benevolent understanding of it, it shows his alignment with the Romantic attitude towards evolution; that nature is within the reach of the egotistical male scientist. In a passage wrought with male oppression of the feminine natural, Victor claims that he can control the evolutionary process through the birth of his new species.

> "Life and death appeared to me ideal bounds, which I should first break through, and pour a torrent of light into our dark world. A new species would bless me as its creator and source; many happy and excellent natures would owe their being to me. No father could claim the gratitude of his child so completely as I should deserve theirs." (41)

There is no question that the rhetoric of evolution rests in this passage. If one were to consider perhaps *only* this passage in tandem with Shelley's earlier introduction to her text, it would still be a sufficient enough body of evidence that insists *Frankenstein* be studied as an inquiry to evolution. Victor's descendants do indeed take on his image of the profound scientists, but ultimately his creation, (or as we're inclined to read, his offspring) is an evolutionary step down the hierarchical ladder instead of upwards towards perfectability. Indeed, Michael R. Page argues in *The Literary Imagination from Erasmus Darwin to H.G. Wells,* where he briefly considers *Frankenstein,* that if blame is to be attached to anyone, it is directed towards the appropriation of the scientific philosophy instead of the philosophy itself, and this distortion of evolution is one that, in a similar manner to Darwin, rejects the core need for femininity in the evolutionary cycle.

Victor's claim that a "species would bless him" is perhaps Shelley's most ironic gesture towards the evolutionary scientist, as Victor's creations instead take on his problematic image passed down from father to child, and the result is disastrous.

II. On the Body of the Monster and its Origins

Victor's creation is not merely the sum of revitalized body parts, but an upgraded, enhanced, and unequaled species that the scientist believes himself to be lord over. Shelley's decision to have Victor undertake death and destruction by generating this experiment out of the remnants reaped from charnel houses evokes Darwin's earlier observations in *The Temple of Nature:*

> While Nature sinks in Time's destructive storms
> The wrecks of Death are but a change of forms;
> Emerging matter from the grave returns
> Feeds new desires, with new sensations burns.
> (Canto IV, Lines 396-400)

Darwin narrates the liability or tendency to change from one species to the next in this stanza, and the procreative potential of nature's violence—what he calls the "great slaughterhouse" earlier in Canto II, line 66. This is not lost on Shelley, whose creature is the literal embodiment of the "wreaks of Death" mentioned on line 397, and who undergoes this change in a laboratory that mirrors the slaughterhouse, in the most gothic scenes of the text. A slave to his experimental research, Victor spends "days and nights in vaults" to determine "the corruption and death" of organic matter and how the worm "inherited the wonders of the eye and brain." (39). He achieves this much like Darwin—through a wide scope of imagination that refuses to be restricted, culled information from

various pseudo-scientists and alchemists, gifted technical skill, and an obsessive desire to "penetrate into the recesses of" (44) a female gendered nature. This is the Romantic formula for the birth of the creature; to "give life to an animal as complex and wonderful as man," (41) one must lay bare the synthesis of Romantic imagination and evolutionary method.

It is notable that Victor then acutely observes the process of natural selection himself. When he's finished collecting materials for his experiment, he takes time to describe the size and physical features of his creation, noting how he specifically made them to avoid any notions of "impracticability" (42). This is again a nod to the idea of biological perfection, something Darwin begins to probe in his *Temple of Nature* when he earlier claims that each genus, family, and species is in "progress to greater perfection" (*ToN*, Appendix: Reproduction.) Victor then states:

> "As the minuteness of the parts formed a great hindrance to my speed, I resolved, contrary to my first intention, to make the being of a gigantic stature, that is to say, about eight feet in height, and proportionably large." (42)

The monster is clearly outlined to be an improved design, and the birth of this species is the outcome of what Darwin understood to be a set of laws in nature that worked through an incessant and ceaseless impulse towards biological improvement, or as mentioned earlier, a being's 'fitness'. The monster is eight feet tall, quick in movement, dexterous, and superhumanly strong. He is gifted with a biological apparatus of survival that is higher developed that the rest of humanity; more than once he scales glaciers with ease, traversing the greater part of Europe while able to survive on only acorns and foliage, and he's the most well-articulated character in Shelley's novel. Bespeaking of an intelligence

that is not simply on par, but far superior to Victor and the rest of the characters we glimpse through in the text, the creature arrives at a frightful level of intellect by learning to read Plutarch, Goethe and Milton a year after his birth. And as a new organism invading the human habitat and environment, he instantly partakes in a biological competition for resources and habitat, and given his intelligence and stature, it seems he could easily monopolize on these resources if he desired. Analogous to the creatures' newfound competitiveness of environment, Erasmus Darwin in *The Botanic Garden* questions if "some genera of animals perish by the increasing power of their enemies."(Line 66, 3rd footnote). The audience sees this playout as the monster methodically destroys Victor's brother, best friend, and future spouse. Through the action of eliminating Victor's family, he advantageously destroys any type of competition by extinguishing Victor's hope for his future generation. It is interesting to digress that before the monster has even left the laboratory, Victor has a premonition of this: through a dream, his unconscious perception of the evolutionary cycle is realized, and his desire for a family (both maternal and sexual through Catherine and Elizabeth) is obstructed. The uncontrolled investigations of evolution halt Victor's bloodline, and therefore Victor's genetic pool, and indeed most of his families' ability to evolve, is eradicated.

The role of the maternal is perhaps most interestingly inhabited by Victor through his creation, but not looking at the presence—but absence—of a mother. Because Dr. Frankenstein's creature is made as opposed to being born, he innately undermines the original unity between mother and child. Instead, Frankenstein's monster is human created, and indeed by another male, rejecting the definition of authenticity and how one naturally evolves. Paul Youngquist writes that Shelley here is fantasizing a "female

independence from the biological fate of motherhood" (353) but it does not render the monster (or Victor) immune to this connection. Femininity, now neglected from an evolutionary cycle, creates a sharp evaluation of Victor's destructive parthenogenesis, as the monster is indeed a slave to his biological need for a feminine counterpart, and determined to halt Victor's bloodline if he cannot reproduce.

Returning to the description of the monster, a second passage occurs a few pages after establishing the height and proportions of Victor's creation, and opens the conversation towards an aesthetic realm. Amidst the undercurrent of evolutionary theory in the text, the following passage brings forcefully to the surface a specific attention to sexual selection in evolutionary thought as Victor describes the features he indeed 'selects' for his creature. Selection is writ largely on the body of the creation during the animation of its corpse, and it is here that Victor again exhibits the voyeuristic attitude of the male scientist:

> His limbs were in proportion, and I had selected his features as beautiful. Beautiful!—Great God! His yellow skin scarcely covered the work of muscles and arteries beneath; his hair was of a lustrous black, and flowing; his teeth of pearly whiteness; but these luxuriances only formed a more horrid contrast with his watery eyes, that seemed almost of the same colour as the dun-white sockets in which they were set, his shrivelled complexion and straight black lips. (53– 54)

Although attempting to make his creature beautiful, his colonizing science results in a fantastic failure. Victor feels "the beauty of his dreams vanish" and "breathless horror and disgust filled [his] heart." (54). Having begun to realize that this pursuit is damaging, and indeed dangerous, and that evolutionary methodology perhaps cannot sidestep the need for femininity, (and most ironically, that his 'selections' were wrong,) Victor fails to complete his experiment adequately. He is floored to realize that nature is

not his tool, nor his muse; and that it is not phallogocentric either. Rather than considering the scientific variables that may contaminate his endeavor to vitalize a corpse, Victor becomes "unable to endure" (56) his experiment and abandons his research without proper attentiveness for the scientific methods already underway. It is ambiguous whether the author is insinuating that Victor's failure is a flaw of his inability to comply with the evolutionary method or the evolutionary method itself, but in truth, Shelley's equivocation is part of the novel's astute analysis of divergent and contradictory scientific philosophies. That the text maintains a tension between a failure of the evolutionary method and a failure to apply the evolutionary method shows a tenuous and vulnerable model of scientific authority. The creature's haphazard appearance personifies this, and with a certain deadpan humor, Shelley writes the philosophy of evolution onto a physical body. Yet as though to reinforce her distaste for this, the feminine nature Victor appropriates and the body as a result of it is instead multiform, blurred, and uncontrollable. Eventually, Victor can't even maintain with the monster a fictive kinship, in the literal sense of the latter word: there is of course no potency of a shared gene pool between himself and the monster, but Victor cannot even bear to acknowledge a pseudo-blood connection between him and his creation, that which one can view to be his child. Granted, there is no need for a kind of nepotism between Victor and his monster, since he is not genetically related to him. Yet still, in the language of maternity, Victor birthed his creature, and there should be at least some degree of altruism or benevolence that seems to fly in the face of evolution's quintessential selfishness. Shelley takes care to critique this structure, as the lack of a female parent shows that this is not the case—and that the deformity of Victor's offspring

is entirely his fault, not the mis-nourishment of a female parent as Erasmus Darwin suggests in *Zoonomia*.

Shelley seems quick to subvert the Romantic relationship of the sublime with masculine empowerment by creating a sublime monster through the destabilization of a male/female reproductive binary. The monster's categorization of a cheat of evolutionary science is most distinctly upheld by the reactions he receives from human society. While his physical veneer is indeed abnormal, and while we may trust Victor's illustration to be accurate that the creature is unsightly and repellant, there's something exceptional about the drastic responses that the monster elicits from humanity. His initial attempt to integrate into culture results in terror, hostility and aggression. When the creature then proceeds with more caution, he is met with "shrieks and mysery" (132). In truth, any speaking character who meets the monster, Victor himself included, respond with the same exclamation of "Great God!" when their eyes lay upon him. Perhaps on a subconscious level this shows the threat of divine annihilation that the individuals are subject to when viewing the creature, but on a surface level, his lack of fair features result in his outcast. The monster is cognizant this status, even before it has learned to speak. Here once more, Mary Shelley understands what modern researchers have only recently discovered: that organisms of all types are capable of remarkably accurate self-assessment. Dominant, desirable specimens are likely to gather with other types of specimen, and insist on comparably desirable mates and companions. Perhaps obvious to the point made, the later Darwin would spend a great amount of time explaining how individuals with undesirable qualities are not selected to propagate, but Shelley greatly extrapolates this notion. She has created a creature whose blurred identity threatens

patriarchal selfhood, so much so that the nondiscriminatory, impartial and egalitarian De Lacey family that feminist scholars argue is a harmony of femininity and masculinity cannot endure the horrendous breach of nature that blurs both creation and evolution, animal and human, synthetic and natural. In the second section of the text where the creature recounts the chronicle of his life, the majority of his account details the meeting of the blind old man De Lacey whose house he has observed for about a year in order to glean language and survival skills. Among other things, he learns by observing this family "the various relationships which bind one human being to another in mutual bonds." (109). "Other lessons," he says, "were impressed upon me even more deeply. I heard of the difference of sexes; and the birth and growth of children […] how all the life and cares of the mother were wrapped up in the precious charge." (108), but he most poignantly learns after reading a stolen copy of *Paradise Lost* the he is "like Adam. I was apparently united by no link to any other being in existence" (108).

The blind man in a way exhibits a parallel to the creature, as he is also described as disfigured and disabled from society, and the monster takes an opportunity when he is alone to approach him. Claiming that he is a weary traveler who has been rejected from society, the creature enters the house, and the old man makes him confess his story, promising him that even if he were a "detestable monster" (114) he would show no judgement: "I am blind and cannot judge of your countenance, but there is something in your words which persuades me that you are sincere. I am poor and an exile, but it will afford me true pleasure to be in any way serviceable to a human creature" (114). This discourse largely displays the body as a map of sociocultural relations that the creature has thus far been unable to navigate because of his hideousness. However, when Felix

ultimately returns to the cabin to rupture the meeting, the old man becomes aware of the different genesis of the monster and exclaims "Great God!... who are you? (115). This act of alarmingly questioning the identity of Frankenstein's monster is significant, because not only does it indicate that the old man recognizes the monster's illegitimate origin, but it shows that he clearly disconnects himself from the creature and calls to inspection the ancestry he had initially accepted as human. The old man is capable of welcoming a diverse assortment of miscellany and even criminality, yet he finds himself other to the monster once Felix returns and elucidates the situation. However, because the monster is physically human, (be that stitched together from various parts,) there therefore must be something fundamental, intrinsic and constitutive of Frankenstein's creation that at the core is not just ghastly and macabre, but inhuman and alien. A creature who is post-gender, post-reproduction, both animalistic and sophisticated, and ultimately uncontrollable therefore rests in the body of this evolutionary experiment.

III. On the Creation of the Female Monster

It is no wonder then, that after narrating the events that occurred with the DeLacey family, the remainder of the creature's narrative is spent persuading Victor to create him a female counterpart. Although constructed according to evolutionary observation, Victor's first creation in the end is a biologically unfit organism who has no means of reproduction, and therefore while he escaped the myth of birth through his conception earlier in the novel, he is ultimately still a slave to the evolutionary cycle. The monster does not want simple companionship, otherwise the gender of the second creature would be meaningless, but he demands a female creature because of his desire to

reproduce. The language of this chapter is perhaps the most patriarchal in the novel since Victor's earlier sense of Elizabeth being his gift and "prize" on 26 and his constantly reiterated desire to penetrate nature; now, the monster yearns for Victor specifically to make the creature "as deformed and horrible as myself [so that she] would not deny herself to me. My companion must be of the same species, have the same defects. This being you must create" (130). When Victor initially refuses, the monster "demands a creature of another sex, but as hideous as myself… Let me see that I excite the sympathy of some existing thing; do not deny me my request!" (132). To further this speculation that the monster is less concerned with the companionship of his bride, and more concerned with its reproductive abilities, his real intentions are elucidated a few moments later: he wants to "feel the affections of a sensitive being, and become linked to the chain of existence and events, from which [he is] now excluded" (134).

This chain of existence is not the Great Chain of Being conceived by Plato and Aristotle which society began to combat against during the earlier scientific revolution, because the creature already occupies a place in that hierarchy when Victor names him a malevolent "daemon" several times throughout the text—but rather it is explicitly the evolution of species that the monster wishes to become a part of. Yet what halts Victor as he assembles his second creation is not simply the notion that had previously escaped him, that the creature could then have the potential to evolve into a race with the presence of a female, but that embedded within that notion, the female creation will have a choice in the matter. Until halfway through his creation, her 'choosiness' has yet to be considered by Frankenstein, and is neglected entirely by the first monster, but this portion of the text is perhaps the strongest nexus of evolutionary and feminist thought:

> I was now about to form another being of whose dispositions I was alike ignorant; she might become ten thousand times more malignant than her mate and delight, for its own sake, in murder and wretchedness. He had sworn to quit the neighbourhood of man and hide himself in deserts, but she had not; and she, who in all probability was to become a thinking and reasoning animal, might refuse to comply with a compact made before her creation. They might even hate each other; the creature who already lived loathed his own deformity, and might he not conceive a greater abhorrence for it when it came before his eyes in the female form? She also might turn with disgust from him to the superior beauty of man; she might quit him, and he be again alone, exasperated by the fresh provocation of being deserted by one of his own species. (151)

It is only with the presence of the female mate that Victor considers the widespread ramifications of his creation as a species. While the majority of evolutionary theories from both the earlier and the later Darwin are used to envision the superiority of man, here Shelley shifts the scientific paradigm, to where a new species would take up superiority to its predecessors. But most importantly, it is the notion that the female may have a choice in the matter that truly stops Victor from his creation.

Whereas earlier there was a contradiction at the heart of Darwin's view of females, that they exert sexual choice but are passive at the same time, Shelley undermines this claim to her advantage. Even though Charles Darwin would later credit much more importance to female choosiness in evolution, it still is shown in his research to be somewhat of an 'add on' to the phallogocentrism of evolution. Shelley aligns with the later Patricia Gowaty's theories in *Frankenstein*, who writes that female choice is equally as important as the male-male competition it struggles against. That type of rivalry is reinterpreted in Frankenstein as both competitive nature between Victor and his monster, as well as the monster contesting with the rest of humanity, but Gowaty considers "the long-standing theoretical primacy of male-male competition to be one of the most potentially misleading notions in evolutionary biology" (229) and that female

choice consequently cannot be left out of the equation, because the female sex remains the motivating factor of evolution.

Additionally in this passage, Victor realizes that that the female monster has the possibility to not be a compliant, coy creature who will submit to her designated spouse. What is inaccurate about the monster's initial description of his would-be bride? For one thing, Victor realizes that it's plainly wrong to assume that she will be unassertive, or not have thoughts of her own, the very choosiness that pilots sexual selection. Victor's realization also aligns with the past three decades worth of discoveries in feminist evolutionary biology: that females of most species are anything *but* passive or sexually coy. "Through their mate choice, they direct the course of evolutionary change—at least to the extent that their choice is not thwarted by males" writes Vandermassen in his feminist text *Sexual Selection* on 26, citing a long list of contemporaries who claim that a passive nature towards sex selection would probably result in the eradication of several species.[23] Although this is perhaps somewhat of a redemptive realization for Victor in the eyes of the feminist, as he can now acutely attribute a far more important evolutionary role to females than most modern thinkers of his day, he clearly does not succeed in fully separating his social prejudices from his scientific attitude, as he remains in fear of it.

Compellingly, however, he furthers the notion discovered in *Zoonomia* that the female will most likely be discriminatory about who she mates with, and may possibly

[23] The list that Vandermassen compiles includes Birkhead's *Promiscuity: An Evolutionary History of Sperm Competition and Sexual Conflict*; Fedigan's *Is Primatology a Feminist Science?', pp. 56–75 in L. Hager (ed.) Women in Human Evolution*; Gowaty's *Sexual Dialectics, Sexual Selection, and Variation in Reproductive Behavior*; Hrdy's *The Woman That Never Evolved*; Mesnick's *Sexual Alliances: Evidence and Evolutionary Implications*, 1997; and Smut's *Male Aggression against Women: An Evolutionary Perspective*.

turn to the "superior beauty of man" (151). The former idea posited by the monster of a submissive female partner is laden with negative sex-linked cultural meaning, but the second discriminatory ideology actually belongs within scientific reasoning. Moreover, the idea that she should not choose to coexist with the monster lends itself to an interesting footnote that would appear in the later history of evolutionary biology—that Alfred Wallace, Charles Darwin's infrequently credited cowriter for his theories towards natural selection, could not accept that females might select males with elaborate or evolved traits that would compromise their survival chances. And if indeed the creature was to become a "thinking and reasoning animal" as Victor believes she will, it's ambiguous if she would choose to be with such a biologically unfit creature like the monster. While society would most certainly reject the female creation as it did the male, Victor considers that even though his first creation would be the females only choice, she still may not choose to be with him, and the result may therefore still be disastrous to him.

Mary Shelley repeatedly articulates how this female choosiness poses a threat to patriarchy. Victor prematurely and violently destroys his second creation prior to her animation because he implicitly recognizes this about his female monster. This second creature defies the aesthetic that a female must be small, passive, and sexually available, and Victor identifies how the female monster holds the potential to restructure family, sex, and race by challenging these limits not only as a united pair in the evolutionary cycle with her male counterpart, but additionally *against* her male counterpart. The female monster forces Victor to face the notion that "there is nothing about being 'female' that naturally binds women," (Haraway, 155) but fundamentally this fear of

female preference prevents Victor from completing his second creation. He doesn't simply abandon it, but rather destroys it along with his medical tools.

It is interesting to note in these final sections of the text that the science of evolution has maintained a relatively strong current throughout the entirety of *Frankenstein*. While other discursive lenses of scientific interpretation reside mostly in the creation of the first monster, evolution does not lose authority as Shelley moves from one volume to the next. The first informs the audience of Victor's gender biases and the occult sciences that he pairs with his desire to create life; the second volume describes the monster's maladaptation to society yet also situates him on an evolutionary scale, and the final volume concludes the novel by showing both the monster and his creator's explicit recognition of evolutionary framework at play in their livelihood. In this transition between these amorphic statuses of evolution that mirror the instability of how it interprets the world, Shelley constructs her text as a dialogue of evolution's claims towards the feminine. One must read science through the cultural imagination in order to address scientific prejudice, and this is as apparent throughout the text, just as it remains poignant in Shelley's simple introduction, that it is not just through "the experiments of Dr. Darwin" (*i*) that this text has life, but through the dissemination of evolution into the public sphere that *Frankenstein* truly conveys its meaning.

Shelley's final slant towards the scientific conceptualization of evolution and its contribution to the understanding of early nineteenth century culture arrives at the very end of her narrative, when Victor's monster has outlived him and can therefore assert narrative authority over his maker. The monster's dying undertaking is to call attention to the arrogance of the evolutionary scientist, an egotism not found in usurping God's

authority, but towards the attitude that evolutionary science is true to the popularized patriarchal rhetoric that surrounds it in the 1800s. The reason for his desire to die is only to contradict Victor's erroneous understanding and application of evolution: "I think on the heart in which the imagination of it was conceived, and long for the moment . . . when that imagination will haunt my thoughts no longer" (214). Shelley, again clever in her equivoque, does not say it is the evolutionary science that is the result of the creature, but perhaps the means to which the evolutionary scientist comes to imagine that science.

CONCLUSION:

On the Spectre of Charles Darwin

By the 1870s, Edward Larson writes that the figure of the Darwinian scientist had permeated all of European society. Evolution gripped British civilization, to the point where "even if people did not believe they descended from apes, they talked about it—and about [Charles] Darwin. And for many who did believe, Darwin became a kind of secular prophet or 'high priest.'" Michael R. Page further investigates the prophet metaphor in his text on *Science, Evolution and Ecology,* by highlighting how after his publications, Darwin was socially assigned the role of 'converter,' which made subservient his actual theories to that of the blasphemy charges he received from the religious groups of England. It wasn't until much later in the early twentieth century that evolution became the biologically accepted standard through Mendelian genetics, exonerating Darwin amidst the flourishing theories that rivaled his proposal of a natural selection.

It's fitting then that the image modernity has of Charles Darwin should parallel that of Victor Frankenstein, in his quest for the secrets of nature. The incredibly Romantic persona Darwin displays in his quest throughout the Galapagos Islands, if not the notion of a voyage of discovery in general, is teeming with aspects that are staples of both Romanticism and the scientific method. Some even go as far to say that Darwin, although Victorian, would have been much better suited to have been born a century earlier as a romantic biologist[24]. Yet although both Darwin and Frankenstein inhabit the

[24] Notably Robert J Richards in *The Romantic Conception of Life.*

adventurous appeal of the romantics for their separate 'origins', Darwin's persona exhibits the exact opposite of Shelley's Frankenstein, achieving what Victor may have been able to had he subdued or moderated his obstructive romantic tendencies. A rigid scientific dogma, a clear and concise objectivity, and a core assumptions that rejects an imaginative or 'poetic' approach to science all embody the Darwin who penned *The Origin of Species,* and none of them the Victor Frankenstein whose emotional creation is deemed a bad pseudo-science. Yet at the same time, Page notes that both scientists embody what Shelley wishes to critique—a lack of Romantic synthesis that is imperative for a holistic understanding of science, in tandem with the asymmetry of the sexes and biological confines that science seeks to place on the masculine and feminine. Darwin, and the scientists of his liking, personify the empirical and pragmatic branch of science that Shelley saw as reductionism—seeing only parts, not the whole of the picture. Thus the famous evolutionary scientist, although seemingly the opposite of the emotional Victor Frankenstein, is much more alike his fictional forerunner in the values they both exemplify. And both scientists lend to the conception that nineteenth-century Britain has of the human experience.

Charles Darwin's reading habits are also intriguing, because they demonstrate that when he reflected on history to construct his theories of evolution, a good deal of his thought dwelt on the Romantic Era for insight and understanding. Percy Shelley's *Prometheus Unbound* appears in Charles' private notebooks during his first voyage of the Beagle in 1837 and 1838. By extension through her husband, Mary Shelley appeared to perhaps not be entirely out of Darwin's reach. Did her critique of early evolutionary theory perhaps reach his eyes through *Frankenstein?*

It would appear that if it did, Charles did not heed Shelley's warning. He would continue to write explicitly throughout his career that in contrast to all other species (where typically the female held a good amount of power in selection,) that humankind was under the dominance of male choice. This reversal was extraordinarily complicated, and flies in the face of Shelley's political project. Charles writes while still crediting the female sex for choosiness, that "man is more powerful in body and mind than woman, and in the savage state he keeps her in a far more abject state of bondage than does the male of any other animal: therefore it is not surprising that he should have gained the power of selection". (*Descent of Man*, 911).

Mary Shelley's interest in egotistical male scientists at the expense of female representation highlights her fascination with male domination, not just in a patriarchal sense but a biological one as well. As Ellen Moers comments in *Literary Women*, "*Frankenstein* brought a new sophistication to literary terror, and it did so without a heroine, without even an important female victim. Paradoxically, however, no other Gothic work by a woman writer, perhaps no other literary work of any kind by a woman, better repays examination in the light of the sex of its author." (Moers, 91-2). As a result of the exclusion of women from the main narration, every failure and disaster that occurs across *Frankenstein* is caused to some degree by the male "power of selection". The absence of a women in the evolutionary cycle leads to Victor's lack of an ability to nurture his creature, and the mere threat of a female monster causes Victor to ultimately destroy his second creation. The images of idealized women that Mary Shelley creates in her story all die in the end. These observations suggest that restricting women in an evolutionary role cannot persist, and that humanity will suffer as a consequence. Mary's

minimalistic representation of the female sex in *Frankenstein* illuminates not only the uneven representation of women in science, but as authors and literary figures at the time as well.

Finally, the conflict between Victor and his creature is reimagined in Darwinian terms as a struggle for evolutionary power through the subjugation and control of the feminine, in a world that operates under the Darwinian assumptions that the female is the weaker sex. The creature is understood to be Shelley's evolutionary satire based on the artificial, single-sex birth and the unnatural corpse it embodies. By contrast Victor, who is born into his species and should therefore be secure, dislodges himself from an evolutionary chain by trying to introduce a new species that he would be the lord of, elevating himself to the status of a biblical creator, or the scientist who had achieved enlightenment by successfully "pursuing nature to her hiding place" (41). The Romantic scientist therefore personifies the dark threat of the evolutionary debate, and both he and his creation are revealed to be the novel's antagonists, casting nature as the protagonist which they both struggle against.

This thesis has read between the lines of Darwin and Shelley's texts to inquire why perhaps Mary included Darwin in both of her introductions to *Frankenstein*. The ultimate destruction of both creator and creation shows how an evolutionary cycle that marginalizes and neglects women will not thrive. The widely adopted Romantic conception of masculine science has justified the exploitation of the feminized-nature-other, within both the realm of the private scientific sphere and the general public of England, and is largely attributed to the sheer popularity of Erasmus' scientific poetry. Shelley expertly negotiates this conceptualization of nature as a feminine, controllable,

and profitable cycle of reproduction. The nature she has written is instead powerful and brazen, and makes the call for a more egalitarian system of values in evolutionary science not just in Erasmus Darwin's discipline, but projected into the future of science as a whole. This is realized most starkly through Charles Darwin, whose epistemologies would revolutionize the world through *The Origin of Species*.

Therefore, this thesis shows not only that Darwin's texts host a valid frame for interpreting *Frankenstein*, but it also presents a distinct stance that enriches our understanding of Shelley's most celebrated novel. This reading demonstrates the significance and noteworthiness of trailing the lineage of inspiration for a novel through the base epistemology, integrating a level of historical authenticity in science that can support a valid reading of the text. This genealogy of thought should be acknowledged, and the inspiration given an opportunity to struggle with the text it helped create. Erasmus Darwin not only laid the groundwork for Charles Darwin, but for Victor Frankenstein as well. The parallels between Darwinian Theory and Victor's experimentation are present in *Frankenstein*, and this thesis therefore contributes to the long tradition of demonstrating *Frankenstein's* flexibility towards gender, scientific discourse, and its continuing relevance.

The sum of Victor's creation therefore, is indeed not the sum of bodily parts, but the sum of philosophies of Romantic evolution as they were conceptualized by the public and scientific imaginations. Victor's reanimation of the cycle of life is not only about what science as a field is capable of, or what it says it will be capable of soon, but is just as much about what onlookers like Percy Shelley and the public mind *believe* it to be capable of, and all of the troublesome and controversial notions that come with that

shared mentality. This is indeed what ultimately makes Frankenstein's creation possible; Victor is as stimulated by alchemic and unstable discourse of science as he is encouraged by scientific methodology. It is narrative, however, that perhaps stimulates him the most, in both his readings of Cornelius Agrippa to which he accounts is "the birth of that passion" (26), and Paracelsus and Magnus who delight him in "partially unveiling the face of [feminine] Nature" (27), but who "do not speak of a final cause" (27).

Yet Shelley's feminist critique is again not solely of the nature of Romantic science nor evolutionary thought, but of the assertions that these facets of the discipline make through their employment of the science. The problematic discourse of evolutionary theory is realized within the horrid monstrosity that Victor gives birth to on a surge of evolutionary rhetoric. By in-scripting this ghastly language on the body of her "wretched Devil," (86) Shelley intercedes deeply into the biological conception of evolution, selection and femininity in the early nineteenth century. In doing so she removes man from the religiously exalted position he previously occupied and places him promptly within the mechanics of evolutionary law. Mary Shelley leaves us with the knowledge that this type of thinking, while wildly extrapolated through Victor Frankenstein and his creature, did not expire or wither away in the desolate Arctic at the end of her text, but that it simply lies dormant within the species of man.

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