

Christi Danner

Dr. Barrett

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Poet, Astronomy, and Androgyny: Constellations of Gender Identity Issues In Emily Dickinson's
Work

Emily Dickinson's sexuality has been debated by scholars, critics, and curious readers who question whether she was ever involved with a man, a woman, both, or neither. Her numerous intimate correspondences with friends of both sexes have led to a great amount of inconclusive speculation. (Miller) A significant question is that of the poet's gender identification; though the question of gender construction is a more contemporary way of interrogating a person's identity, Emily Dickinson herself imbued numerous poems with hints of androgyny, specifically including the line "when a Boy" in (at least) two poems: "The Zeros taught Us— Phosphorus" and "A Narrow Fellow in the Grass." But from where does Dickinson's androgynous sense of her past-self stem? In her article, "Urania's Inversion: Emily Dickinson, Herman Melville, and the Strange History of Women Scientists in Nineteenth-Century America," Renée L. Bergland suggests that this androgyny was a result of Dickinson's scientific training in college— specifically, her training in astronomy. The poet's education aligned with a general shift in American consciousness from science as a female pursuit to a strictly male discipline, that left women who were once welcomed into the scientific community ostracized. Bergland describes androgyny as Dickinson's method through which to reconcile herself as a scientist with herself as a poet. This essay will build upon Bergland's formulation in order to consider: How do questions of gender identity manifest in Dickinson's poetry, specifically through her use of celestial or astronomical imagery? Does she compare herself to

female astronomers in the references she makes to them? Does she include hints of the scientific theories which rendered science a masculine discipline during the mid-nineteenth century? Does she intentionally challenge gender discrimination through her androgynous self-identification, or is this tendency simply her way of presenting herself?

Toward the beginning of her poetic career, it is possible that while Dickinson was highly interested in astronomy, she did not yet feel an androgynous self-identification, or that she did not feel this androgyny to the extent that she would later in life. The circumstances surrounding her shifting sense of gender are rooted in greater cultural shifts that occurred at the time, Bergland argues. Thus Dickinson perceived her past self as a boy, while at the time she would have perceived herself as a girl. It is helpful to understand the evolution of America's attitude toward female scientists to see why this is the case. Before she discusses Emily Dickinson's androgyny, Bergland outlines a history of women in science. Although popular perception is that women have slowly broken into scientific fields after being excluded from them historically, in actuality, some of the most successful early scientists were women. In fact, the word "scientist" was coined for the astronomer Mary Somerville by William Whewell in an 1834 *Quarterly Review* article. Another woman, Maria Mitchell, was an antebellum astronomer who was the first American scientist to win an international award for her work. During the early nineteenth century, however, science participated in an interdisciplinary climate within American culture; it was not a strict establishment of its own. As science became its own clearly demarcated institution, women found themselves excluded; and particularly as the theories of Charles Darwin, Drafay, and Maxwell destabilized popular Christian sensibility, science became a field too revolutionary for the genteel woman. Women who previously were welcomed with open arms in scientific labs now found themselves not only excluded from science, but stigmatized as

androgynous or even hermaphroditic. Interestingly, Dickinson was not stigmatized as androgynous; we will explore throughout this essay ways in which she labeled herself as androgynous while the world would simply label her female.

Though Dickinson did not enter adulthood to become a scientist, scientific imagery figures into much of her poetry; perhaps for this reason, she is able to escape the stigma of androgyny while still instilling it into her works. Bergland discusses Emily Dickinson's role in the scientific and academic field during America's changing attitude toward females in science. Dickinson participated in a rigorous scientific education at Mount Holyoke at just the right time to experience this dramatic shift in gender sensibility within American science. Her teachers at Mount Holyoke were particularly knowledgeable about astronomy, and momentous events occurred in this field in the year 1848, while Dickinson was in school; first, Maria Mitchell discovered a telescopic comet, and second, the astronomer Caroline Herschel died (she discovered eight comets and with her brother discovered the planet Uranus). Dickinson was undoubtedly aware of these events, and she carried with her an interest in and knowledge about science, particularly astronomy, throughout the rest of her life. This interest manifested in her poetry. Approximately 270, or 15% of Dickinson's poems were about science, and "Her approach to science was often playful and Baym argues convincingly that Dickinson's scientific imagination helped bolster her antiauthoritarianism." (Bergland, 85) In addition, through tracking Dickinson's edits of her astronomical poetry, we can see that she progressed towards a more critical view of gender roles and hierarchy throughout her life.

Dickinson grew up during a unique cultural moment, having experienced a total reversal of gender roles in the scientific world while she was coming of age. She felt that in her past scientific education, she was "a boy" while she lived as an adult woman poet. In many of her

poems, themes of androgyny mingle with scientific imagery or astronomical allusions. I will look particularly at three poems: “The Zeros taught Us— Phosphorus,” “Nature and God- I neither knew,” and “When the astronomer stops seeking.” I will be interrogating these poems for androgynous language and its relation to astronomy—and also looking at their circulation and edits to determine how her scientific or androgynous sensibilities may have had an effect on the final version of each. In many of these poems, we find that the final version reflects heightened anxieties about gender identity and gender hierarchy than in the original versions.

Before turning to the poetry in which she undertakes this project, it might be helpful to investigate an 1862 article in *The Atlantic* that Dickinson certainly would have read. She was a faithful reader of the periodical (Capps), and this particular article, a profile of the female astronomer Mary Somerville would have caught her interest. The article was written by Maria Mitchell, another famous female astronomer who lived during Dickinson’s lifetime. One would expect that a profile of one woman scientist written by another woman scientist would stand as a bastion of feminism; however, the content of the article is somewhat surprising. First off, Mitchell dismisses the achievements of a third female astronomer, Caroline Herschel, writing,

She lived the life of a simple-hearted, truth-loving woman; most worthy of the name she bore, she made notes for her brother, she swept the heavens and found comets for him, she computed and tabulated his observations; it seems never to have occurred to her to be other than the patient, helping sister of a truly great man. (Mitchell, 568)

As Bergland notes, Herschel and her brother William famously collaborated on their astronomical research. Although William Herschel, as a man, experienced greater recognition for their work, Caroline Herschel was more instrumental and more experienced in the field. For Mitchell to dismiss her as nothing but an assistant seems regressive.

After moving on from her brief, dismissive account of Caroline Herschel, Mitchell continues to the bulk of her essay: a character sketch of the famous Mary Somerville. It is

interesting to note that Mitchell dedicates barely any time to describing Somerville's achievements. She talks briefly about her work with writing geology and physical science text books, before returning to a more personal description of Somerville's demeanor, habits, and hobbies. Though Mitchell does not detail Somerville's accomplishments, she is certain to include that her subject believes in the existence of aliens. A profile of this sort is typically "fluffy" in nature, indulging in readers' desire to learn about the personal traits and quirks of the famous person at hand; however, Mitchell's profile of Somerville reads more like a profile of a celebrity than of a respected scientist. In her focus on Somerville's personal character, she (perhaps unintentionally) undermines Somerville as a meaningful contributor to her field. Whether the slight is intentional or not, it is quite bizarre.

Why would Mitchell, a female scientist herself, undermine the careers of two fellow female scientists in her article? Perhaps to situate females in relation to science was an inherently clumsy and awkward move at this time, and Mitchell's article "Mary Somerville" was almost an apologia for female scientists, to prove that they were, in fact, female. This purpose would explain Mitchell's emphasis on the womanly demeanor of Somerville, rather than a focus on the scientist's work. However, this is a weak way to assert feminine strength: to bolster one's "masculine" scientific achievements with proof that one also fulfills the socially acceptable role of being female. It would be difficult, though, to challenge cultural notions of femininity in such a journalistic profile without becoming overtly aggressive or without transforming "Mary Somerville" from an article about the astronomer into an article about gender roles. Perhaps this is why Mitchell falls back on describing Somerville as such a demure, effeminate creature—in order to defend her as a woman in the eyes of the public.

Emily Dickinson would be aware of the gender identity issues surrounding female scientists at the time; as a highly educated woman who followed not only general current events, but also had a particular interest in astronomy, she would be familiar with the circumstances surrounding the cultural shift in sensibility. Charles Darwin's *On the Origin of the Species* appeared in *The Atlantic* which Dickinson faithfully read; she would be aware of the scientific advances that led to women's exclusion from the scientific sphere. And as a woman interested and educated in astronomy, Dickinson would have a vested interest in undermining the rigid gender binary system oppressing female scientists in America during her time.

Poetry offered her just the avenue by which to offer critique without the lumbering, heavy, rhetorical obligation that would come with political or socially conscious prose writing. Instead, Dickinson could instill gender deconstructing images and signs into her poetry, thus subtly pushing against the prevailing cultural understanding of gender binary systems. One of the most notable features of Dickinson's collection of poetry is the tactile control she held over each of them; she left behind extensive collections of handwritten poetry, sewn into "fascicles;" occasionally one of her poems would circulate via letters sent to her friends and personal acquaintances. Christanne Miller, in her article "Whose Dickinson?" reviews the various scholarly approaches to Emily Dickinson's collected poetry, and also discusses the significance of Dickinson's editing process to interpretations of her work. Because Dickinson rejected print culture, her work must be analyzed independently from typographical convention. She wrote in three stages: first worksheet, then draft, and then she produced a final version. After producing the final version, she would destroy the initial copies; yet, occasionally she would edit her poems after sending them to friends, and by comparing different versions we can get a sense of her editing process— or at least the general vector of her process. Miller describes the various

iterations of Dickinson's poems as "multiple performances of a single production— each of which is instructive, as with the performance of any art, but none of which constitutes a separate production of poem." (Miller, 248) Thus, the entire edit history of each poem can be viewed contemporaneously to perceive a complete whole, much like subtle variations from an actor's performance one night to the next represent different iterations of the same play. The intimate touch of Dickinson's hand to the page produced— and left behind— both versions. We will be investigating subtle changes in certain poems in order to inspect why she might have changed certain phrasings in light of gender issues and identity.

Dickinson utilizes astronomical imagery in her poetry to discuss her interests in science while also using this imagery to recognize herself as a person participating in both gender roles. In "The Zeros taught Us – Phosphorus –" we can find evidence not only of Dickinson's interest in chemistry and astronomy but also in the androgynous identity she holds in relation to her interest in these fields. The second and third lines of the poem read: "We learned to like the Fire/ By handling Glaciers- when a Boy-" This poem, written in late 1862, shortly after the "Mary Somerville" essay was published in *The Atlantic Monthly* could have been influenced directly by her thinking about the topic of women in science— specifically, astronomy.

Dickinson's edits to this poem indicate that she altered it to include a noticeable hierarchy between opposites. Her original version, sent to Samuel Bowles in 1862, is significantly different from the final version which we read in Franklin today, and which was also sent to Samuel Bowles (but in 1863). The third line, rather than reading "By handling Glaciers— when a Boy—" originally read "playing Glaciers." The final version of the poem reads:

The Zeros Taught Us— Phosphorus –
 We learned to like the Fire
 By handling Glaciers – When a Boy
 And Tinder – guessed – by Power

Of Opposite— to equal Ought—
 Eclipses— Suns— imply—
 Paralysis— our Primer dumb
 Unto Vitality— (F284)

The first stanza of the poem speaks not specifically about astronomy, but does allude to chemistry. The first stanza implies the ambiguous state of origin: mankind discovering chemicals and the utility of fire (rather than its destructive force). Similarly, Dickinson's work to upend gender roles is deconstructive— not destructive— she wishes society to un-learn, rather than to perish entirely.

An interesting edit to the first stanza is that Dickinson changed “playing Glaciers” to “handling Glaciers.” Why would this be? The word “playing” implies childlike fascination and fun, or even that Dickinson as a child pretended to be a glacier, or played a game called Glaciers. “Handling” involves less joy. Overall, “handling” is a more ambiguous term than “playing;” are they pushing glaciers around, touching glaciers, or simply contemplating the existence of glaciers? To handle something is a weightier and more adult activity than to play something. Dickinson may have included this edit in order to give the poem more weight. After all, her edit also brings celestial objects into the poem, creating a heavier effect overall.

The second stanza originally read:

Of Opposite— to balance
 Odd—
 If White— a Red— must be!
 Paralysis— our Primer dumb
 Unto Vitality— (F284A)

Compared to the original:

Of Opposite— to equal Ought—
 Eclipses— Suns— imply—
 Paralysis— our Primer dumb
 Unto Vitality— (F284)

The original version of “The Zeros taught us— Phosphorus” dabbles in chemistry, but does not touch upon astronomy; it departs from science in the second stanza and instead focuses on the idea of opposites. In an deconstructionist move, the poem implies that identity results just as much from the absence of what one is than it does from an active participation in any particular quality. Dickinson, then, might be defined by her opposite. The edited, 1863 version of the poem allows itself more access to both astronomy and to androgyny; in doing so, it also implies a hierarchy between these opposites— sun and eclipse verses red and white. While white and red, which represent opposites in the original version of the poem, participate in no inherent hierarchy, eclipses and suns do participate in a strict dynamic. The sun is an active presence, while the eclipse is nothing but a shadow: an intangible phenomenon that only exists as it is observed. This implies not only Dickinson’s androgyny, but also that women only seem to exist in the shadow of men—particularly in science.

Dickinson utilizes the image of an eclipse to illustrate gender hierarchy. Interestingly, though, an eclipse is a subjective phenomena dependent upon the placement of the observer. It is a well-known fact among Dickinson scholars that the poet was interested in astronomy; yet, Brad Ricca, in the essay “Emily Dickinson: Learn’d Astronomer” makes note of the fact that Dickinson’s astronomy textbooks were written by Denison Olmsted, a natural philosophy professor, who based his astronomy on the position of the observer. Observation, then, is of utmost important in Dickinson’s training in astronomy and overall worldview. By its very nature, observation privileges the position of the viewer; therefore leading one to introspection as well as outer observation.

Because the stars appear to be “fixed” in the sky, they imply a stable universe; Dickinson depends upon astronomy is “a natural and dependable system of signs.” (Ricca, 103) She utilizes poetry as a navigational tool which aids her in composition and aids her readers in interpretation. The astronomical point of view also reassures her of binaries: night and day, noon and midnight, sun and eclipse. Yet, though these binaries appear opposite, like she postulates in “The Zeros taught us— Phosphorus,” and though the stars appear fixed in the sky, Dickinson did not forget that ultimately, these were dependent upon her subjective perspective. Cosmic binaries, like gender binaries, are not stable, but instead mere illusions dependent upon the observational point of view. In her 1864 poem, “Nature and God— I Neither Knew,” Dickinson portrays her fraught relationship with the stars— or with the concept of fate:

| | |
|-------------------------------|---------------|
| Nature and God - I | neither knew |
| Yet Both so well knew | Me |
| They startled, like | Executors |
| Of My identity – | |
| | |
| Yet Neither told - that | ‡ could learn |
| My Secret as secure | |
| As Herschel's private | interest |
| Or Mercury's Affair – (F803B) | |

Here, Dickinson connects her interest in astronomy with her doubts about the constants that are God and Nature. Once again, she illustrates a hierarchy; in the first two lines, Nature and God wield power over Dickinson by virtue of their superior knowledge of her. She expresses a feeling of helplessness that they determine her identity— like executors.

The first stanza of this poem initially read:

| | |
|--------------------------|--------------|
| Nature, and God, I | neither knew |
| Yet both, so well | knew me |
| They startled - like | Executors |
| Of an identity – (F803A) | |

Why would Dickinson change “an identity” to “My identity?” She sent both versions of the poem to Samuel Bowles, the same man who received written copies of “The Zeros Taught Us—Phosphorus.” Both copies were sent in the year 1864, as well, so the duration of time between each version could not have been longer than a few months. The first version: “an identity:” distances Dickinson herself from the text of the first stanza, as if she does not want to identify herself with the process of identity-making through social and cultural ideology. The opposite interpretation is also true: that Dickinson wrote “an identity” in order to illustrate the distance between herself and the identity that she felt was forced upon her.

The inclusion of “my identity” (rather than “an identity”) ties the first stanza in with the second stanza, where she writes about “My Secret as secure.” It is ambiguous to which Herschel Dickinson refers in this poem, but chances are good that she means the Herschel siblings who discovered Uranus and eight comets. The male/female sibling duo, Caroline and William Herschel worked as a team; they are the same Herschel’s to whom Mary Mitchell refers in *The Atlantic* article, “Mary Somerville.” The image of the male/female siblings working as a team implies androgynous identity or intrigue. “Mercury’s Affair” refers to the planet Mercury, yet the use of the word “Affair” implies a romantic tryst. Throughout this second stanza, Dickinson carefully intertwines threads of secrecy, self-identity, astronomy, and androgyny. Her meaning (as usual) is opaque, yet we can read the context clues in relation to her other poems in order to discover that she consistently combines these same themes. In “Nature and God – I neither knew,” Dickinson once again expresses a conviction that identity is, in great part, a cultural construct. The participants of identity often have no choice in the matter, but instead are passive sites of representation; she implies that this representation may encompass gender roles and gender hierarchy.

Many scholars have discussed that a lack of context is one of the foremost challenges facing readers of Emily Dickinson. After all, Brad Ricca's entire essay, discussed earlier, is situated as a study of Dickinson's interest in astronomy as a means to contextualize some of her work. Perhaps, though, Dickinson's failure to include contextualization for her readers is a result of her fundamental rejection of that context; cultural codes, hierarchies, and social institutions that seem arbitrary and oppressive have no place in her work. In his book chapter entitled "What the Zeros Taught: Emily Dickinson, Event-machine," Forest Pyle discusses Emily Dickinson's poetry as "radically aesthetic." The political content of her poetry is not explicitly stated, but rather embedded within the very structure and word choice of her poetry. She writes in a decontextualized space—rebuilding the aesthetic experience for her readers. In rewriting aesthetics, Dickinson also challenges the grander status quo. Her aesthetics break down form, replacing it with something new; for Dickinson, the process of writing and for her readers, the process of reading, result in a singular event in which the new form is encountered. The new experience combines event or individual occurrence with convention or structure (thus, the term "event-machine"). This is where we witness bizarre turns of phrase that generate pause in the reading experience; for instance, the phrase "handling Glaciers." Even the initial version "playing Glaciers" is cryptic. To understand Dickinson's intention with these words is impossible, but the richness of possibilities the conundrum inspires is worth more than a fixed interpretation. Dickinson perhaps wishes to instill a greater sense of ambiguity within the world as a whole, and works toward this goal by including cryptic lines within her poetry.

Of course, Dickinson's poetry is noteworthy for more than its cryptic nature. Formalistically it is also significant. Pyle notes that Dickinson often includes forceful opening lines, in effect front-loading her poetry. These memorable lines have the "force and effect of an

event” (Pyle, 110) in that they represent linguistic achievement. Her poetry is too unstable for the framework that a title provides; to remember them by first line is more appropriate. The mass of handwritten documents Dickinson left behind emphasize the idea of her writing as an event: an event that cannot be undone. “This zeroing arrives with the force of an event and challenges any hermeneutic effort to put the pieces of this poetic machinery together... and make it ‘work’ interpretively.” (Pyle, 123) By “zeroing,” Pyle means that Dickinson breaks down commonly accepted modes of thought, and replaces them with meditation on base elements of emotion or of nature. In a way, Dickinson’s poetics are reconstructive. He writes:

Something comes from nothing, and that incendiary teaching leaves us with the lessons of fire. And as in so many Dickinson poems, the eruptive force that goes from the zeros to the fire subsequently asserts its opposite, nullifying the initiating event, making a something... into a nothing. (Pyle, 105)

Dickinson not only takes her readers to an elemental space, as Pyle asserts here, but she begins to rebuild from this place. While her astronomy aids in providing these elemental images for her poetry, astronomy as a navigational tool also provides structure for Dickinson’s poetics.

Brad Ricca argues that in “When the Astronomer stops seeking,” that as long as a person lives, they never “stop seeking,”— meaning that to read the sky or to read texts, we must be patient. Any reading of Dickinson’s poetry requires extensive patience and seeking, yet this is a reflection of the seeking Dickinson perceives as inherent to life. She might find it difficult to believe in conventional ideas about “God and Nature,” such as the existence of inherent gender binaries, but Dickinson is interested in finding or constructing some provisional truths. In her poetry, this is apparent through her connection of the astronomer to the navigator. Dickinson uses poetry as a navigational tool, just as an astronomer or a sailor uses the stars to navigate the sea.

truth? Here, she stumbles across a Zero: the same cold Glacier from “The Zeros Taught Us” appears when the “lone British lady forsakes the Arctic Race.” We no longer witness Nature or God coming to know Dickinson or keep her secrets; rather, lonely figures turn from one another and ponder treason. As the latest of the three poems we have inspected, “When the Astronomer Stops Seeking” is certainly the most cynical, almost modernist in its profound isolation.

We have found that Dickinson’s poetry undermines the idea of gender construction through use of astronomical imagery; though she often doubts the objective truth of these astronomical phenomena, Dickinson continues to rely on them as constants in her work. Through a radical poetics, Dickinson challenges the idea that females are less capable or competent than males, especially in the realm of science. Though she aims to deconstruct oppressive gender binaries, she often begins the work of reconstruction in her wake. However, as Dickinson’s poetry evolved, we can witness a growing disillusionment with the world around her, with the stability of truth, and with the pervasiveness of isolation.

Annotated Bibliography

Bergland, Renée L.. "Urania's Inversion: Emily Dickinson, Herman Melville, and the Strange History of Women Scientists in Nineteenth-century America". *Signs* 34.1 (2008): 75–99. Web

Although popular perception is that women have slowly broken into scientific fields after being excluded from them historically, in actuality, some of the most successful early scientists were women. In the late nineteenth century, as science became its own clearly demarcated institution and as new theories rendered scientific research more revolutionary and subversive, women who previously were welcomed with open arms in scientific labs now found themselves not only excluded from science, but stigmatized as androgynous or even hermaphroditic. Dickinson was educated in science in college, and she carried with her an interest in and knowledge about science, particularly astronomy, throughout the rest of her life. Bergland suggests that this scientific interest resulted in an androgynous self-identity that manifested in Dickinson's poetry. This article will be foundational to the core of my paper; it provides the theoretical connective tissue with which I initially connect androgyny and astronomy within Dickinson's poetry, and it also provides fodder with which I formulate my central analytical questions.

Capps, Jack L., and Emily Dickinson. *Emily Dickinson's Reading*. Cambridge, MA: Harvard U Pr., 1966. Print.

A book which details Emily Dickinson's reading habits, covering her use of the Bible, British Literature, American Literature, newspapers and periodicals, and textbooks. It also includes a useful annotated bibliography of her allusions and of reading that she mentioned in letters. I used this mainly as a reference guide to learn more about her consumption of *The Atlantic*.

Dickinson, Emily, and R. W. Franklin. *The Poems of Emily Dickinson*. Cambridge, MA: Belknap, 1999. Print.

This is a collection used as a primary source.

Morris, Leslie A. *Emily Dickinson Archive*. Web.

This is a collection used as a primary source.

Miller, Christanne. "Whose Dickinson?" *American Literary History*. 12.05. (Spring- Summer, 2000): 230-253.

Dickinson's editing process is of particular interest to scholars due to the extensive handwritten collection of work she left behind. Because Dickinson rejected print culture, her work must be analyzed independent from typical typographical convention. Franklin, one of the most noteworthy compilers of Dickinson's work, believes that her text should be separable from "the artifact." She wrote in three stages: first worksheet, then draft, and then finally a final

version. She destroyed the initial copies after producing the final version. Franklin also asserts that the line between prose and poetry is ambiguous in her work. Franklin's edition of Dickinson became the authoritative text after it was published. He allows Dickinson to speak for herself. Conversely, Hart and Smith's version includes extensive commentary. They insist that Dickinson had a romantic relationship with her sister-in-law, Susan Huntington Dickinson.

Typographically, they also represent her poems differently than Franklin; Hart and Smith's version parallels the assertion that Dickinson blurs the lines of prose and poetry. The various forms in which Dickinson's poetry appears leaves instructors and scholars at a crossroads when deciding which versions to use. Miller herself thinks that Dickinson utilizes artful meter and believes she does not receive enough credit for it. She views the various iterations of Dickinson's poems as "multiple performances of a single production— each of which is instructive, as with the performance of any art, but none of which constitutes a separate production of poem." (Miller, 248) This essay is helpful to situate my reading of Dickinson's revision process within a broader scholarly context.

Mitchell, Maria. "Mary Somerville." *The Atlantic Monthly*. 5.31 (May 1860): 568-572. Web.

Mitchell, a female astronomer, writes a profile on a fellow female scientist and astronomer, Mary Somerville. The article is light in tone and substance, not delving into scientific theory or method, or specifics of Somerville's work, but instead describing Somerville's demeanor, habits, opinions, and general character. She also includes, at the beginning of her article, a section in which she mentions Caroline Herschel (a third female astronomer, who died while Emily Dickinson was in college) but dismisses her work; she presents Herschel as having merely been an assistant for her brother (with whom she collaborated). This article is central to my paper, especially in bringing three female astronomers together, all of whom would have been of special interest to Dickinson. I find Mitchell's strange presentation of her subjects of particular interest—and this is the first big question of my paper.

Ricca, Brad. "Emily Dickinson: Learn'd Astronomer." *The Emily Dickinson Journal*. 9.2 (Fall 2000): 96-108.

One of the most classic issues with interpreting Dickinson's poetry is a lack of signaling present within her work; readers simply cannot situate her words. Yet, her knowledge of astronomy is well-documented and her astronomical imagery is one clue as to how she situated astronomy within the greater context of her work. Ricca makes note of the fact that Dickinson's astronomy textbooks were written by Denison Olmsted, a natural philosophy professor, based his astronomy on the position of the observer and privileging sight. Observation, then is of utmost importance in Dickinson's training in astronomy. The stars appear to be "fixed" in the sky—implying a stability to the universe and the ability to name the constellations. Astronomy is "a natural and dependable system of signs." (Ricca, 103) Dickinson utilizes poetry as a navigational tool; this view is affirmed by her perception of the night sky. The astronomical point of view also reassures her of binaries: night and day, noon and midnight, etc. This essay is useful to understand how Dickinson learned about astronomy, specifically that she would have perceived the position of the observer as foundational. This is useful in my paper to talk about the instability of what we perceive as truth.

Pyle, Forest. "What the Zeros Taught: Emily Dickinson, Event-machine". "What the Zeros Taught: Emily Dickinson, Event-machine". *Art's Undoing: In the Wake of a Radical Aestheticism*. Fordham University, 2014. 105–142. Web.

Emily Dickinson's poetry is "radically aesthetic." The political content of her poetry is not explicitly stated, but rather embedded within the very structure and word choice of her poetry. She writes in a decontextualized space—rebuilding the aesthetic experience for her readers. Her aesthetics break down form, replacing it with a new experience that combines event or individual occurrence with convention or structure. He notes that she often includes forceful opening lines, frontloading her poetry. These memorable lines have the "force and effect of an event" (Pyle, 110) in that they represent linguistic achievement. Her poetry is too unstable for the framework that a title provides; to remember them by first line is more appropriate. By "event-machine," Pyle means that Dickinson produced new poetic conventions in "events" that became routine or mechanical. The mass of handwritten documents she left behind emphasizes the perception of her writing as an event. "This zeroing arrives with the force of an event and challenges any hermeneutic effort to put the pieces of this poetic machinery together (internally or externally through the relations of poems) and make it 'work' interpretively." (Pyle, 123) Her radical aesthetic form and her habit of breaking everything down to its base elements is one of the foundational arguments in the latter half of my paper.