

“THE CENTRAL URGE IN EVERY ATOM”: WHITMAN’S ATOMISM AND SCHELLING’S *NATURPHILOSOPHIE*

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WALT WHITMAN’S PROMINENT and consistent use of the word “atom” from the 1855 edition of *Leaves of Grass* to the 1891-92 deathbed edition has prompted much debate about the sources and meanings of the term in his work. This interest in the concept is not surprising, given his fascination with the changing world of science, philosophy, and technology around him. Indeed, perhaps no scientific idea experienced more development in the 19th century than the atom. Atomic theory had its origins in Epicurean philosophy which viewed the material world as constructed from atoms and void, and this is probably where Whitman first encountered the word. Frances Wright’s *A Few Days in Athens*, a novel that expounded Epicureanism, was an early favorite of the young Whitman, but the focus of the book was not Epicurus’s philosophy of nature. Rather, it was a belated product of the Radical Enlightenment, a movement that found in Epicureanism an inspiration for critiquing established religion, clericalism, prejudice, and entrenched political and social roles and norms.¹

At the dawn of the nineteenth-century, however, the atom was no longer an abstract concept argued about by philosophers—as it had been since the rediscovery of Lucretius’s *On the Nature of Things* in the fifteenth-century—it was one of the most fruitful ideas in modern science. In 1811, the same year a sixteen-year-old Wright returned to Scotland and began spending her winters studying the ancient atomists, the Italian chemist Amedeo Avogadro published his hypothesis that “equal volumes of all gases in the same conditions of temperature and pressure contain the same number of molecules.”² This discovery came at the beginning of a century of fruitful debate and discovery in chemistry

as new elements were named, atomic weights were determined, and practical applications of theory changed industry and agriculture. The terms “atom” and “molecule,” however, remained ill-defined even among chemists, and it would not be until September of 1860, a few months after Whitman had completed the third edition of *Leaves of Grass*, that the greatest minds in chemistry would meet in Karlsruhe to sort out their precise meanings.³

Both the increasingly detailed scientific understanding of the atom and chemical processes more generally, as well as the ancient atomism of Epicurus and Lucretius undoubtedly contributed to Whitman’s idea of the atom. Yet, I will argue that neither atomic theory fully captures the way Whitman uses the term in his poetry. The poet’s ideas more closely mirror the *Naturphilosophie* of F. W. J. Schelling, a German philosopher who rejected the Enlightenment and Epicurean picture of atoms as “dead mechanism,” was intimately familiar with the cutting edge of chemistry in his own time (though he would be viewed as too speculative and non-empirical by the next generation of chemists), and advanced his own view of nature as “active,” “dynamic,” and “autonomous.”

1

Despite the advances made in chemistry in the decades before his birth, the world Whitman entered was still one of “natural philosophers and natural historians, and at a slightly less gentlemanly level, chemists, anatomists and instrument makers.” Rather than “scientists,” they were amateurs whose “childish curiosity continued into adulthood when solving problems and finding explanations could be a leisure activity, maybe sociable.”⁴ Yet science, especially chemistry, rapidly professionalized over the course the poet’s life. In 1833 as he was learning the printing trade (itself being quickly revolutionized by new discoveries and technologies), the English polymath William Whewell coined the term scientist. By the time he was editor at the *Brooklyn Daily Eagle* in the late 1840s, Whitman was reviewing the

writing of Justus von Liebig, head of the first PhD granting chemistry program in the world. The United States in Whitman's time, however, was a center of practical rather than theoretical science, natural history (biology, geology, anthropology) rather than natural philosophy (physics, chemistry, and astronomy). American science was best exemplified by the Lewis and Clark expedition into the newly acquired Louisiana territory and, during Whitman's time, the explorations of Charles Wilkes in the Pacific Ocean and the Pacific Railroad Surveys looking for a transcontinental railroad route. These surveys provided "wonderful opportunities for natural historians and geographers" not only as part of the expeditions themselves but also by providing descriptions, illustrations, and samples for colleagues back in the east.⁵

Theoretical chemistry remained a European, and primarily a German, English, and French discipline. Nevertheless, there was a part of the science that quickly gained an American audience, organic chemistry. Liebig's *Chemistry in its Application to Agriculture and Physiology* made such an impact on American scientific thinking that an article in *The North American Review* declared it had not only been "repeatedly issued in rival editions by respectable publishers" but also subsequently "transformed into a couple of almost illegible pamphlets, and widely scattered over the land in the form of 'cheap literature.'"⁶ What inspired Americans' fascination was not the theoretical details of the work, but rather organic chemistry's ability to increase crop yields. Important developments in the scientific understanding of the atom, however, did not filter so easily into Whitman's favorite magazines. Rather, his atomism owes much to the *Naturphilosophie* of Schelling, a philosophy which took seriously experimental science's discoveries about the structure of matter but saw them as part of the larger problem of explaining nature's relationship to human subjectivity.

This becomes clear by looking at the only place that the word "scientist" appears in *Leaves of Grass*, Section 5 of "Passage to India." Written nearly forty years after Whewell coined the

term, Whitman begins with the observation that human beings wander unsatisfied, “yearning, curious, with restless explorations, / With questionings, baffled, formless, feverish, with never-happy/ hearts.” The scientist appears and attempts to solve the problem of “separate Nature so unnatural,” an “unloving earth, without a / throb to answer ours” a “Cold earth, the place of graves.” Even with the successes of professionalized scientific research in the nineteenth century, the scientist’s investigations are not enough:

After the seas are all cross’d, (as they seem already cross’d,)
After the great captains and engineers have accomplish’d their work,
After the noble inventors, after the scientists, the chemist,
 the geologist, ethnologist,
Finally shall come the poet worthy that name,
The true son of God shall come singing his songs.

Only the poet can validate and bring meaning to the deeds of the voyagers, scientists, and inventors and sooth the hearts of the “fretted children” of Adam and Eve. This is because the poet, rather than the scientist, can link together “all these separations and gaps,” and justify the “cold, impassive, voiceless earth.” Once the poet has done his work,

Nature and Man shall be disjoin’d and diffused no more,
The true son of God shall absolutely fuse them. (*LG* 1891, 318-319)

For Whitman, the explanation of material nature given by science is useful, productive, and correct but ultimately creates a divide between persons and nature. It is the work of the poet to reconcile to the two by bringing forth nature’s dignity and showing its inherent connection with the person.

Whitman was still thinking about this problem in the 1880s when he reflected on the death of Thomas Carlyle. The work of scientists, including their explorations into the nature of the atom, is part of “the most profound theme that can occupy the mind of man,” that is, “the fusing explanation and tie” between

“the (radical, democratic) Me, the human identity of understanding, emotions, spirit, &c.” and “the (conservative) Not Me, the whole of the material objective universe and laws, with what is behind them in time and space” (*PW* 258). This question is best addressed by Kant and the philosophers of German Idealism: Fichte, Schelling, and Hegel. Whitman then declares allegiance to what he takes to be Hegel’s answer, namely that “the whole earth . . . with its infinite variety, the past, the surroundings of to-day, or what may happen in the future, the contrarieties of material with spiritual, and of natural with artificial” constitute “necessary sides and unfoldings, different steps or links, in the endless process of Creative thought... which is held together by central and never broken unity” (*PW* 259).

Yet despite this paean to Hegel, the unity between the Me and Not Me throughout his work is found in the person, not “the endless process of Creative thought.” The material world for Whitman is more than an external object to be observed and interacted with. In the form of the human body it is part of the person, and through the chemical processes of decomposition the body is born out of and returns to the cosmos. Yet Whitman also clearly holds the view that material nature and the spiritual are inescapably intertwined. This is manifest in a connection between body and the soul which is evident from the very first edition of *Leaves of Grass*. From the 1855 Preface forward, each time the soul is mentioned the body is close by. After all, he declares, “I am the poet of the body, / And I am the poet of the soul” (*LG* 1855, 26).

But the body is not merely a fleshy temple for the soul, rather, he says in “Starting from Paumanok,” “Behold, the body includes and is the meaning, the main concern, and includes and is the soul” (*LG* 1891, 25). Or as he also puts it in “I Sing the Body Electric,” “And if the body were not the soul, what is the soul?” (*LG* 1891, 81). The soul cannot be separated from the body for the simple reason that the material which makes it up is more than dead matter. “The spread” of the body, the “Shaded ledges and rests,” the “rich blood,” the brain and its

“occult convolutions” and the phallic “root of washed sweet-flag, timorous pond-snipe, nest of guarded duplicate eggs” are not divine merely because they are beautiful and functional. The soul is a part of the body, inscribed into its very materials. It is the place where the subjective Me comes to realize that the objective Not Me is a constituent part of itself because material nature, the very atoms that make up the body, are imbued with subjectivity.

Divinity is not bestowed upon matter when it becomes part of the person, it is always divine, as is clear from one of Whitman’s most fascinating poems of material nature, “This Compost.” He begins by recoiling in horror from nature, rather than being the place “where I thought I was safest,” Whitman declares that he will “withdraw from the still woods I loved” as well as “the pastures to walk” and “will not strip the clothes from my body to meet my lover the sea.” This horror comes from the realization that the ground is full of “distemper’d corpses” and “sour dead”; the poet wonders how the earth does not sicken with this knowledge. Yet he realizes that despite being full of corpses, life continually returns, “The grass of spring covers the prairies,” beans, onions, apple-buds, and wheat are all “innocent and disdainful above all those / strata of sour dead.” The poet can now safely return to nature and enjoy physical contact with it once again. While this might be interpreted as a poem of nineteenth-century organic chemistry, the final line points in a different direction. Out of “corruptions” and “infused fetor,” the Earth “renews with such unwitting looks its prodigal, annual, sumptuous crops,” and “gives such divine materials to men, and accepts such leavings from them at last” (LG 1891, 285-287).

The materials that nature gives to humans are themselves divine, a literal resurrection miracle. This notion, taken together with the idea that the spiritual and material are deeply interconnected, that the soul is the body, indicates a philosophy of nature gleaned through direct and indirect exposure to Schelling’s *Naturphilosophie*. Well before he had read the extensive summary of Schelling’s philosophy in Joseph Gostwick’s

German Literature or directly encountered him in Frederic Henry Hedge's *Prose Writers of Germany*, the poet had already absorbed many of his ideas through Coleridge, Emerson, Carlyle and descriptions of German philosophy in literary magazines.⁷ This is especially true of Schelling's ideas about the objective world of material nature and its relation to human subjectivity.

2

Despite his insistence that Hegel's philosophy was the most complete answer to the relationship between the Me and the Not Me, Whitman's ideas of material nature and its subjective qualities seem to have been formed by Schelling. Even the phrasing of the problem as fusing the "Me" and the "Not Me" mirrors several passages that appeared in Whitman's favorite literary magazines and points to Schelling, rather than Hegel as the proper philosopher to answer the question. The first, published in the July 1844 issue of *The United States Magazine and Democratic Review*, paraphrases Victor Cousin's analysis of German philosophy. The author says of Schelling: "in his opinion, philosophy must rise, at first, even to the absolute being, the *common substance*, and the *common ideal* of the *me*, and the *not me*, which does not relate exclusively either to the one or the other, but which comprehends them both, and forms their identity."⁸ Similarly, in the January 1852 edition of *The American Whig Review*, an article on philosophy proclaims that the "Idealism of Kant" was developed subjectively by Fichte and objectively by Schelling, with the "two divergent lines" reunited in "the *Absolute Idealism* of Hegel." Yet in describing Schelling's philosophy the author says "Schelling, taking the *Absolute* as the last possible generalization, traced its unfolding in the *me* and the *not-me*."⁹

The importance of Schelling for Whitman's ideas of material nature goes beyond this similarity of phrasing. While Hegel and Schelling were friends at one point in their careers and interested in similar questions, the key difference between them is one of

great consequence for the poet's approach to the Not Me. As S. J. McGrath succinctly puts it,

Schelling remains convinced, from his earliest treatises to his last lectures, that all intelligible structure, mental or material, physical or metaphysical, finite or divine, is characterized by polarity, opposition, and the creative and dynamic tension between incommensurables, a tension which must not be abrogated in a spurious logic that presumes to deny the principle of contradiction (Hegel's)... for Schelling, contradictories are never fused, and the opposition between them highlights the primacy of will over thought, for in the face of incommensurable options, thinking can go no further until the will *decides*. However, Schelling is not Kierkegaard: all polarities are undergirded by a concealed commonality, a deep ground of unity that makes the opposites possible, for only that which is in secret alliance, according to Schelling, can be truly opposed.¹⁰

The result is that, "Where Hegel was inclined to propound the completeness of the system even in the face of his own evident admission of its incompleteness, Schelling insisted that our very existence precludes the possibility of its systematic comprehension."¹¹ A true Hegelian could never so forthrightly declare, as Whitman does, "Do I contradict myself? / Very well then I contradict myself, / (I am large, I contain multitudes)" (LG 1891, 78).

The way Whitman thinks of the person as the meeting point between body and soul is one that fascinated Schelling in a similar way. As he puts it in *Bruno, or, On the Natural and Divine Principle of Things*,

but inasmuch as a soul has the nature of the intrinsically and substantially infinite, while the body is finite (though infinitely finite and capable of depicting the entire universe), the individual entity that exists in time reveals the mystery hidden away in God—the absolute identity of the infinite, which is the pattern or foretype, and the finite, which is the antitype. And so the element in a thing that is responsible for the absolute union of soul and body, or of thought and being, will intrinsically convey the essence of the absolutely eternal, the indivisible identity wherein idea is also substance.¹²

For Schelling, neither soul nor body is “intrinsically real,” they only exist in time through their mutual opposition to each other.¹³ Whitman does not discuss the person quite in the same terms of the opposition between soul and body, but the poet and philosopher do share the idea that the reality of persons is only in the identity of body and soul.

This identity is possible because, as Schelling puts it in the Introduction to his *Ideas for a Philosophy of Nature*, “Nature should be Mind [*Geist*, also translatable as “spirit”] made visible, Mind [*Geist*] the invisible nature. Here then, in the absolute identity of Mind [*Geistes*] *in us* and Nature outside us, must be resolved.”¹⁴ Whitman would have encountered this idea in Coleridge’s *Biographia Literaria*¹⁵ where he sums it up in his own prose by critiquing Descartes and his assertion of the “essential heterogeneity of the soul as intelligence, and the body as matter.” Against this dualism, Coleridge asserts that

since impenetrability is intelligible only as a mode of resistance; its admission places the essence of *matter* in an act or power which it possesses in common with *spirit*; and body and spirit are therefore no longer absolutely heterogeneous, but *may* without any *absurdity* be supposed to be different modes, or degrees in perfection, of a common substratum.¹⁶

The idea of “the essence of matter” as “an act or power” is one Coleridge developed both through his reading of Schelling, and, like the German philosopher, through study of the chemistry of his time.¹⁷ As a young man he was acquainted with the chemist Joseph Priestly, the poet and botanist Erasmus Darwin, as well as the doctor and chemist Thomas Beddoes, through whom he met his greatest scientific influence, the chemist Humphrey Davy. Importantly for Coleridge, both Davy’s chemistry and the *Naturphilosophie* of Schelling broke with the “Mechanico-corpuscular Philosophy” of “Anglo-French” science. As Trevor H. Levere explains, “in Coleridge’s view” this approach to science “seemed symptomatic of ‘the sunk condition of the world . . . given up to Atheism and Materialism. . . . All Science had become mechanical.’”¹⁸ The philosophy of nature presented

by the great minds of the seventeenth-century, Descartes, Pierre Gassendi, Robert Boyle, and Isaac Newton, drawing inspiration from the rediscovery of Epicurean atomism, saw the smallest particles of nature as essentially passive.¹⁹ In Coleridge's own time, he supported Davy against fellow English chemist John Dalton who he believed also held a view of mechanical and passive atoms.

Davy's chemistry excited Coleridge because, at the most basic level of nature, it avoided positing "a multitude of distinct and essentially passive corpuscles." As an alternative, his electrochemistry "indicated relations if not a fundamental identity between the natural forces of electricity, galvanism, and chemical affinity."²⁰ Davy's work thus built on the picture of chemistry Coleridge had first encountered in Schelling's *Naturphilosophie*. Schelling's "dynamic atomism" was not based on tiny corpuscles of matter, but rather "natural monads" that were "not themselves in space, that is, filling up space with their sphere of activity (defined by the counterbalance of attractive and repulsive forces)" but rather were "actants" or "action, whose effects and products are 'presentable in space.'"²¹

In a passage from his *Aides to Reflection*—a book Whitman reviewed in 1847, a few months before reviewing Liebig's *Chemistry in its Application to Agriculture and Physiology*—Coleridge demonstrates the "utter emptiness and unmeaningness of the vaunted Mechanico-corpuscular Philosophy" in an image Whitman must have appreciated:

The germinal power of the Plant transmutes the fixed air and the elementary Base of Water into Grass or Leaves; and on these the Organific Principle in the Ox or the Elephant exercises an Alchemy still more stupendous. As the unseen Agency weaves its magic eddies, the foliage becomes indifferently the Bone and its Marrow, the pulpy Brain, or the solid Ivory. That what you see is blood, is flesh, is itself the work, or shall I say, the translucence, of the invisible Energy, which soon surrenders or abandons them to inferior Powers, (for there is no pause nor chasm in the activities of Nature) which repeat a similar metamorphosis according to their kind.²²

While Whitman would not have had access to the technical arguments over whether atoms were physical or pure action, active or passive, passages like this show the way that Coleridge incorporated both Schelling's *Naturphilosophie* and Davy's lectures on the history and nature of chemistry to "add to his collection of metaphors."²³

Coleridge's extensive use of Schelling was also important for Emerson, from whom his knowledge of the philosopher primarily came.²⁴ In "The American Scholar" he displays familiarity with both Schelling's idea of atoms as activity and the philosopher's insistence on the intimate connection between matter and spirit. Emerson declares that the

great principle of Undulation in nature, that shows itself in the inspiring and expiring of the breath; in desire and satiety; in the ebb and flow of the sea; in day and night; in heat and cold; and, as yet more deeply ingrained in every atom and every fluid, is known to us under the name of Polarity,—these "fits of easy transmission and reflection," as Newton called them, are the law of nature because they are the law of spirit.²⁵

By the time he wrote "The American Scholar," then, it is clear Emerson knew Schelling's "breathtaking all-inclusive proposal that 'nature is eternalized mind; mind is internalized nature.'" Indeed, "this radical and comprehensive connection between nature and mind is the unwobbling pivot, the fundamental condition of most of Emerson's work."²⁶ All of this flows from the idea that Schelling first announced in his early works of *Naturphilosophie* and returned to in the *System of Transcendental Idealism*—the work that Coleridge cribbed most extensively from in the *Biographia* and had such an influence on Emerson—that objective being or nature is "merely freedom suspended."²⁷ If this is true, then it follows that, in a line that Whitman would have appreciated, "every plant is a symbol of intelligence."²⁸

Carlyle, especially his *Sartor Resartus* which Whitman reviewed in 1846, should also be mentioned here with Coleridge and Emerson as an important way into Schelling. While the book deals less directly with Schelling's *Naturphilosophie* than Coleridge and Emerson do, it does draw on its themes to create, among other things "a complete

inversion of the reflective scientific treatises that flourished around 1830.”²⁹ In the chapter “Natural Supernaturalism,” Carlyle, through the character Diogenes Teufelsdröckh, is clear in his critique of those who see “the Machine of the Universe” as “fixed to move by unalterable rules.” Certainly nature does move by rules, but it “remains of quite *infinite* depth, of quite infinite expansion; and all Experience thereof limits itself to some few computed centuries and measured square-miles.”³⁰ In its rejection of both the view of nature as mechanism and his acknowledgment that “the Other (the ‘NOT-ME’, *Nicht-Ich*)” as “something more than a ‘spectre’, neither a ghostly double of the philosophizing Ich or the raw material ready to be negated in the process of coming-to-self-consciousness,” Teufelsdröckh’s account of nature is quite Schellingean.³¹

What Whitman had direct access to of Schelling’s writing was an edited version of “On the Relation of the Plastic Arts to Nature,” a speech given in 1807 and available in Frederic Henry Hedge’s *Prose Writers of Germany*.³² In the speech, Schelling combines a critique of mechanistic explanations of the material world with admonitions to the artist. Any artist who sees nature as “nothing more than the lifeless aggregate of an indeterminable crowd of objects, or the space in which, as in a vessel, he imagines things placed” will remain uninspired in his work. On the other hand, the great artist or “inspired seeker” understands nature as “the holy, ever-creative original energy of the world, which generates and busily evolves all things out of itself.”³³ Whitman probably did not read this address until the mid 1860s, yet, as we have already seen, he would have been familiar with the philosopher’s argument against viewing material nature as “dead,” “passive,” and/or “mechanical.” As Robert J. Scholnick points out, the poet affirms Schelling’s assumption “that nature reaches its high point in human consciousness” and the result is that “‘Song of Myself,’ then, takes its place within a Romantic tradition of return, recovery and reintegration, but as a belated American vision.”³⁴

According to Schelling, when we understand that “matter is indeed nothing else but mind viewed in an equilibrium of its activities,” this “leads to far more elevated notions of the nature and dignity of matter than any others.”³⁵ The problem with the emerging scientific atomism

of the nineteenth-century and that of the Epicureans is that they advance us “not a step thereby towards [matter’s] true nature, since the atoms themselves are just matter.”³⁶ While Whitman would retain the idea of atoms as existing in physical space, rather than Schelling’s actants, his rejection of “dead” matter leads him to think about them quite differently than an Epicurean or a nineteenth-century chemist like Liebig.

3

This understanding of atoms as imbued with subjectivity, mind, or a spiritual quality is clear and consistent throughout Whitman’s uses of “atom” across all editions of *Leaves of Grass*. The most well-known comes in the opening to “Song of Myself,” first written in 1855, and remains unchanged in subsequent editions: “every atom belonging to me as good belongs to you.” This is quickly followed in the 1891-92 edition with the declaration that, “My tongue, every atom of my blood, form’d from this soil, this air, / Born here of parents born here from parents the same, and their parents the same,” (*LG* 1891, 29). Originally this line appeared in the 1860 “Proto-Leaf” and remained part of the poem when it was renamed “Starting from Paumanok” for the 1867 edition. In 1881, it was moved to its familiar place in “Song of Myself,” reinforcing the material body uniting with the spiritual soul in the celebration of the self. It is appropriate that an invocation of atoms comes directly after an invitation to the soul because Whitman makes clear, the body is the soul. In the 1891-92 version of the poem, the democratic notion that “every atom belonging to me as good belongs to you” is immediately connected with the sexuality and rootedness in place of the idea that “every atom of my blood” was “formed from this soil, this air” and a long line of ancestors.

The second instance of atom from the 1855 edition appears in what would become Section 8 of “Song of Myself” and is perhaps Whitman’s most obscure. While all other instances of “atom,” aside from the one in “A Persian Lesson,” are found

in multiple editions of *Leaves of Grass*, this one was deleted in the 1856 version and never returned in subsequent editions. The 1891-92 edition retains almost all of this passage, removing only the line, “The souls moving along . . . are they invisible while the least atom of the stones is visible?” (LG 1855, 18). Whatever Whitman’s reason for removing it from later editions, it remains an important theoretical statement that helps to clarify his atomism. The entire passage juxtaposes the life of persons in the city—“the driver with his interrogating thumb,” “the carnival of sleighs,” “the clinking and shouted jokes and pelts of snowballs,” “the hurrahs of popular favorites,” “the fury of roused mobs,” “the sick man,” “the meeting of enemies,” “the policeman working his passage to the center of the crowd”—with the materials they interact with, especially the echoes they make while tramping on the pavement. In the 1855 version of the poem, the impassive stones not only send and receive the many echoes of human noise, but are intimately connected with them, “The souls moving along . . . are they invisible while the least atom of the stones is visible?” For Mark Noble, “the catalog seems to aver that the visibility of ‘stones’ somehow implies the visibility of ‘souls’—that the ‘least atom’ of insensate reality somehow founds and delivers sensate experience.”³⁷ Read from the perspective of Schelling’s *Naturphilosophie*, however, reality is not “insensate,” and the move from material reality to “sensate experience” is less mysterious. As he explains in “On the Relation of the Plastic Arts to Nature,” the artist’s view of nature will determine the product of their art. Though Whitman had probably not read the address before he wrote this line in 1855, he nevertheless had clearly picked up on Schelling’s idea that the artist who “fancies that Nature is altogether dead” will fail to “be successful in that profound process (analogous to the chemical) whence proceeds, purified as if by fire, the pure gold of Beauty and Truth.”³⁸

The addition of the “Drum Taps” poems in 1867 accounts for the next three instances, the most important of which are found in “Pensive on Her Dead Gazing” where the “Mother

of All” implores the earth, streams, airs, essences and soils of growth, mountainsides, and trees, to absorb the “torn bodies” of the war dead. She charges them to “lose not my sons, lose not an atom.” Nature is to hold the bodies of the war dead “in trust for me faithfully” and “Exhale me them centuries hence, breathe me their breath, let not / an atom be lost,” (*LG* 1891, 377). The poem has a clear connection with “This Compost,” but rather than being horrified by nature chemically recycling so many dead bodies, only to be relieved by the miracle at the end, Whitman is not disgusted by these corpses of the war dead. Once again, as with the use of “atom” in “Song of Myself,” the idea of place and matter is key. Nature is to absorb the atoms, of these bodies and release them “centuries hence,” thus connecting future persons to past sacrifice in a literal, physical way. Here too Whitman emphasizes the subjective, spiritual quality of atoms by invoking the “breath,” the *pneuma*, of the dead. Just as Whitman’s tongue and blood were formed of atoms from a specific soil (that of Long Island, where the Whitman and Van Velsor families went back generations), so the atoms of the war dead would continue to have an effect on the battlefields ages hence both as matter and spirit. The other instance of atom is more conventional, meaning only the smallest possible piece of a larger whole, and comes in a line from “Song of the Banner at Daybreak.” Here Whitman as the “Banner” in the Song describes, “The Continent, devoting the whole identity without reserving an atom” (*LG* 1891, 227).

The final use of atom, first published in *Goodbye My Fancy* in 1891 and only included in the deathbed edition, occurs in the poem “A Persian Lesson.” In it, the teaching of the “grey-beard sufi” is a rather generic mystical lesson that “Allah is all, all, all—is immanent in every life and object.” This message is followed, however, by a statement that would be quite familiar to a reader of Schelling,

It is the central urge in every atom,
(Often unconscious, often evil, downfallen,)

To return to its divine source and origin, however distant,
Latent the same in subject and in object, without one exception.
(LG 1891, 419)

Written after Whitman had read and ruminated directly on German Idealist philosophy in Gostwick and Hedge's books, this poem shows the clearest influence of Schelling's *Naturphilosophie*. The first hint of this is the use of the word "unconscious," a concept that Schelling developed throughout his career and which remains one of his enduring philosophical legacies. While the exact formulation of the unconscious changes throughout Schelling's works, the version Whitman seems to be referring to here is the early one in which the "dark ground" of nature is still the "self-equilibrating cosmos of the nature-philosophy."³⁹ The "central urge" of the atom, even though it is conflicted, is "to return to its divine source and origin, however distant." Notice too that this "often unconscious" urge is the same for both subject and object, and though Whitman leaves this unsaid, it is the same because the person is the way that nature achieves its highest goal "through the last and highest order of reflection... what we call reason, whereby nature first completely returns into herself, and by which it becomes apparent that nature is identical from the first with what we recognize in ourselves as the intelligent and the conscious."⁴⁰ The atom here is more than a small bit of matter, it is the smallest piece of objective nature that still yearns for a return to the absolute.

4

There are, of course, other plausible sources of Whitman's atomism. As discussed above, the earliest and most important was Epicureanism, which he was introduced to in Frances Wright's *A Few Days in Athens*. He described the book to Horace Traubel "as daily food to me: I kept it about me for years. It is young, flowery, yet has attributes all its own."⁴¹ Wright herself was quite young when she wrote the it, the product of cold Scottish winters spent studying philosophy in the University of Glasgow library.⁴²

Readers have characterized it as a “utopian tract,”⁴³ one of the sources of Whitman’s “metaphysical naturalism” from which he “learned the Epicurean principle that ‘the what is unknowable,’”⁴⁴ and a “defense of Epicureanism and the pleasure principle, which was based on the materialist philosophy of Jeremy Bentham.”⁴⁵ The book, however, is less a treatise on Epicurean philosophy, which is primarily reserved for a final chapter speech by Epicurus, and more a melodrama involving grand philosophical confrontations between Epicureans and Stoics, impassioned fainting, and a dramatic rescue from a raging river.⁴⁶ Perhaps Whitman read the book as much for these aspects as he did for its philosophy; outside of the final speech by Epicurus it reads much like other romantic novels he enjoyed.⁴⁷

Despite its overwrought plot of a young man, Theon, discovering Epicureanism to be exactly the opposite of what he was told, the book was probably young Whitman’s first exposure to atomism. Epicurus’ female student Leontium—a character Wright modeled on herself⁴⁸—tells Theon that it is “only the different disposition of these eternal and unchangeable atoms that produces all the varieties in the substances constituting the great material whole, of which we form a part.”⁴⁹ Of particular interest is Leontium’s explication of the conclusions to be drawn from the idea that

those particles, whose peculiar agglomeration or arrangement, we call a vegetable to-day, pass into, and form part of, an animal to-morrow; and that animal again, by the falling asunder of its constituent atoms, and the different approximation and agglomeration of the same,—or, of the same with other atoms,—is transformed into some other substance presenting a new assemblage of qualities.⁵⁰

Wright was the first and most important place that Whitman encountered this Epicurean doctrine, and though he probably could not have read Lucretius before 1865, reading the Roman poet would have reinforced this view of nature. Lucretius, like Wright, makes clear that,

Things seem to perish, then, but they do not:
nature builds one from another, and lets no thing
be born unless another helps by dying.⁵¹

Yet the problem with Epicurean atoms, as Schelling and Coleridge argued, is that they are not dynamic. They may combine into many different forms, but they remain “passive, stone-like entities possessing only shape, size and solidity;” they are “totally permanent and changeless.” The only motion they are capable of is “motion in the void.” This motion and “the impacts to which it could give rise” are “the only source of activity in nature.”⁵² Whitman’s atoms are much more “active” than this.

An important implication of the permanence and changelessness is that “atoms of the sort from which a world might come to be or by which it might be made are not exhausted [in the production] of one world or any finite number of them, neither worlds like this one nor worlds unlike them. Consequently, there is no obstacle to the unlimitedness of worlds.”⁵³ Wright puts this lesson in the mouth of her Epicurus quite clearly in *A Few Days in Athens*,⁵⁴ and it is also one of the most memorable teachings of Lucretius’ *On the Nature of Things*.⁵⁵ For the Epicurean then, “our particular limited cosmos is only one of an infinite number of *cosmoi* (the plural of *cosmos*), each of which comes into existence and will eventually fall apart. But the universe as a whole has no beginning and no end, it has always existed and will always exist. And spatially, the universe stretches infinitely in all directions.”⁵⁶ Nature may be unlimited, but it “has no creative power beyond that enacted blindly by the atoms themselves.” Yet these atoms are passive, they “do not deliberate or make decisions, not only because they are inanimate and without any mental properties, but also because they have no need to: arrangements emerge spontaneously from a limitless set of attempts which end with the realization of viable stable structures.”⁵⁷

Compare this with the aim of the Alexander von Humboldt’s *Cosmos*, another important inlet of Schelling’s *Naturphilosophie*

into Whitman's views on nature, and a book so deeply influential that the poet retained the German spelling of "kosmos" throughout his poetry:

. . . that we may hope to comprehend and describe the *universal all* (τὸ πᾶν) in a manner worthy of the dignity of the word *Cosmos* in its signification of *universe*, *order of the world*, and *adornment* of this universal order. May the immeasurable diversity of the phenomena which crowd into the picture of nature in no way detract from that harmonious impression of rest and unity which is the ultimate object of every literary or purely artistical composition.⁵⁸

Humboldt's idea of the cosmos as ordered and harmonious even in its diversity not only differs from that of the Epicureans, but also draws on Schelling's *Naturphilosophie*. Much like Coleridge, early in his career Humboldt viewed Schelling as an alternative to philosophers who had nothing but a "mechanical" and "atomistic" method of explaining the world.⁵⁹ In *Cosmos*, written when his attitude toward Schelling had cooled, his opposition to the Enlightenment and Epicurean view of atoms as passive corpuscles of matter still draws from *Naturphilosophie*; Humboldt's order of nature is an active one. His goal of being able to "generalize our ideas by concentrating them in one common focus" will lead to "a point of view from which all the organisms and forces of nature may be seen as one living, active whole, animated by one sole impulse."⁶⁰ Humboldt acknowledges his debt to Schelling by quoting from "On the Relation of the Plastic Arts to Nature," the speech Whitman had access to in Hedge's *Prose Writers of Germany*: "Nature . . . is not an inert mass; and to him who can comprehend her vast sublimity, she reveals herself as the creative force of the universe—before all time, eternal, ever active, she calls to life all things, whether perishable or imperishable."⁶¹

Whitman certainly has moments where he sounds like an Epicurean, such as in Section 2 of "Starting from Paumanok," where he says "This then is life, / Here is what has come to the surface after so many throes and convulsions" (*LG* 1891, 19). Yet despite this peon to randomness, he cannot fully reconcile an

Epicurean physics with his commitment to “personalism,” that “there is, in sanest hours, a consciousness, a thought that rises, independent, lifted out from all else, calm, like the stars, shining eternal.” This is the idea “of identity—yours for you, whoever you are, as mine for me. Miracle of miracles, beyond statement, most spiritual and vaguest of earth’s dreams, yet hardest basic fact, and only entrance to all facts.” Thus, in these most “devout hours,” “the significant wonders of heaven and earth,” are only significant “because of the Me in the centre” (*PW* 394). Yet this “Me in the centre” is not the soul or mind floating ethereally above it all. After all, in preparation for the body of each person, “the globe lay preparing quintillions of years without one animal or plant, / For it the revolving cycles truly and steadily roll’d” (*LG* 1891, 85). How could it be any other way when “The whole theory of the universe is directed unerringly to one single individual—namely to You” (*LG* 1891, 273). Persons are certainly physically made up of atoms, but this only explains them partially. For Whitman, all of material nature as well as the ages and precedents of the past have been building toward the birth of each person. In the final consideration, this means that the material world cannot be the product of random atomic collisions. Whitman recognizes this as a problem for Epicureanism and explains in a notebook entry from 1866 that while Lucretius and Epicurus expound “reason.—the reason why—the how—practical—materialistic” this expounding “seems to confound spiritualism with superstition & credulity” (*NUPM* 1888). Schelling, and through his influence, Humboldt, Coleridge, Carlyle, Emerson, and Whitman oppose this view of material nature as purposeless and inert, devoid of subjectivity. To view matter this way, as “dead” is to miss not only the miracles of the objective world, but to diminish the body and the person as well.

5

A second plausible source of Whitman’s atomism is the rapidly changing understanding of nineteenth-century chemistry.

The rediscovery of Epicurean atomism had been an important impetus for natural philosophers like Giordano Bruno, Galileo Galilei, Pierre Gassendi, Robert Boyle, and Isaac Newton to question the dominant Aristotelian view of the material world as form and substance. By the 19th century, the concept of the atom had become less heretical but no less controversial. Indeed, “it experienced many vicissitudes in its painstaking accumulation of empirical data, which oftentimes suffered from the imperfection of research tools and the difficult maturation of theoretical concepts (for example, the distinction between atoms and molecules).” The main debates of Whitman’s time centered not only on the atom/molecule distinction but also “the determination of a scale of atomic weights, the significance of ‘equivalents,’ the development of a chemical notation, the classification of elements (which culminated in the period table), and many other perhaps narrower but nonetheless important issues.”⁶²

While, as discussed above, Whitman would have had little access to the details of these developments, he did review to one of the era’s most important books of the practical application of chemistry, Justus von Liebig’s *Chemistry in its Application to Agriculture and Physiology*. In the review, he praises Liebig’s insights into “the essences of creation, and the changes, and the growths, and formations and decays of so large a constituent part of the earth, and the things thereof.”⁶³ Mark Noble argues that Whitman’s reading Liebig allowed him

the chance to reimagine not only the kinds of experience subjects qua matter might discover and the kind of adhesive connections they might form to one another; it also means the chance to reimagine and relocate the spiritual power of subjectivity immanently within the material... in other words, I see Whitman as practicing his chemistry as a kind of high-stakes alchemy—a special chemistry of embodied presence in which persons reduce to matter and matter converts to spirit.⁶⁴

Clearly, as we have already seen, the poet was fascinated with the deep incarnation of the spiritual in the physical, but the scientific chemist Liebig would seem to be a strange place for

him to discover this. A series of notebook entries that date from around the same time as his review of Liebig presents the problem quite clearly. In one, the poet states that, “Different objects which decay, and by the chemistry of nature, their bodies are into spears of grass” (*NUPM* 57). This sentiment is one that he could have gotten from Liebig’s work or from Coleridge’s *Aids to Reflection* which he read around the same time, or his prior reading of Wright’s *A Few Days in Athens*. This entry, however, is followed soon after by a rumination on material nature that represents the opposite approach to chemistry than that of Liebig. Whitman states,

The soul or spirit transmutes itself into all matter—into rocks, and can live the life of a rock—into the sea, and can feel itself the sea—into the oak, or other tree—into an animal, and feel itself a horse, a fish, or a bird—into the earth—into the motions of the suns and stars—.
(*NUPM* 57)

Certainly there is a “high-stakes alchemy—a special chemistry of embodied presence in which persons reduce to matter and matter converts to spirit,” but this is not the empirical chemistry of Liebig. Rather it is much closer to the *Naturphilosophie* of Schelling.

Indeed, had Liebig wanted to use this language, he very well could have. He was quite familiar with Schelling’s ideas of nature and had even attended the philosopher’s lectures in Erlangen. His opinion, however, was that “Schelling possessed no thorough knowledge in the province of natural science, and the dressing up of natural phenomena with analogies and in images, which was called exposition, did not suit me.”⁶⁵ In fact, Liebig was the leading voice of a generation in the German-speaking world that rejected *Naturphilosophie*. He complained that “there was not a single chemical laboratory” in Prussia and “too much emphasis was placed instead upon literary and philosophical studies, including that ‘false Goddess and ‘Black Death,’ *Naturphilosophie*.”⁶⁶ Yet despite these protestations against Romantic science and accusations of materialism from

the Catholic Church, Liebig himself “made a distinction between organic chemistry and organized chemistry”:

Whereas organic chemicals outside a living vegetable or animal environment obeyed the same rules as their inorganic counterparts, as did molecules undergoing fermentation or putrefaction, inside living systems they were under the control of a vital force.⁶⁷

Only a vital force could explain “the forms characteristic of a living system,” and yet, this was not “experimental science but a position as metaphysical as the reductionist aspirations of his critics.”⁶⁸ According to Liebig, there exists a chemical cycle that connects living organisms with inorganic nature, but because of his rejection of Schelling’s *Naturphilosophie*, he was forced to resort to the idea of a “life force” in order to explain the difference between the two.

For Schelling, at least in the earlier *Naturphilosophie* that was so influential on Coleridge, Carlyle, Emerson, and myriad other Romantics,

every finite organism is related to every other upon which it to some degree depends such that nature itself must be regarded as a self-enclosed whole, an organism in its own right, a being which is the cause and effect of itself. Such organization is not explicable physically or mechanically; only the hypothesis of a single principle of life explains it.⁶⁹

The mechanist-vitalist dichotomy and its separation of the inorganic from the organic is overcome “by understanding the universe itself as a living whole, an unconscious subject which intends the anorganic as the condition of the possibility of the organic.”⁷⁰ Whitman may not have been privy to most of Schelling’s works, but he certainly understood this principle of nature quite early in his poetry. As he wrote in 1855 version of what would become “I Sing the Body Electric,” left unchanged, except for the removal of the ellipses, throughout all subsequent editions, “As I see my soul reflected in nature . . . as I see through a mist one with inexpressible completeness and beauty . . .” (*LG* 1855, 80). Or as he put it in the 1856 “Poem of The Road” (later

“Song of the Open Road”) and also left unchanged:

The earth never tires!

The earth is rude, silent, incomprehensible at first—nature is rude and
incomprehensible at first,

Be not discouraged—keep on—there are divine things, well enveloped,
I swear to you there are divine things more beau-
tiful than words can tell! (*LG* 1856, 231)

Whitman’s atomism and his vision of material transformation certainly drew on sources like the Epicureanism of *A Few Days in Athens* and the cutting-edge organic chemistry of Liebig, but his discussion of the subjectivity, mind, or spiritual quality of material nature also points to Schelling’s *Naturphilosophie* as a deep influence. Even though he states it most clearly later in his career after becoming more directly familiar with German Idealism, the theme of the intimate connection between the Me and Not Me is present even in his pre-*Leaves of Grass* writings. In his 1852 novel *The Life and Adventures of Jack Engle*, Whitman muses about the connection between the human being, material nature, and place as he looks on “the tombs of a father and mother, natives of New York, with a numerous family of their children.” The whole family, despite the difference in “the periods of their dying” and roaming to distant places “had all been brought here at last... and were there mouldering, but together.” What strikes the narrator about the graves is not so much the chemical processes of decomposition and fertilization, but rather that

[h]uman souls are as the dove, which went forth from the ark, and wandered far, and would repose herself at last on no spot save that whence she started. To what purpose has nature given men this instinct to die where they were born? Exists there some subtle sympathy between the thousand mental and physical essences which make up a human being, and the sources where from they are derived?⁷¹

Any description of material nature that wants to include persons in its purview must take this “subtle sympathy” into account.

Atoms are far more than passive imperceptible bodies that lie at the foundation of nature and give matter its sensual qualities. Rather, they are the active, living source of objective nature, a realm that human beings are deeply intertwined with through their very bodies. For Whitman, as for Schelling, nothing that makes up so wonderful a creature could ever be, at bottom, inert mechanism.

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NOTES

1 Here I follow Jonathan Israel's formulation of "Radical Enlightenment" as developed in Jonathan Israel, *Radical Enlightenment: Philosophy and the Making of Modernity 1650-1750* (New York: Oxford University Press, 2002). A shorter account contrasting it with a more moderate Enlightenment can be found in Jonathan Israel, *A Revolution of the Mind: Radical Enlightenment and the Intellectual Origins of Modern Democracy* (Princeton: Princeton University Press, 2011), 27–28.

2 Quoted in Bernard Pullman, *The Atom in the History of Human Thought*, trans. Axel R. Reisinger (New York: Oxford University Press, 1998), 202.

3 Avogadro exclusively used the term "molecule," distinguishing between "elementary molecules"—"atoms" in modern parlance—and "compound or integral molecules," or what are today called simply "molecules." John Dalton, Avogadro's English contemporary, on the other hand, exclusively used the term "atom" and thought of them as "the smallest particle of a substance that still preserves the properties characteristic of that substance." He therefore "spoke of atoms as single, double, triple, and so on" which in modern terms "would correspond to elements, binary compounds, ternary compounds, etc." See Pullman, 201.

4 David Knight, *The Making of Modern Science: Science, Technology, Medicine and Modernity: 1789-1917* (Malden: Polity, 2009), viii.

5 Knight, 146–147.

6 "The Chemistry of Vegetation," *The North American Review* (January 1845), 157.

7 Floyd Stovall, *The Foreground of Leaves of Grass* (Charlottesville: University of Virginia Press, 1974), 170.

8 "Spirit and Tendencies of the New School of Philosophy," *The*

United States Magazine and Democratic Review (July 1844), 26.

9 W.L.C., "Philosophy," *The American Whig Review* (January 1852), 70.

10 S. J. McGrath, *The Dark Ground of Spirit: Schelling and the Unconscious* (New York: Routledge, 2011), 2.

11 David Walsh, *The Modern Philosophical Revolution: The Luminosity of Existence* (New York: Cambridge University Press, 2008), 131.

12 F. W. J. Schelling, *Bruno, or, On the Natural and the Divine Principle of Things*, trans. Michael G. Vater (Albany: State University of New York Press, 1984), 178–179.

13 Schelling, *Bruno*, 180.

14 F. W. J. Schelling, *Ideas for a Philosophy of Nature*, trans. Errol E. Harris and Peter Heath (New York: Cambridge University Press, 1988), 46.

15 Coleridge is an especially important early link between Whitman and Schelling. The poet reviewed Coleridge's *Aides to Reflection* and *Biographia Literaria* favorably for the *Brooklyn Daily Eagle* in 1847 (see, Walt Whitman, *The Journalism: Volume II: 1846-1848*, Ed. Douglas A. Noverr, Edward J. Recchia, and Herbert Bergmann (New York: Peter Lang Publishing Inc., 2003) 245, 372–3.). *Biographia Literaria* is an especially important text for Whitman's exposure to Schelling's ideas of nature. In the *Biographia*, Coleridge drew heavily from Schelling's *System of Transcendental Idealism* without acknowledgment, leading to accusations of plagiarism. G. N. G. Orsini characterizes Coleridge as an enthusiastic follower of Schelling, "expounding his philosophy brilliantly and cogently, translating and paraphrasing him in excellent English prose, and then on one side attempting an apologia of Anglicanism grounded on transcendental idealism, and on the other carrying out speculation of his own on the lines of the *Naturphilosophie*." G. N. G. Orsini, *Coleridge and German Idealism: A Study in the History of Philosophy with Unpublished Materials from Coleridge's Manuscripts* (Carbondale: Southern Illinois University Press, 1969), 220.

16 Samuel Taylor Coleridge, *Biographia Literaria*, vol. 1 (Oxford: The Clarendon Press, 1907), 88.

17 Many nineteenth- and twentieth-century critics tended to see Schelling's *Naturphilosophie* as overly speculative, abstract, and unempirical. This criticism is unfair, and in fact, as Michela Massimi shows, "the speculative, obscure Schelling" clearly took "a stance in favor of the new Lavoisierians in recognising the central role of oxygen in defining the phenomena of combustion" a cutting edge position in chemistry against the still popular phlogiston. Michela

Massimi, "Philosophy and the Chemical Revolution after Kant" in *The Cambridge Companion to German Idealism*, ed. Karl Ameriks, 2nd ed. (New York: Cambridge University Press, 2017), 199.

18 Trevor H. Levere, "Coleridge, Chemistry, and the Philosophy of Nature," *Studies in Romanticism* 16 (1977), 358.

19 For an account of the debate around corpuscularianism, its relationship with Epicurean atomism, and mechanical philosophy which Coleridge is here opposing, see Antonio Clericuzio, *Elements, Principles and Corpuscles: A Study of Atomism and Chemistry in the Seventeenth Century* (New York: Springer, 2000). Particularly of interest is the account of Robert Boyle's corpuscular philosophy in Chapter 4.

20 Levere, "Coleridge, Chemistry, and the Philosophy of Nature," 357–358.

21 Massimi, "Philosophy and the Chemical Revolution after Kant," 189.

22 Samuel Taylor Coleridge, *The Collected Works of Samuel Taylor Coleridge: Aids to Reflection*, ed. John Beer, vol. 9 (Princeton: Princeton University Press, 1993), 398.

23 Eric G. Wilson, "Coleridge and Science," in *The Oxford Handbook of Samuel Taylor Coleridge*, ed. Frederick Burwick (New York: Oxford University Press, 2009), 643.

24 Stanley M. Vogel, *German Literary Influences on the American Transcendentalists* (New Haven: Yale University Press, 1955), 107. For the deep connection between Emerson and Coleridge, see Samantha C. Harvey, *Transatlantic Transcendentalism: Coleridge, Emerson, and Nature* (Edinburgh: Edinburgh University Press, 2013), especially Chapter 3, "Nature: Philosophy and the 'Riddle of the World.'"

25 Ralph Waldo Emerson, *Emerson: Essays and Lectures* (New York: Library of America, 1983), 62.

26 Robert D. Richardson, Jr., "Emerson and Nature," in *The Cambridge Companion to Ralph Waldo Emerson*, ed. Joel Porte and Sandra Morris (New York: Cambridge University Press, 1999), 102.

27 F. W. J. Schelling, *System of Transcendental Idealism*, trans. Peter L. Heath (University of Virginia Press, 1993), 33.

28 Schelling, *System*, 122.

29 James A. Secord, *Visions of Science: Books and Readers at the Dawn of the Victorian Age* (Chicago: University of Chicago Press, 2015), 205.

30 Thomas Carlyle, *Sartor Resartus*, ed. Kerry McSweeney and Peter Sabor (New York: Oxford University Press, 2008), 194–195.

31 Giles Whiteley, *Schelling's Reception in Nineteenth-Century British Literature* (New York: Palgrave Macmillan, 2018), 83–84.

32 Whitman's notes and writings on German philosophy show a deep familiarity with two books, Joseph Gostwick's *German Literature* published in 1849 and Frederic Henry Hedge's *Prose Writers of Germany*, first published in 1848, though probably not read by Whitman until the 1860s. Hedge, a Unitarian minister who had attended gymnasia in Göttingen and Illfeld at a time when almost no Americans studied German philosophy, was one of the early transcendentalists and one of the most important conduits for German philosophy into America. Along with Schelling, Hedge's anthology presented introductions, translations, and editorial selections of works from Luther, Boehme, Abraham a Santa Clara, Kant, Lessing, Mendelssohn, Hamann, Wieland, Musäus, Matthais Claudius, Lavater, Jacobi, Herder, Goethe, Schiller, Fichte, Richter, the Schlegel brothers, Schleiermacher, Hegel, Zschokke, Novalis, Tieck, Hoffman, and Chamisso. See Philip F. Gura, *American Transcendentalism: A History* (New York: Hill and Wang, 2008), 29.

33 F. W. J. Schelling, "On the Relation of the Plastic Arts to Nature," in *Prose Writers of Germany*, ed. Frederic Henry Hedge; trans. J. Elliot Cabot (Philadelphia: Carey and Hart, 1849), 510.

34 Robert J. Scholnick, "'The Original Eye': Whitman, Schelling and the Return to Origins," *Walt Whitman Quarterly Review* 11 (1994), 187.

35 Schelling, *System of Transcendental Idealism*, 92.

36 Schelling, *System*, 92.

37 Mark Noble, *American Poetic Materialism from Whitman to Stevens* (New York: Cambridge University Press, 2014), 59.

38 Schelling, "On the Relation of the Plastic Arts to Nature," 511.

39 Whitman still seems closest to the *Naturphilosophie* here, but his comment on the unconscious being "often evil, downfallen" does begin to sound like the later Schelling. As S. J. McGrath puts it, "The early Schellingian unconscious, developed in the nature-philosophy and the identity-philosophy, is impersonal and immanent. It is not yet the dark side of God unveiled in the Freedom essay, not the underside of the personality of the Stuttgart Seminars, not the doorway into the spirit-word of Clara; rather, the early Schellingian unconscious is the collective intelligence running through all of matter, and insofar as we too are material, running through us as well. It is the spirit in nature, or better, the spirit of nature, nature spiritualized and given subjectivity, but of an impersonal quality, like the subjectivity of a plant or an irrational animal. In the Boehme-influenced middle works, beginning

with the 1809 Freedom essay, Schelling's thought takes a decisive turn towards transcendence, and at the same time, towards the personal. The early notion of nature as the dynamic polarized matrix of being is not abandoned but qualified. For the later Schelling, nature is no longer the one and the all, rather, de-centered from the place of prominence once granted it, nature becomes the dark ground of spirit, its whole *raison d'être* focused in its precarious teleologico-volitional subordination to the personal." See McGrath, *The Dark Ground of Spirit*, 82.

40 Schelling, *System of Transcendental Idealism*, 6.

41 Horace Traubel, *With Walt Whitman in Camden*, vol. 2 (New York: D. Appleton and Company, 1908), 445.

42 Celia Morris Eckhardt, *Fanny Wright: Rebel in America* (Cambridge: Harvard University Press, 1984), 16.

43 Justin Kaplan, *Walt Whitman: A Life* (New York: Harper Perennial Modern Classics, 2003), 57.

44 Harold Bloom, *The Anatomy of Influence: Literature as a Way of Life* (New Haven: Yale University Press, 2012), 326.

45 Betsy Erkkila, *Whitman: The Political Poet* (New York: Oxford University Press, 1996), 17.

46 For example, a typical line of prose reads, "Cleanthes laid a hand on his laboring breast: he made one violent effort for composure and speech: it failed. The hot blood forsook his cheeks: it rushed again: again it fled: he gasped, and dropped fainting at the feet of his master." Frances Wright, *A Few Days in Athens; Being the Translation of a Greek Manuscript Discovered in Herculaneum* (New York: Arno Press, 1972), 70.

47 For instance, the novels of George Sand and Bernhard S. Ingemann. See Jerome Loving, *Walt Whitman: The Song of Himself* (Berkeley: University of California Press, 1999), 161–163.

48 Eckhardt, *Fanny Wright: Rebel in America*, 17.

49 Wright, *A Few Days in Athens*, 177–178.

50 Wright, *A Few Days in Athens*, 178.

51 Lucretius, *On the Nature of Things*, trans. Frank O. Copley (New York: W. W. Norton & Company, 2011), 7.

52 Alan Chalmers, *The Scientist's Atom and the Philosopher's Stone: How Science Succeeded and Philosophy Failed to Gain Knowledge of Atoms* (New York: Springer, 2009), 76.

53 Epicurus, *The Epicurus Reader: Selected Writings and Testimonia*, Trans. Lloyd P. Gerson and Brad Inwood (Indianapolis: Hackett Publishing Company, Inc., 1994), 8.

54 “I see around me in the world I inhabit an infinite variety in the arrangement of matter;—a multitude of sentient beings, possessing different kinds, and varying grades of power and intelligence,—from the worm that crawls in the dust, to the eagle that soars to the sun, and man who marks to the sun its course. It is possible, it is moreover probable, that, in the worlds which I see not,—the boundless infinitude and eternal duration of matter, beings may exist of every countless variety, and varying grades of intelligence, inferior and superior to our own, until we descend to a minimum, and rise to a maximum, to which the range of our observation affords no parallel, and of which our senses are inadequate to the conception.” Wright, *A Few Days in Athens*, 165.

55 “For surely not by planning did prime bodies / find rank and place, nor by intelligence, / nor did they regulate movement by sworn pact, / but myriad atoms sped such myriad ways / from the All forever, pounded, pushed, propelled, / by weight of their own launched and speeding along, / joining all possible ways, trying all forms, / whatever their meeting in congress could create; / and thus it happens that, widespread down the ages, / attempting junctures and movements of all kinds, / they at last formed patterns which, when joined together, / became at once the origin of great things, / earth, sea, and sky, and life in all forms.” Lucretius, *On the Nature of Things*, 122.

56 Tim O’Keefe, *Epicureanism* (Berkeley: University of California Press, 2010), 42.

57 Pierre-Marie Morel, “Epicurean Atomism” in *The Cambridge Companion to Epicureanism*. Ed. James Warren (New York: Cambridge University Press, 2009), 79.

58 Alexander von Humboldt, *Cosmos: A Sketch of the Physical Description of the Universe*, Trans. E. C. Otté, vol. 1 (Baltimore: Johns Hopkins University Press, 1997), 79.

59 Michael Dettelbach, “Alexander von Humboldt Between Enlightenment and Romanticism” *Northeastern Naturalist* 8 [Special Issue] 1 (2001), 19.

60 Humboldt, *Cosmos*, 1:55.

61 Schelling, “On the Relation of the Plastic Arts to Nature,” quoted in Humboldt.

62 Pullman, *The Atom in the History of Human Thought*, 193–194.

63 Whitman, *Journalism*, 2:288.

64 Mark Noble, "Whitman's Atom and the Crisis of Materiality in the Early Leaves of Grass," *American Literature* 81 (June 2009), 254.

65 Justus von Liebig, "An Autobiographical Sketch" in Annual Report of the Board of Regents of the Smithsonian Institution, Showing the Operations, Expenditures, and Condition of the Institution to July, 1891, trans. J. Campbell Brown (Washington, D.C.: Government Printing Office, 1893) 262.

66 William H. Brock, *Justus von Liebig: The Chemical Gatekeeper* (New York: Cambridge University Press, 2002), 67. Liebig went on to say that, "From this product of obdurate presumption and ignorance no progress for the science [of chemistry] is to be expected; with what haste, with what concupiscence they grasp onto the false Goddess of German Naturphilosophie with its straw-stuffed and rouge-painted dead skeleton. It promises them light, without troubling them to open their eyes; it gives them results without observation or experiment, and without acquainting them with nature and form, purpose and activity, which one wants to explain, with life-force, dynamic, specific, with loud, and in their mouths, senseless words, which they do not understand, the explain experience, which they likewise do not understand. The life-force of Naturphilosophie is the horror vacui, the Spiritus rector of ignorance." Justus von Liebig, "Der Zustand der Chemie in Preussen," *Annalen* 34 (1840), 97-136; translation adapted from E. Patrick Munday III, *Sturm und Dung* (Ph. D. dissertation, 1990), 175; quoted in Brock, 68.

67 Brock, *Justus von Liebig*, 310.

68 Brock, 310-311.

69 McGrath, *The Dark Ground of Spirit*, 88.

70 McGrath, 88.

71 Walt Whitman, *Life and Adventures of Jack Engle: An Auto-Biography; A Story of New York at the Present Time in which the Reader Will Find Some Familiar Character* (Iowa City: University of Iowa Press, 2017), 120.