# COUNTING FROM ONE TO A MILLION: WHITMAN'S ENGAGEMENT WITH LARGE NUMBERS

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This minute that comes to me over the past decillions,
There is no better than it and now.
—Whitman, "Song of Myself," Section 22[1]

I do not think seventy years is the time of a man or woman,
Nor that seventy millions of years is the time of a man or woman,
Nor that years will ever stop the existence of me, or any one else.
—Whitman, "Who Learns My Lesson Complete" (*LG*1881 305)

There will be no one like us when we are gone, but then there is no one like anyone else, ever. When people die, they cannot be replaced. They leave holes that cannot be filled, for it is the fate — the genetic and neural fate — of every human being to be a unique individual, to find his own path, to live his own life, to die his own death.—Oliver Sacks, "My Own Life"[2]

One of the many unique aspects of Whitman's poetry that would have unsettled nineteenth-century readers of *Leaves of Grass* is the poetic presence of large numbers.[3] Whitman expanded the realm of poetic diction in many ways, of course, but one of the most striking remains his absorption of the terms for large numbers that long had been familiar in the realm of mathematics[4] and more recently had been utilized in a widening array of sciences, particularly astronomy. The names for large numbers, then, were in the language but in the early years of the nineteenth century were still not commonly used; as the 1840 *Penny Cyclopaedia of the Society for the Diffusion of Useful Knowledge* put it: "the terms billion, trillion, &c., though defined by arithmetical writers, have never found their way into common use, the want of such numbers having never been experienced."[5] These large numbers had long been a theoretical tool in mathematics, but, with advances in astronomy and geology, and early glimmerings of

atomic physics, vast numbers gradually entered into the realm of the actual. The explosion in the perception of time and distance brought on by scientific advances necessitated thinking of the earth's age and the earth's place in the cosmos in terms beyond the familiar and comfortable numbers that had previously served most humans well for dealing with the material world.

As a former teacher of arithmetic himself, and as a journalist keenly interested in the emerging genre of American schoolbooks, Whitman was well aware of how these large numbers had quickly become a staple of every child's education. The arithmetic book he recommended in 1846 for use in the Brooklyn schools, James B. Thomson's *Practical Arithmetic*,[6] provides students with a "numeration table" taking them up to the quadrillions, and among the student "exercises" is a directive to "read" large numbers (like "504069470300400") and to write out in figures numbers like "One hundred and thirteen billions, six hundred and fifty thousand."[7] And the very first section ("Numeration") of Benjamin Greenleaf's influential 1847 *Introduction to the National Arithmetic* ("Designed for Common Schools") requires students to memorize and write out numbers from "units" to "thousands" to "millions" to "billions" to "trillions" to "quatrillions" to "quintillions" to "sextillions" and on up to "tridecillions." Student assignments included writing out in words the names of numbers up to forty-five digits long.[8]

Arguably, then, the audience for Whitman's poetry was better attuned than twenty-first-century audiences to the particular definitions of the numerical terms that Whitman so frequently employed in his poetry, even if they would have been surprised to find such arithmetical diction in a poetic context. Not only did these giant numbers appear in arithmetic textbooks, they were also frequently tossed about in early debates over whether scientific discoveries about the vastness of time and space made the existence of God more or less likely. Baptist minister Eli Noyes, for example, in his 1853 *Lectures on the Truth of the Bible*, argues that "the scientific man, who looks into the intricacies of nature," can only ultimately "corroborate the teachings of the Bible," for "the one who studies nature, becomes more devout."[9] To prove his point, Noyes turns to the lessons of large numbers, with

which he knows every "school boy" will be familiar. He looks at one of Whitman's favorite units, "an atom of matter," and quotes an often-reprinted passage from the *Annual of Scientific Discovery* (1852), which asks "the extent to which the division of matter" can be carried; the author of the passage imagines an "atom of sulphur" and concludes that it could "not weigh more" than the "two billionth part of a grain":

> But what is a billion, or, rather, what conception can we form of such a quantity? We may say that a billion is a million of millions, and can easily represent it thus:—1,000,000,000,000. But a school boy's calculation will show how entirely the mind is incapable of conceiving such numbers. If a person were able to count at the rate of 200 in a minute, and to work without intermission twelve hours in a day, he would take, to count a billion, 6,944,944 days, or 19,025 years 319 days. But this may be nothing to the division of matter.[10] (52)

After all, the passage goes on, "in reckoning the size of such atoms, we must not speak of billions, but, perchance, of billions of billions," or "a quadrillion," which means, by "the same school boy's calculation," that "to count a quadrillion, at the rate of 200 a minute, would require all the inhabitants of the globe, supposing them to be a thousand millions, to count incessantly for 19,025,875 years, or for more than 3000 times the period for which the human race has been supposed to be in existence." This journey into large numbers leads Noyes to a surprising conclusion: "Thus it appears that below, as well as above us, there is a world of invisibility. We have not seen God at any time, neither is it possible for us to see the primary particles which make up his creation." All of this calculation of large numbers has, it turns out, been in the service of demonstrating that it is ultimately useless to try to arrive at a material estimation of "the invisible" in either microscopic or telescopic terms: "There is something in the least particle that is incomprehensible to mortals, and hence it excites our wonder and veneration, bidding us look to the God who *doeth wonders*." (53)

I quote Noyes's use of this scientific example at such length because we often assume that Whitman's embrace of science ("Hurrah for positive science!" [*LG*1881 47]) and its opening of the human imagination to the vastness of space and time is a clear antithesis to the way that most people reacted to this newly perceived vastness: they felt

diminished by it, because humans seemed reduced to insignificance when the earth was revealed to be not the center of the universe but a continually shrinking dust mote on the edge of a galaxy that was itself a dust mote somewhere in the expanses of cosmic space. Many religious thinkers responded by building a wall between religion and science, claiming the two ways of accounting for creation and life were simply irrelevant to each other, since the one was based on faith in the invisible and the other on visible evidence.[11] Noyes, however, does not reject science and the new relevance of vast numbers, but rather uses those things to arrive at a kind of Biblical truth—if not *literal* truth, then what appears to him to be the truth of what lies at the edges of those impossibly huge numerical calculations:

> All then, we know of matter in its essence, is, 1st, Its smallest particle which we have been able to examine, exists as a compound, and hence must have been *created;* this is what the Bible teaches. 2nd, It is invisible in its original particles, and hence is a product worthy of an invisible Maker. 3rd, It is incomprehensible, and this, which is just what the Bible teaches of all nature, renders it a worthy creation of that God who cannot be understood to perfection, and whose ways also, are past finding out. (53-54)

Whitman, in "Song of Myself," at one point articulates something remarkably similar to Noyes's concept of a God literally beyond measuring, when he launches "all men and women" into the "limitless" reaches of the cosmos, only to glimpse a kind of perfection beyond the impossible and inaccessible edge:

> What is known I strip away,
> I launch all men and women forward with me into the Unknown.
>
> The clock indicates the moment—but what does eternity indicate?
>
> We have thus far exhausted trillions of winters and summers,
> There are trillions ahead, and trillions ahead of them.
> . . .
> I open my scuttle at night and see the far-sprinkled systems,
> And all I see multiplied as high as I can cipher edge but the rim of the farther systems.
>
> Wider and wider they spread, expanding, always expanding,

Outward and outward and forever outward.

My sun has his sun and round him obediently wheels,
He joins with his partners a group of superior circuit,
And greater sets follow, making specks of the greatest inside them.

There is no stoppage and never can be stoppage, . . .
. . .
A few quadrillions of eras, a few octillions of cubic leagues, do not hazard the span or make it impatient,
They are but parts, any thing is but a part.
See ever so far, there is limitless space outside of that,
Count ever so much, there is limitless time around that.

My rendezvous is appointed, it is certain,
The Lord will be there and wait till I come on perfect terms,
The great Camerado, the lover true for whom I pine will be there. (*LG*1881 71-73)

In this sweep of cosmic time and space in Sections 44 and 45 of the poem, Whitman projects an endless universe of vast numbers—calculating "quadrillions of eras" and "octillions of cubic leagues" that, even at that impossible sum, are "but a part" of the "limitless" space and time beyond even the ability of our language to "cipher" the vastness. But still, Whitman implies, if there *were* a place beyond "limitless" time and space, that's where the "Lord" would be waiting, where the great "Camerado" would be, who would finally complete the endlessly expanding self that Whitman creates, a self that—given space and time enough—would absorb and encompass the entire cosmos. It is Noyes's argument compounded, with a glimpse not so much of Biblical truth as of an impossible cosmic completion, figured in terms of universal homoerotic affection writ very large indeed.

In passages like this, we can discern just how vital large numbers were to Whitman's articulation of his composting faith, his certainty that "every atom belonging to me as good belongs to you" (*LG*1881 29), his insistence that the continually shifting atoms which at any moment make up the "self" were here at the beginning of the universe and will be here at its end, endlessly recycling through the materials of the world and the cosmos and always contributing to ever-renewing forms of life, be they "monstrous sauroids," "quahaugs," "grass," or

"the breasts of melons." "Life," he tells us, is always and only "the leavings of many deaths," and we the living (whether we are humans or mice, lilacs or pokeweed) are the only "afterlife" that there is—the life after death that those formerly living humans wanted to believe in and *would* have believed in had they been able to see us today. We *are* their "heaven" or "hell," what they have turned into after their death: there never was nor will be "any more heaven or hell than there is now." And when the ever-renewing "Now" re-forms our atoms into a dizzying array of other bacteria and plants and insects and humans and posthumans to come, we too will inevitably become part of the afterlife that we cannot see but can be certain will be there nonetheless (*LG*1881 72, 52, 29, 77, 30).

Such faith in the ever-mutating material world can only occur in a universe of vast numbers, in a universe of countless atoms going through countless re-formations over countless eons of time. Large numbers allowed Whitman to articulate a very early version of what, in the second half of the twentieth century, came to be called "deep time" and "deep space," concepts necessitated by the vast geological and astronomical expansions of the limits of human perception and conception that have opened the realms of the posthuman (and the prehuman), creating what Mark McGurl has called "the posthuman comedy."[12] The posthuman comedy is what results when we begin to realize "the deep time of the earth sciences is difficult to integrate into even the most capacious visions of civilizational, national, or institutional continuity," shrinking all literature—indeed, all of human existence—into "what Italo Calvino might call [the] cosmicomically small" (McGurl 538).[13] Whitman's work, then, with its acceptance of our atomistically tiny place in a universe of giant numbers—with its ability not only to confront but to accept and *celebrate* our place in what McGurl terms "the *absolutely* other, with the 13.7 thousand-million-year history of (for the most part) utter indifference to life we find in the geological and cosmic records"—becomes one of the earliest and most remarkable examples of what he (referring to much later literature) identifies as those "rare works of literature that set themselves the task of scaling our vision dramatically up or down or both, blasting through ordinary perception to the most surprising vistas we

can imagine" (541).

What makes Whitman's work unique is the kind of serenity and comfort he finds in his newly created poetic diction of giant enumeration:

> You shall possess the good of the earth and sun, (there are millions of suns left,) . . .
> . . .
> And whether I come to my own to-day or in ten thousand or ten million years,
> I can cheerfully take it now, or with equal cheerfulness I can wait.
> . . .
> This minute that comes to me over the past decillions,
> There is no better than it and now. (*LG*1881 30, 45, 47)

"Now" is just as perfect a moment as it always was and will be for "decillions" of minutes. In his 1856 "Poem of Wonder at the Resurrection of the Wheat" (later "This Compost"), Whitman captures the necessity of large numbers to make his faith in the "chemistry" of endless renewal work: "This is the compost of billions of premature corpses, / Perhaps every mite has once formed part of a sick person—Yet behold! / The grass covers the prairies. . . ."[14] And large numbers even allowed him to rest easy in the idea of the prehuman and posthuman: "To be in any form, what is that? / (Round and round we go, all of us, and ever come back thither,) / If nothing lay more develop'd the quahaug in its callous shell were enough" (*LG*1881 52); "The change . . . to the subtle air breathed by beings like us who walk this sphere, / The change onward from ours to that of beings who walk other spheres" (*LG*1881 207). This is, after all, the poet who imagined "monstrous sauroids" transporting his "embryo" "in their mouths and deposit[ing] it with care" (*LG*1881 72).

As long as Whitman could live comfortably with the faith in immortality that vast numbers (of atoms, of millennia, of possible life forms) would guarantee—a kind of immortality to everyone (even if our individual identities blended back into the world, and all the things we had heard and seen and touched and tasted and smelled—the string of experiences that made up who we are—simply dispersed into the recycling world when we died), he portrays a self that is happy living in that shifting world of millions, billions, trillions, quadrillions,

quintillions, sextillions, septillions, octillions, and decillions—all of which words he employs in *Leaves of Grass*:

> I do not think seventy years is the time of a man or woman,
> Nor that seventy millions of years is the time of a man or woman,
> Nor that years will ever stop the existence of me, or any one else.
> Is it wonderful that I should be immortal? as every one is immortal;
> I know it is wonderful. (*LG*1881 305)

Whitman would sometimes express this universal immortality in terms that sounded vaguely like individual existence after death, but the equation is always the same—we are what our body senses and absorbs (as he demonstrates in "There Was a Child Went Forth," with its investigation of how a child becomes the accumulation of his sensory perceptions), and when we die all those sensations dissipate back to where they came from: the experience of smelling a certain flower on a certain day in a certain place—an experience that may have been keenly significant to a particular person—remains out in the world after that person's death for others to experience, and so "I believe of all those billions of men and women that filled the unnamed lands, every one exists this hour, here or elsewhere, invisible to us, in exact proportion to what he or she grew from in life, and out of what he or she did, felt, became, loved, sinned, in life" ( "Unnamed Lands").[15] The experiences of "all those billions" exist "this hour," "invisible" (we cannot see the individual interactions of now-dead bodies with the things of this world) but available to every living person "this hour" (the things of the world are there—"in exact proportion"—for living bodies to experience anew).

Sometime in the late 1850s, Whitman made notes to clarify for himself just what "Mathematics" was, and he jotted down a definition: "the science that treats of quantity, whatever can be measured numbered, &c." He went on to define "*Pure* or *Speculative*" mathematics as concerned with "quantity abstractly, without relation to matter," while "*Mixed*" mathematics "treats of magnitude, &c. as existing in material bodies."[16] Whitman's poetry is a continual exploration of how that border between "speculative" and "mixed" mathematics was evaporating during his lifetime, as large numbers that had

until the nineteenth century been purely in the realm of the speculative and the abstract suddenly began to be necessary to describe actual material bodies—the cosmic material of a universe that had come to seem impossibly vast and the submicroscopic material of atoms that had come to seem equally vast. The theoretical seemed to be hurtling into the material, and Whitman embraced the large numbers that had come to represent the new supra-telescopic and subatomic vastness of the material cosmos.

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The intellectual and emotional thrill of large numbers is something that never left Whitman, but during the Civil War a new concern began to appear for him, something that had to do with a crisis of faith over what the "chemistry" of "compost" could achieve (*LG*1856 203-204), of what the billions of atoms recycling and re-forming could and could not make. It was during the war that Whitman began to experience large numbers all around him in a way that he never before had. "Counting is the epistemology of war," writes James Dawes in *The Language of War*;

> War is bounded by the referential extremes of the prebattle roll call and the post-battle body count, and is constituted within by the innumerable calculations (days counted, supplies counted, miles counted) that make war in theoretical writings so susceptible to formulation as a mathematical contest. . . . Indeed counting is a speech act so pervasive during war time that it approaches an ideology; it is thus not simply a formal or typological question (What shall I count? How shall I count?) but also a fundamentally ethical one (Who counts? Do I count?).[17]

In some early manuscript jottings that would lead to "The Million Dead, Too, Summ'd Up," a section of *Memoranda During the War* that was later incorporated into *Specimen Days* and which contains the longest sentence he would ever write, we can see Whitman struggling with the impossible arithmetic of the Civil War's mass death—the impossible notion that any single death can remain important among the "infinite dead."[18] We can see him circling around the frustrations of trying to maintain the dignity and importance of each face among the faceless all:

—the Sacred Million
—the infinite dead—the V[*heavily crossed out*] and [*crossed out*] solemn general buried [*inserted: & the special*] Million—cemeteries[19]

We can feel in these notes the dizzying pull between Whitman's desire to make that million "sacred" and "special" even as the sacredness and specialness keep evaporating into the "infinite" and the "general." It would be a tension Whitman would work with for the rest of his life, and he in fact projected it as the central conundrum of democracy—how to honor both the one and the many, the "single solitary individual" and the "En-Masse" (*LG*1881, "One's-Self I Sing" 9). He began to put more and more faith in the "divine average" (*LG*1881, "Starting from Paumanok" 23) and less and less in heroic single individuals. As Dawes notes, "For Whitman the competition between the individual and the mass, as it occurred both in the interiorized realm of retrospection and in the exteriorized realm of the political, was an issue of concern that both predated and long survived the war" (52). Dawes proposes that Whitman invented in his Civil War writings a new genre, one that devalues narrative and valorizes "statistics": "Whitman's poetry and prose is an attempt to create a new genre of war writing, a genre appropriate to the unprecedented multiplicative array of national action. For Whitman, a national memory properly constituted must body forth from a skeletal structure built out of numbers rather than narration, out of counting rather than history" (54).

The estimate of the war dead varied a great deal in the years right at the end of the Civil War (as, indeed, the estimates vary greatly to this day). Whitman inflates even the highest estimate in order to be able to use one of his favored large-number names to make the dead seem even more beyond counting than they already were. And his "million" dead now rhyme with the millions and billions and trillions that permeated his work, but this new "million" became for him a counter-example to the large numbers that had produced such exhilaration in his earlier poetry. Now the overwhelming number signified massive loss, and, in his long death sentence, he would try to subject this "million" to the same chemical test of compost that he subjected the "billions of premature corpses" to in "Poem of Wonder at the

Resurrection of the Wheat."

In the last years of the war, Whitman saved and carefully labeled newspaper articles that offered sums and figures that totaled up the carnage of the war. He even borrowed a couple of sentences verbatim from one of the newspaper pieces he saved, an article entitled "National Cemetery Reports" that he labeled "National Cemeteries (Wash[ington] Chron[icle] April 30 '72)."[20] "In some of the cemeteries nearly all the dead are unknown," this article states; "At Salisbury, N.C., for instance, the known are only 85, while the unknown are 12,027, and 11,700 of these are buried in trenches." Whitman brazenly steals these two sentences and uses them in the parenthetical final paragraph of "The Million Dead, Too, Summ'd Up," before going on to paraphrase the next sentence of the newspaper article about "a suitable granite monument" that had been put up at Salisbury: Whitman, as he copies this report, seems to pause and question the reporter as he replaces the newspaper article's "suitable monument" with "national monument" and asks: "but what visible, material monument can ever fittingly commemorate that spot?" (SD 80).

But it is the sentence just before the partially plagiarized paragraph that I want to focus on here. It was a sentence so long that he initially wrote it out as a poem, using his long catalog-lines to tally the dead. To write it, Whitman invents a syntax of mass death, an un-diagram-able utterance that wanders the ruined nation to gather up "the infinite dead," pausing again and again to absorb the horror, the details, the unimaginable numbers of dead young men whose bodies eluded the grave and were composted back into the landscape itself. The sentence buries seven parenthetical insertions among its thirty-some dashes, creating a jagged syntactical field sliced with phrasal trenches. And this astonishing catalog of a sentence ends up, after its nearly 400 words, being a sentence *fragment*. There is no way, Whitman discovered, to predicate *this* subject: "The dead in this war." These numberless dead are of course beyond animation, themselves now fragments of bodies, amputated selves, irretrievable, that have so "saturated" America's land that we the living are now all fated to reap forevermore a harvest of death, with blood in every grain we eat:

The dead in this war—there they lie, strewing the fields and woods and valleys and battle-fields of the south—Virginia, the Peninsula—Malvern hill and Fair Oaks—the banks of the Chickahominy—the terraces of Fredericksburgh—Antietam bridge—the grisly ravines of Manassas—the bloody promenade of the Wilderness—the varieties of the *strayed* dead, (the estimate of the War department is 25,000 national soldiers kill'd in battle and never buried at all, 5,000 drown'd—15,000 inhumed by strangers, or on the march in haste, in hitherto unfound localities—2,000 graves cover'd by sand and mud by Mississippi freshets, 3,000 carried away by caving-in of banks, &c.,)—Gettysburgh, the West, Southwest—Vicksburgh—Chattanooga—the trenches of Petersburgh—the numberless battles, camps, hospitals everywhere—the crop reap'd by the mighty reapers, typhoid, dysentery, inflammations—and blackest and loathesomest of all, the dead and living burial-pits, the prison-pens of Andersonville, Salisbury, Belle-Isle, &c., (not Dante's pictured hell and all its woes, its degradations, filthy torments, excell'd those prisons)—the dead, the dead, the dead—*our* dead—or South or North, ours all, (all, all, all, finally dear to me)—or East or West—Atlantic coast or Mississippi valley—somewhere they crawl'd to die, alone, in bushes, low gullies, or on the sides of hills—(there, in secluded spots, their skeletons, bleach'd bones, tufts of hair, buttons, fragments of clothing, are occasionally found yet)—our young men once so handsome and so joyous, taken from us—the son from the mother, the husband from the wife, the dear friend from the dear friend—the clusters of camp graves, in Georgia, the Carolinas, and in Tennessee—the single graves left in the woods or by the road-side, (hundreds, thousands, obliterated)—the corpses floated down the rivers, and caught and lodged, (dozens, scores, floated down the upper Potomac, after the cavalry engagements, the pursuit of Lee, following Gettysburgh)—some lie at the bottom of the sea—the general million, and the special cemeteries in almost all the States—the infinite dead—(the land entire saturated, perfumed with their impalpable ashes' exhalation in Nature's chemistry distill'd, and shall be so forever, in every future grain of wheat and ear of corn, and every flower that grows, and every breath we draw)—not only Northern dead leavening Southern soil—thousands, aye tens of thousands, of Southerners, crumble to-day in Northern earth. (SD 79)

The title of this section, "The Million Dead, Too, Summ'd Up," employs Whitman's characteristic contraction-apostrophe, which here creates a haunting ambiguity, because the sentence with all its embedded statistics, its death-data, does give us the Civil War dead *summed up*, but the contraction also invites us to fill in a few more missing letters, as we realize this death sentence literally *summons up* the dead, reminding us of their literal physical presence throughout the landscape, north and south, and insisting on their physical emergence in everything that grows from the soil they dissolved into. It's

the million dead *summoned* up. (His opening words of *Memoranda* describe the technique he used to write his book: "Each line, each scrawl, each memorandum, has its history. . . . Out of them arise active and breathing forms. They *summon up*, even in this silent and vacant room as I write, not only the sinewy regiments and brigades, marching or in camp, but the countless phantoms of those who fell and were hastily buried.")[21] Whitman's catalog, then, is a summing *and* a summoning, and the summons is not just of the dead but also of the living, who are being summoned to witness this mass death and, grotesque as it may seem, *ingest* it, live off of it, make a future out of it.

Franny Nudelman draws our attention to the repeated "&c." in Whitman's death catalog:

> The horror entailed by the particulars of the body's disappearance is played off against the '&c.,' which implies the callousness of institutional efforts to count the dead, as well as their futility: this list, it seems, could go on indefinitely. As well as signifying the government's inability to account for the dead, '&c.' calls for a different kind of institutional approach to commemoration, one that acknowledges, even elevates, the impossibility of representing dead soldiers.[22]

Whitman goes on to note how many of "these countless graves" contain "the significant word *Unknown*." "In some of the cemeteries," he writes (copying verbatim the *Washington Chronicle* piece), "nearly *all* the dead are unknown." Returning to battlefields and cemeteries ten years after the war, Whitman writes of how these soldiers have left little trace as the relentless fertility of nature and forgetfulness greens the infected land: "From ten years' rain and snow, in their seasons—grass, clover, pine trees, orchards, forests—from all the noiseless miracles of soil and sun and running streams—how peaceful and how beautiful appear to-day even the Battle-Trenches, and the many hundred thousand Cemetery mounds!" (*Memoranda* 58).

Much later, Whitman would write "A Twilight Song" about sitting "in twilight late alone by the flickering oak-flame" and "musing on long-pass'd war-scenes—of the countless buried unknown soldiers, / Of the vacant names." He would begin to see these "gather'd dead from all America" as an endless ghost-list of emptied names: "You

million unwrit names all, all . . . your mystic roll strangely gather'd here," and he would torture himself by demanding that he must somehow retrieve those lost names from somewhere: "Each name recall'd by me from out the darkness and earth's ashes, / Henceforth to be, deep, deep within my heart recording, for many a future year, / Your mystic roll entire of unknown names. . . ." Whitman here puts himself in the role of a God he never believed in, a loving father who knew the names of all His creatures and miraculously kept a "mystic roll entire" of the "million unwrit names," the forgotten and lost dead that Whitman knew had in fact escaped memory and escaped identity.[23]

Let's return to the apostrophe in that haunting word "summ'd": the million dead, too, summ'd up. Whitman loved apostrophes in the double sense of that word: apostrophe comes from the Greek for "averting" or "turning away" (*apo-strephein*): it referred to the part of an oration in which the speaker turns away from the audience to address someone who is not there, who might just be absent, or might be dead, or, in Whitman's reckoning, might yet be unborn. Whitman built his poetry on the apostrophe, the faith that he could address readers—*us*, in the twenty-first century—who were not there when he wrote and published his poems, the "poets to come" who would encounter the dead (including the dead poet) via the ever-present mediation of the poem itself. "Apostrophe" by the late sixteenth century had come to indicate that raised comma that acknowledges missing letters in a word: it did so because of the grammatical parallel to the rhetorical event—that is, just as an orator might pause in his address to an audience to speak to someone not there, so did the little raised comma create a pause in a word to acknowledge absent letters. Whitman, who cautioned himself always to know the etymologies of words before using them, knew this etymology well, as is evident in his long poem "Apostroph" that opens the "Chants Democratic" cluster of the 1860 *Leaves*. In another 1860 poem that would later become "Poets to Come," he apostrophizes all of us in the future as he pauses to give us a quick glance, a few "indicative words," before wheeling back into the darkness and averting his face: that *averting* is the very nature, the root meaning, of apostrophe, a turning away in order to

confront something that is not there (*LG*1881 18). Whitman's work, of course, is full of apostrophes of both kinds—addresses to people he could never have known or seen but claims to have anticipated nonetheless, and little marks indicating absences everywhere in his words. "The Million Dead, Too, Summ'd Up." There's something missing in that "summ'd." There were now a million young men in the U.S. who could no longer be addressed directly. He can *sum* them up, total the loss, do the arithmetic, but he cannot "*summon*" them up again, except by an apostrophe to the dead.

And the apostrophe in "summ'd" is a slippery one, where one missing letter suddenly morphs into three missing letters: once the absence begins to take away what should be there, the absence seems to demand a right to more. That *three*-letter absence, we suddenly realize, turns out to form the word "one" (summ[one]d)—in arithmetical terms, the single "unit" that stands in stark and singular contrast to the unimaginably vast "million." This elided and silenced "one" is precisely what has been lost in Whitman's relentless summing up of the dead, where individual identity is subsumed by mass anonymity: "we see . . . on monuments and gravestones, singly or in masses, to thousands or tens of thousands, the significant word *Unknown*" (SD 80). So in Whitman's apostrophized title, the missing "one" quickly becomes, in a suggestive homonym, *two* ("too"), and then . . . well, a million. A million. Dead. Two. Summ[one]d Up. It's as if Whitman has actually begun to count one-by-one to a million, only to realize the futility of such an attempt to maintain individuality amidst such vast carnage (we can distantly hear that often-quoted hopeless example of how school boys counting from one to a billion would have to count nonstop for 20,000 years). Whatever summoning up of the dead the chemistry of nature may now perform, the wheat and flowers will never produce in their composting magic the *one* who is lost, the one with a name and identity that has been compounded into the "infinite dead"—an infinity of elided "ones." We can sum up the ones into the hundreds of thousands, into a million, but we can never summon up any *one* of the million. They are all *unknown* now—distinct *ones* who have become erased *sum*-ones.

This obsession with the loss of each *one* of the "million dead"—

this endless counting of loss and absence, combined with the insistence on counting one-by-one—now enters Whitman's Civil War poems and never leaves, troubling his earlier easy faith in the comfort of the generalized immortality of vast numbers in vast space and vast time. Take, for example, "How Solemn as One by One," a poem that originally appeared in Whitman's 1865 *Sequel to Drum-Taps*. Here we see vividly the "one-by-one" nature of manifested, instantiated, individual lives, as Whitman counts the masses of troops returning to Washington, D.C.: those individual and individualized lives are precisely what is forever *not* in the "million dead." To be individual is to wear an identifiable "mask," a "face," behind which is the "soul," but the soul in this poem is oddly *not* individual—it is what unites all the ones and also obliterates them, the "kindred soul" that joins rather than isolates, that blends the ones into the millions, the billions, the all (*LG*1881 251). The soldiers march by, one by one, but they march by the thousands, gaining their identity through their kindred-ness. They are soldiers; they are a regiment. They are ones; they are many. Whitman's work in the Civil War hospitals, where he nursed tens of thousands of soldiers (he estimated as many as 100,000 [*Memoranda* 56]), gave him the experience of knowing each soldier individually only briefly, even as they merged into a vast sequence of death, love, and loss. Always, in the million, is the missing "one."

So, as Whitman developed an art out of that horrific experience of loss, the signs of the massive absence he was dealing with are everywhere. He had published three editions of his life's work, *Leaves of Grass*, before the Civil War, and he would publish three more after the war. Before the war, he saw his book as an effort to hold the country together, to catalog its vast diversity into unifying poems that would celebrate contradiction and teach America to live with it, thrive on it. But once America came apart at the seams during the war, violently broke in two, Whitman's poetry changed. Now, instead of cataloging the vast variety of life in the nation (and the world, and the cosmos)—a poetry of addition and accumulation—he found himself cataloging death, recording absence, creating a poetry of subtraction and loss. His diction begins to change, as do the rhythms and scope of his poems: the expanding catalogs give way to truncated images of loss.

He begins speaking as much or more to the dead than to the unborn. And apostrophes enter his work with a vengeance: his proof sheets at the time show an obsession to remove letters and insert apostrophes, the signs of lost and absent letters. His Blue Book copy of the 1860 *Leaves*, which he kept revising during the war, is full of deletion marks as he removes the "e" from past-tense verbs and meticulously inserts apostrophe after apostrophe, thus substantially reducing the number of letters in his book, creating an impression of frequent and random subtractions, of missing letters that once were there but are now evident only by the apostrophic mark of their absence.

"What chemistry!" Whitman exclaimed in "Poem of Wonder at the Resurrection of the Wheat," where he most clearly expresses his faith: spirituality as a compost heap (*LG*1856 204). The soul as endlessly recycling material. Every atom belonging to you as good belonging to me. These spinning atoms that make up each of us were here at the origin of the cosmos and will be here as long as matter exists. And from some distant point in the universe, a telescope powerful enough to see this dustmote we call Earth would today see this world before any of us were born, our present and our past translated into the future of those distant as-yet-unborn observers. In "The Million Dead," Whitman evokes the same composting faith, the same "Nature's chemistry distill'd," but now the chemistry is working overtime, having to compost death back into life on a more massive scale than ever before. It's a stiff ecological test of Nature's chemical powers, to create food to nurture the nation's future out of the hundreds of thousands of killed soldiers. Whitman's Civil War poetry and the poetry he wrote after the war literally embody that absence, taking on apostrophized space as the poetry continues to turn away from the present, not so much now toward a future Whitman could never know, but rather toward a past that had become "unknown." So, in his long death-sentence, his catalog of the Civil War dead, we note that when he first drafted it—lined out like a poem instead of a prose passage—his manuscript indicates he intended it for a "lecture," as a "piece for address to audiences," as a "recitation," where he could face a living audience and turn away for a moment to apostrophize those absent members, "the dead in this war," and let them know how they

nurtured the living.[24]

For Whitman, then, the war was not so much catastrophic (roots: to turn down, overturn, come to a sudden end) as apostrophic, not so much a problem of sums, of totaling up the carnage, but rather a problem of how to address what was lost and gone and turn it into what did not yet exist. For him, finally, it became a dual apostrophe, to the dead and to the yet-unborn. So, in *Democratic Vistas*, we see him struggling with how to address a future that did not yet exist, a democracy that was in the making but at the moment appeared hopelessly flawed, a future that would have to be made—as all futures are—out of the dead. It was a sad algebra: how to make the subtracted million equal the nation's future. The large numbers that had sustained Whitman at the beginning of his poetic career came back to haunt him when the Civil War so fundamentally attacked the massive accumulative unity on which he had built his poetic faith.

This dis-ease with the large numbers of the war dead persisted throughout the rest of Whitman's life. So, for example, he would come back in 1871 to his pre-war "Poem of Wonder at the Resurrection of the Wheat," now renamed "This Compost," and add a quiet half-line that completely altered the purely positive tonality of his catalog of new life emerging from the death-soil. That half-line (inserted just after "Out of its hill rises the yellow maize-stalk") was "the lilacs bloom in the dooryards",[25] a phrase that retrospectively lifted the entire Civil War into this poem (and confronted the "chemistry" of composting with its greatest challenge). The phrase, of course, is a direct evocation of "When Lilacs Last in the Dooryard Bloom'd," his 1865 poem about Abraham Lincoln's death and the deaths of "all the slain soldiers of the war"—"battle-corpses, myriads of them" (*LG*1881 261). He had already, just after the war ended, removed from "This Compost" his line about his ease with the earth itself being "the compost of billions of premature corpses" (*LG*1856 203): that expression of composure with the large numbers of youthful dead was too callous in an era still reeling from "the million dead" that he could no longer summon up. To return once more to Whitman's own distinction of "speculative" and "mixed" mathematics, the "billions of premature corpses" were abstract in nature, a speculative large number, but "the million dead"

were very much "mixed" mathematics in that the large number had now become all too material and painfully real.

This horror of the Civil War reality of large numbers gradually melded with his early wonderment over the expanding universe, however, and Whitman's old comfort with large numbers fitfully returned, even in the context of death. It is as if Whitman's poetic imagination was ruled at some deep level by the mathematical theorem known as the "law of large numbers." This "law" was theorized in the sixteenth century, proved in the eighteenth, and fully formulated and named "la loi des grands nombres" by S. D. Poisson in 1837.[26] The theorem, part of probability theory, describes the results of performing the same experiment a large number of times and predicts how random variations will even out as the number of repetitions stretches toward infinity. The classic example is the tossing of a "fair" coin: if we toss it once, the odds of it coming up heads is one in two, but if we toss it five times, the possibilities proliferate, and we may get heads five times in a row or not at all. But the more we toss it, the more stable the results will become, and, as we increase the number of tosses into the realm of large numbers, approaching infinity, we will get an increasingly equal total of heads and tails, converging toward a 1:1 relationship the closer we come to infinity. With a small number of tosses, however, we can experience what (if we were betting on the results) we might call a run of good or bad luck. But if we extend the tosses into the realm of large numbers, that run of good or bad luck will disappear into the stability of an increasingly balanced result.

So, when Whitman in "Song of Myself" presents us with his longest catalogue of experiences as he is "afoot with [his] vision" in Section 33 and generates a seemingly random catalog of sights, sounds, actions, the catalogue gradually begins to turn increasingly dark as he records the "wreck of the steam-ship" and "the hounded slave" beaten "violently over the head with whip-stocks": "Agonies are one of my changes of garments," he says, as he goes on to become "the mash'd fireman with breast-bone broken," experiences a "fort's bombardment" with an "explosion" that causes "the whizz of limbs, heads, stone, wood, iron, high in the air." The catalogue slows to tell

"the tale of the murder of the four hundred and twelve young men" at the Goliad massacre in the Mexican-American War and the horrific results of the frigate fight between John Paul Jones's *BonHomme Richard* and the British *Serapis*, with dead and amputated bodies all around; he shares a "last gasp" with "a cholera patient," and then, exhausted, sits "shame-faced, and beg[s]" (*LG*1881 55-64). But in Section 38, he suddenly shouts "Enough! enough! enough!" and announces he has discovered he is "on the verge of a usual mistake" and determines to "resume the overstaid fraction." The mistake, he realizes, is to give credence to a run of bad luck, to allow himself to "forget the mockers and insults" and "the trickling tears and the blows of the bludgeons and hammers!" (*LG*1881 64-65). Such pain and suffering are part of life, and mass death and horror are part of history, and if this kind of negative experience begins to cluster in a sequence, it can feel as if darkness has overwhelmed the fraction and come to seem like the totality of experience, but if we allow experience to play out over a larger and larger period of time, the fraction balances out to 1/1. There are 37 million minutes in a 70-year lifetime, and over that large a number, Whitman suggests, the dark and bright moments begin to even out, though we may experience runs of darkness. And so, he is confident that if it is "lucky to be born," then "it is just as lucky to die," and he knows it (*LG*1881 34). The law of large numbers guarantees it: we have all died "ten thousand times before" (*LG*1881 77) and as our atoms cycle through life after life, era after era, eon after eon, the overall trajectory, the stable fraction, is positive and moves "onward and outward" (*LG*1881 34). Even those "million dead" of the Civil War in the infinity of time eventually even out as part of the onward trajectory toward a democratic future.

So, in an old-age poem like "Unseen Buds," the penultimate poem in the last annex of poems that Whitman added to *Leaves* in 1891, he once again celebrated the giant numbers that guarantee that life will always grow from death (for this poet, large quantities always signaled value)—those "infinite" "unseen buds," "Billions of billions, and trillions of trillions of them waiting, / (On earth and in the sea—the universe—the stars there in the heavens)" (*LG*1891

421). Right to the end, then, Whitman's vision remained expansive, always cast toward the infinite, starting from small delicate buds in the ground, moving out to the "earth" and "sea," and then on out to the "universe," which was, above all, a place and space of vast numbers.

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## NOTES

1 Walt Whitman, *Leaves of Grass* (Boston: James R. Osgood and Company, 1881-1882), 47. Hereafter *LG*1881. Available on the *Walt Whitman Archive* (www.whitmanarchive.org).

2 *New York Times* (Feb. 19, 2015), A25.

3 The term "large numbers" is a recognized term in mathematics, as in the "Law of Large Numbers" (to which I will return at the end of this essay). I frequently use the term in this essay, always indicating the realm of numbers in the millions, billions, and up to infinity. I also use terms like "vast numbers" and "gigantic numbers" to indicate the same realm, though of course those terms have no technical standing in mathematics.

4 The ancient Greek mathematician Archimedes was already, in the third century B.C., naming gigantic numbers and using them to calculate, for example, how many grains of sand it would take to fill the universe.

5 *The Penny Cyclopaedia of the Society for the Diffusion of Useful Knowledge* (London: Charles Knight, 1840), 16:368.

6 Whitman's recommendation—a brief endorsement in the *Brooklyn Daily Eagle* of December 21, 1846—is reproduced in Florence Bernstein Freedman's *Walt Whitman Looks at the Schools* (New York: King's Crown, 1950), 152-153.

7 James B. Thomson, *Practical Arithmetic: Uniting the Inductive with the Synthetic Mode of Instruction. For Schools and Academies* (New York: Mark H. Newman, 1846), 19, 21, 22. Whitman's review of Thomson's book, "School Arithmetic," appeared in the December 21, 1846, issue of the *Brooklyn Daily Eagle* (see Walt Whitman, *The Journalism*, ed. Herbert Bergman, Douglas A. Noverr, and Edward J. Recchia [New York: Peter Lang, 2003), 2:153; Whitman spelled Thomson's last name "Thompson").

8 Benjamin Greenleaf, *Introduction to The National Arithmetic: on the inductive*

*system combining the analytic and synthetic methods in which the principles of the science are fully explained and illustrated; designed for common schools and academies* (Boston: Robert S. Davis, and Gould, Kendall, & Lincoln, 1847), 7-10.

9 Eli Noyes, D.D., *Lectures on the Truth of the Bible* (Boston: Gould and Lincoln, 1853), 51.

10 Those readers confused by why a "billion" is written in this passage with twelve zeros instead of nine should understand that the nomenclature of large numbers was particularly confusing in the nineteenth and early twentieth centuries because of two completely different systems of naming: the "short scale" method of counting (popular in the U.S. and Canada) and the "long scale" (adopted in Europe, and, in a modified form, in Britain until the 1970s). The "short scale" system names new terms after "million" as 1,000 times larger than the previous term, while the "long scale" names new terms after "million" as 1,000,000 times larger than the previous term. While names for large numbers set out to accurately categorize, the competing scales in fact led to a great deal of misunderstanding and resulted in the widespread adoption of scientific notation for large numbers, incorporating powers in the exponent for 10 ("billion" was $10^9$ in "short scale," and $10^{12}$ in "long scale") and obviating the need for words. (The confusing connection between number and word can be tracked back to the etymology of "million," which derives from Old French and Italian words, literally meaning a "big thousand": vagueness is built into the word.)

The passage that Noyes quotes here from the *Annual of Scientific Discovery: or, Year-Book of Facts in Science and Art, for 1852*, ed. David A. Wells (Boston: Gould and Lincoln, 1852), 166-167, is listed there as coming from *Low's Inquiry into the Simple Bodies of Chemistry* (see David Low, F.R.S.E., *An Inquiry into the Nature of the Simple Bodies of Chemistry* [London: Longman, Brown, Green, and Longmans, 1848], 44-45). The passage was frequently reprinted in various popular sources, right into the twentieth century, and Whitman may well have encountered it; see John Timbs, *The Year-Book of Facts in Science and Art* (London: David Bogue, 1853), 105-106, and David A. Wells's later *Things Not Generally Known: A Popular Handbook of Facts Not Readily Accessible in Literature, History, and Science* (New York: D. Appleton, 1859), 215-216.

11 There are many accounts of how the divisions between religion and science began and developed, reaching the level of a battle in the mid-nineteenth century; for a recent examination, see the opening chapter of Jerry A. Coyne's *Faith Versus Fact: Why Science and Religion Are Incompatible* (New York: Viking, 2015).

12 Mark McGurl, "The Posthuman Comedy," *Critical Inquiry* 38 (Spring 2012), 533-553. McGurl suggests that the term "deep time" originated with John McPhee's *Basin and Range* (New York: Farrar, Straus and Giroux, 1981); most dictionaries trace the use of "deep space" to the early 1950s.

13 McGurl's citation here is to Calvino's *Cosmicomics*, trans. William Weaver

(New York: Harcourt Brace, 1981).

14 Whitman, *Leaves of Grass* (Brooklyn: Fowler and Wells, 1856), 203. Hereafter *LG*1856. Available on the *Walt Whitman Archive*.

15 Whitman, *Leaves of Grass* (Boston: Thayer and Eldridge, 1860-1861.), 413. Available on the *Walt Whitman Archive*.

16 "Mathematics," in Walt Whitman, *Notebooks and Unpublished Prose Manuscripts*, ed. Edward F. Grier, 6 vols. (New York: New York University Press, 1984), 5:1619. The original manuscript is in the Berg Collection, New York Public Library.

17 James Dawes, *The Language of War: Literature and Culture in the U.S. from the Civil War through World War II* (Cambridge: Harvard University Press, 2002), 29-30.

18 Whitman, *Specimen Days & Collect* (Philadelphia: Rees Welsh and Company, 1882), 79. Hereafter SD.

19 MS, University of Texas Humanities Research Center University of Texas-Austin.

20 This clipping is in the University of Texas Humanities Research Center, University of Texas-Austin.

21 Whitman, *Memoranda During the War* (Camden, NJ: 1875-1876), 3. Available on the *Walt Whitman Archive*.

22 Franny Nudelman, *John Brown's Body: Slavery, Violence, and the Culture of War* (Chapel Hill: University of North Carolina Press, 2004), 74.

23 Whitman, *Leaves of Grass* (Philadelphia: David McKay, 1891-1892), 416. Hereafter *LG*1891. Available on the *Walt Whitman Archive*.

24 MS ("The dead in this war") in the Huntington Library; available on the *Walt Whitman Archive*.

25 Whitman, *Leaves of Grass* (Washington, D.C., 1871), 342. Available on the *Walt Whitman Archive*.

26 S.D. Poisson, *Probabilité des jugements en matière criminelle et en matière civile, précédées des règles générales du calcul des probabilitiés* (Paris, FR: Bachelier, 1837), 7.