ABSTRACT

Title of Document: DIGITAL (IN)HUMANITIES: RE-READING DIGITAL ARCHIVES AS A FORM OF CULTURAL EXPRESSION

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A 2007 PMLA article discussing the *Walt Whitman Archive* juxtaposed narrative and database as competing forms of cultural expression. This article incited a flurry of responses which continued to use the database and narrative comparison. Dinin, in his article "Digital (In)Humanities," reassesses the terms of the digital archive debate, arguing that the terms "narrative" and "database" are both constricting and misleading. The juxtaposition shouldn't be database versus narrative to see which one becomes the dominant form of cultural expression because narrative, he argues, is a form of database. The more proper juxtaposition, as presented by the paper, is one that places "digital archive" alongside "narrative" because both are products of database and both are forms of cultural expression. Dinin, in his article, then goes on to explore the potential of digital archives as a form of cultural expression.

DIGITAL (IN)HUMANITIES: RE-READING DIGITAL ARCHIVES AS A FORM OF CULTURAL EXPRESSION.

By

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Section 1: Extracting the Human from Digital Humanities

Ancient Greek mythology tells the story of the Cumaean Sybil. According to the legend, the Sybil at Cumae was a woman who once asked that Apollo grant her immortality; however, she neglected to ask for immortal youth. Apollo, being of the notoriously playful Greek god type, granted the woman's wish for immortality without giving her immortal youth. As the years passed, the Sybil's body shrank until she was no larger than the small jar in which she lived, and she became a recluse hiding in a mountainside cave.

Apart from shrinking her, immortality had another effect – having lived in the world for many centuries, the Sybil at Cumae learned to recognize the patterns of life, and as a result, she gained a reputation as a sort of prophet. People from all parts of Greece would travel to the Sybil's cave with questions about their futures and seeking answers to important decisions. They would leave their questions outside the Sybil's cave and retreat to the woods – she did not like to be seen – where they would await her response.

When the Sybil had made her prediction – a prediction based on past experiences – she would scrawl her answer on palm leaves, writing one word per leaf and aligning them in front of her cave in the appropriate order. Only when the leaves were in place and the Sybil had retreated to her cave was it appropriate for the questioner to approach. But before he could reach the leaves, a gust of wind would inevitably arise, blowing the leaves from their intended order. The questioner would be able to collect all the leaves, but he was forced to guess at the Sybil's original proclamation. So desperate for an answer to a question he recognized as vitally important to his future, the asker would

presume a word order that made the most sense to him, follow that advice, and often it would lead to despair, downfall, and ruin.

Destitute and disenchanted, the questioner would return to the Sybil's cave and call upon her to explain why she had given him such poor advice. Certain she had not been wrong in her prediction, the Sybil would reproduce the palm leaves and ask him to order them in the message he thought she had supplied. After seeing the message, the Sybil would discover a few errant word orderings, rearrange the leaves into the original prophecy, and had the advice seeker abided by those words he would have obtained success, wealth, riches, and whatever other happiness he had originally desired.

I begin my discussion of digital literary archives with this ancient tale because, at the present moment, many digital humanities pioneers are in the position of questioners. So determined are they to immediately divine the answer of how digital media might re-imagine their discipline, many have taken all the pieces and hastily arranged them into an answer. While following such answers will not likely lead to any ultimate ruin, as the desperate obeying of the Cumaean Sybil's errantly ordered words often did, it can, and already has framed the debate in limiting terms.

One such controversial answer currently limiting the discussion of digital humanities and digital archives appears in *PMLA*. Extolling the virtues of the *Whitman Archive*, one of its co-editors, Ed Folsom, provocatively wonders "if narrative itself is under threat" (1576). Folsom's musing stems from a realization about the expansiveness of database. As a result of new technologies (like the ability to present all of Walt Whitman's manuscripts, via database, in a central, easily accessed location) the "details of the database quickly [exceed] any narrative we might try to frame the data with"

(1576). For Folsom, database's expansive possibilities threaten to make narrative at the very least unwieldy, and at its most destructive, obsolete. To paraphrase his concern, technological advances stand to remove what Jerome McGann, in a later response to Folsom, describes as being "as ancient a form of cultural expression as we know" (1589). Folsom's answer is, in a literary tradition sense, apocalyptic – database, electronic archives, digital media, and their similar technologies are going to supplant mankind's most ancient cultural expression.

This "doomsday for narrative" approach does not extend solely from Folsom. The editor of the *Whitman Archive* bases his concerns on the argument of Lev Manovich, who, in *The Language of New Media*, proclaims, "Database and narrative are natural enemies. Competing for the same territory of human culture, each claims an exclusive right to make meaning out of the world" (225). But Manovich's proclamation is founded on an errant principle. Narrative is not the only tool of cultural expression. What of the lyric? What of music? What of paintings and sculptures and any number of other artistic and professional disciplines? By framing the digital debate as a contest between database and narrative, Manovich and Folsom neglect that narrative already "competes" (to appropriate their terminology) with other forms of cultural expression. If database is, indeed, a new form of cultural expression, why would it dislodge narrative and no other? Just as narrative coexists with other forms of cultural expression, database should, if it is indeed a form of cultural expression, also coexist.

The metaphor of "natural enemies" Folsom adopts in his article to describe the relationship between database and narrative is Folsom rearranging his palm leaves until he comes to an answer that sounds plausible. In a lively debate, five of Folsom's peers

bristle at his suggestion and refute him through the course of five brief article responses. However, these responses are equally as limiting, framing themselves in the same database and narrative terminologies. As a result, instead of defending his acceptance of the database/narrative enemies metaphor, Folsom, in a final response to the discussion incited by his original article, accepts an entirely different metaphor equally as limiting. Folsom writes:

> To describe the relation between narrative and database, N. Katherine Hayles offers an astute alternative to Lev Manovich's "natural enemies" metaphor: she suggests "natural symbionts," a metaphor I plan to appropriate and use from now on.
>
> (1608)

Folsom's quick change of metaphors speaks to the difficulty of the answer to the broad question: "How will new media affect humanities studies?" It speaks to the intense desire to piece together the palm leaves in any way that might make sense even if it does not make truth.

The more responsible answer to the question of how new media will affect humanities studies is to admit technology's variable influence. While in some sectors, the digital age might ignite a complete overhaul of analytical practices and processes, in other sectors new media's influence might scarcely leave a trace. In addition, while some people, like Folsom, might actively and passionately engage with technology, others might have little use for it. Digital technologies are passive devices – computers do not actively analyze and theorize and codify; humans do. Digital technology is only one tool of many in the analytical arsenal.

Acknowledging the digital age's products (i.e computers, the Internet, digital photography, instant messaging, etc.) as tools for cultural expression underscores a better

description of the relationship between database and narrative (and, to not limit the discussion, the relationship with lyric, song, sculpture, et al.). The problem arises from presuming the devices of database and narrative are equivalent cultural structures. They are not.

The *PMLA* conversation at the center of the database/narrative debate demonstrates the errant presumption. When Jerome McGann, in his response to Folsom, offers that narrative is "as ancient a form of cultural expression as we know" (1589) he discounts the etymological appearance of the term dating it to the mid 16th century.[1] Unless McGann is suggesting that mankind had no forms of cultural expression before the Renaissance, he must be referencing not the word *narrative* but instead, narrative's concept. Since the concept of narrative can be recognized in early civilization, Folsom and McGann logically respect narrative as an older genre than database. This perception is supported by database's etymological roots, which date the term to the mid 20th century.[2] However, if dating narrative to its concept and not its verbal etymology, shouldn't database be given the same historical understanding?

Part of what confuses the discussion of the relationship between database and narrative (and the larger relationship of the written/printed word versus its digital counterpart) is a misunderstanding not of the meaning of the two words, but of their historicity. Intuitively defining narrative as an older form of cultural expression than database neglects the concept of database. A database is a collection of information – data – organized to make obtaining meaning from that information as easy as possible.

[1] See *Oxford English Dictionary* entry for "narrative."
[2] See *Oxford English Dictionary* entry for "database."

Using this concept of database in parallel with the story of the Cumaean Sybil demonstrates both how familiar and how "ancient" database is.

The story of the Sybil has a rhetorical moral (and is thus a favorite tool of modern rhetoricians).[3] Its lesson is to emphasize the importance of structure. The words – data – must be organized – "databased" – in order to extract meaning. The way in which the data is presented – the database's configuration (i.e. sentence structures) – allows for interpretation by software – in this case, the inner workings of the human mind.[4] Sentences, the story of the Sybil at Cumae argues, are a form of database. This same concept can be narrowed to words, which are collections of data – letters – organized to make obtaining meaning from the data – the meaning of the word – as easy as possible. The concept can also be expanded to paragraphs, where sentences become the data. Or to chapters, where paragraphs become the data. Or to books, where chapters become the data. For example, what is the bible if not a database in book form? While a sign with the words "Bible, Page 753" has no easily discernable meaning, the phrase "John 3:16" refers specifically to how a user should retrieve information from the "Bible database." The naming and numbering of the sections is a tool for interpreting this thousands-of-years-old database. Narrative, and other forms of cultural expression and analysis, function the same way – they function as tools for interpreting database.

Recognizing narrative as a tool for interpreting database is difficult if it is presented as linear narrative. But escaping the constraints of linear narrative highlights

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[3] For a more in depth discussion of rhetoric as a result of structural formation, as well as the use of the Cumaean Sybil myth as it relates to rhetoric, see George Gopen's groundbreaking *Expectations: Teaching Writing from the Reader's Perspective*.

[4] Martha Nell-Smith, in a lecture on the importance of the human component in computing, describes how the human "software" remains the most important and complex software in any computational system, explaining: "The fanciest computational software can do nothing interesting at all, unless directed and engaged by the most important software of all – that proffered by the human touch, by, in other words, *you/us/me*" [sic] (3).

its database roots. To escape those constraints, Pamela Jennings shows linear narrative as the product of a writing-based culture. "The written culture's notion of narrative derives from the theory of dramatic progression expounded by Aristotle in his *Poetics*," Jennings explains.

> The *Poetics* presents a strict guideline for the drama to follow from beginning to end: the narrative increases in intensity to the climax and then gradually reaches an end parallel in tone to its beginning.
>
> (346)

But this notion of narrative is not more natural than any other. It is, as Jennings calls it, "arbitrary." Compared to other options of cultural expression, it is (was?) more convenient for the society in which it was created because it "encourages linearity and truncation of thought" (347).

The linear form of cultural expression is rooted in the traditions of a writing-based culture. But the narratives of oral cultures differ. "Unlike literature based upon the *Poetics*," says Jennings, "African oral literature may contain numerous crises or peaks tangential to the nuances of the story, reflecting the environment it is told in and the responsiveness of the audience" (347). When narrative is no longer rolled into the confines of linearity, its database roots are far less resistible. Instead of lacking an unalterable sequential structure, the variable permutations and combinations database offers open narrative to a world of more life-like cultural expressions because life is not linear. Life is cyclical. "One rhythmic cycle is completed only to begin again," Jennings reminds, "nothing is resolved" (347).

Jennings is not the only discussed reminder of the cyclical nature of life. The story of the Sybil at Cumae already revealed life's cyclical and database-like structure. Her prophetic powers were not a skill but a result of recognizing life's cycles. The

narratives the Sybil withdrew as answers scrawled on palm leaves are examples of narratives being used as tools to interpret her database of life experiences. And, as the story explains, those narratives themselves are also a form of database since they were rearranged to produce different (and often destructive) meanings.

Other forms of cultural expression are similar tools. For example, when a painter paints, the colors and objects on his canvas are a database of images. When a poet writes a poem, her verbal cues create a database of information which readers interpret. The tools of cultural expression – the painting, the poem, the linear narrative, etc. – are databases. When approached through this lens, database becomes not narrative's rival; nor is database narrative's facilitator. Narrative is a form of database, as are other types of cultural expression. Among these other types of cultural expression is the product of digital media discussed by Folsom: the digital archive. His argument should not have juxtaposed narrative and database; it should have paired narrative and digital archive since digital archive, like narrative and lyric and painting and architecture and dance, is a form of cultural expression. And like those other forms of cultural expression, digital archive will not supplant narrative, but exist alongside it. The question to be explored, as a result, is not how will digital archive supplant narrative; the question is: how does digital archive become an effective form of cultural transmission?

Section 2: From the Physical Archive to the Digital Archive

Jorge Louis Borges, in his short story "The Library of Babel," describes a universal library "composed of an indefinite and perhaps infinite number of hexagonal galleries." Each connected gallery contains a matching number of 410 page books, and, in theory, the library's shelves hold every possible combination and permutation of 410 page book, from every book ever written, to every book not yet written, and even to books composed of pure gibberish.

Borges' narrator describes the library as an infinite mystery. Men live their entire lives trying to understand and extract its secrets, but the library is vast, and the amount of knowledge it holds too much for any one man – or indeed, any number of men – to comprehensively navigate. As a result, in the mere beginning stages of their futile efforts to decode the library's answers, all its inhabitants eventually die.

However, in their thousands of years prodding and poking for the knowledge buried among the gibberish – or worse, discovering tantalizing mis-knowledge – the library's inhabitants have discovered two organizational principles on which they believe the library is built: 1) "all books, no matter how diverse they might be, are made up of the same elements: the space, the period, the comma, the twenty-two letters of the alphabet;" and 2) "in the vast Library, there are no two identical books." Using these two conditions, the inhabitants of the universal library deduce that "the Library is total and that its shelves register all the possible combinations of the twenty-odd orthographical symbols (a number which, though extremely vast, is not infinite)."

A not-so-simple calculation would reveal the extent of the Library of Babel's finitude. Somewhere in those possible combinations and permutations of 410 page books,

with 40 lines per page, and 80 letters per line, is a finite number of books – a finite amount of knowledge. And, among the Library's inhabitants, that finality caused excitement. Borges writes:

> When it was proclaimed that the Library contained all books, the first impression was one of extravagant happiness. All men felt themselves to be the masters of an intact and secret treasure. There was no personal or world problem whose eloquent solution did not exist in some hexagon. The universe was justified, the universe suddenly usurped the unlimited dimensions of hope.

The inhabitants of the library had hope because they saw, in the seeming pattern of their universe, a possible end and a possible answer to all questions.

However, the possibility of an answer does not equate, automatically, to that answer. What explorers of the Library discovered was that, even if the Library of Babel was finite, the compendium of knowledge was so large that the probability of finding what you were looking for still computed as zero. Knowing – or assuming – the scholars had a comprehensive library did not lead to the knowledge they sought, nor its resulting satisfaction. The result was, instead, the opposite. Borges explains that, "As was natural, this inordinate hope was followed by an excessive depression. The certitude that some shelf in some hexagon held precious books and that these precious books were inaccessible, seemed almost intolerable."

The story of the Library of Babel offers a parallel to the present digital moment – a parallel that should be explored before chasing the tantalizing knowledge offered by expansive and seemingly infinite digital archives. The first component of this parallel to explore is that of the relationship between physical libraries and databases. While the comparative in Section 1 describing verbal constructions as databases stopped at the level of the book and the Bible, it can be expanded to libraries. A library is an organized

collection of data – in this case, books – arranged so as to make retrieval of that data as easy as possible: A library is a type of database.

Classifying (the concept of) libraries as a form of (the concept of) database helps sidestep the first temptation of digital archive – the temptation of comprehensiveness. This tantalizing possibility – the possibility of having all the information if one simply knows the right place to look – is the same problematic temptation of scholars in the Library of Babel. Having a comprehensive archive did not provide answers. Instead, it made the search for answers more frustrating.

This frustration from comprehensiveness should serve as a warning for those creating archives. However, because of emerging digital technologies, a powerful new tool makes the dream of a comprehensive archive with all the world's knowledge seem – while perhaps not plausible – at least more possible, and thus, more tempting. That technology is digital archives. While the size of a library to hold all the world's knowledge in book form may have taken a building as big as the planet on which it was gathering information, micro digital technologies have created the illusion – and temptation – of unlimited storage.

In a sense, the seeming limitless storage space of a digital media database offers an unfair comparison to the physical, library form of a database. While a researcher might look at the walls of a library and say, "These walls can only physically hold a limited number of books," the same researcher can look at a portable hard drive and say, "I can fit the contents of every book in this library on this hard drive. And I can fit the contents of every book in that other library into a second hard drive. And all the

knowledge in both of these libraries can fit on my desk – perhaps, someday soon, it can even fit in my pocket."

This ability to store all the data in a library in boxes that might take up less space than a single book shelf produces a natural response. The same person who condenses a library into a hard drive (or series of hard drives) will, in the natural progression of compression theory, wonder if he can't consolidate the entirety of every library into a single area, placing all the thin-spread knowledge of the library world into one, convenient location. But how useful is the consolidation of knowledge? For example, though endless, the Library of Babel was still compact – at least in a sense that walking from one room of books to another took but seconds. The problem in the Library was not accessing more books – data – but instead, the problem was traversing all the data to find the needed information. Any goal of comprehensiveness, as a result, should be paralleled to the problem faced by the inhabitants of the Library of Babel. If the seemingly limitless available amount of storage (or, more precisely, the extreme compactness of digital storage space) allows for the consolidation of knowledge into one easily traversed location, does that consolidation of knowledge merely let users move the Library of Babel around themselves as they remain stationary? If so, are users any more likely to discover answers?

In addition to the practical use problems of a comprehensive archive, Jacques Derrida, in his seminal archival theory discussion *Archive Fever*, makes an unavoidable case for the inability of an archive to achieve comprehensiveness. Derrida explains that:

> The archive, as printing, writing, prosthesis, or hypomnesic technique in general is not only the place for stocking and for conserving an archivable content *of the past* which would exist in any case, such as, without the archive, one still believes it was or will have been. No, the technical structure of the *archiving* archive also

> determines the structure of the *archivable* content even in its very coming into existence and in its relationship to the future. The archivization produces as much as it records the event. [sic]
>
> (16-17)

Derrida expresses what must be as true for a digital archive as a physical archive. The process of archiving itself produces archivable substance on the content being archived. How, as a result, can an archive – whether digital or otherwise – ever be comprehensive?

These warnings of the inherent problems of comprehensiveness go unheeded by the editors of the *Walt Whitman Archive.* The brief blurb introducing the *Archive* presents the archive's intention of comprehensiveness. The editors, Ken Price and Ed Folsom, write:

> The *Archive* sets out to incorporate as much of [Whitman's vast work] as possible, drawing on the resources of libraries and collections from around the United States and around the World.
>
> (http://whitmanarchive.org/about/index.html)

While the phrase "as much as possible" is not the same phrase as "everything," the implication is undeniable. Surely, if given the physical, theoretical, and financial opportunities, Price and Folsom would prefer a comprehensive *Walt Whitman Archive*. Other printed statements confirm this desire. Folsom even writes in the aforementioned *PMLA* article that:

> Our goal when we began this project in 1996 was to make all of Whitman's work freely available online: poems, essays, letters, journals, jottings, and images, along with biographies, interviews, reviews, and criticism of Whitman. We plan to keep growing and altering the site as new materials are discovered and as we find the time and energy to follow other root systems into the unknown.
>
> (1573)

A visit to the *Whitman Archive* reveals the scope of "all of Whitman's work" that Folsom and Price have already brought online. It is a vast amount. The *Archive* features the main American editions of *Leaves of Grass,* foreign editions, images of hundreds of

manuscripts, personal letters, and a number of the poet's pictures. The A*rchive* includes outside criticism, reviews, biographies, and even helpful teaching materials. But the *Whitman Archive* is not comprehensive, and considering all the materials to be included, the editors would not likely claim otherwise. Despite all the manuscripts digitally available, the archive is surely missing hundreds more – perhaps even ones not yet known, or ones destroyed. Despite all the criticism included, the archive is noticeably missing my freshman year English paper on *Leaves of Grass* and the thousands of freshman English papers like mine. And despite all the published editions included on the Whitman Archive, the 1876 "Centennial Edition" is not present. Whitman made no changes between the 1871-72 edition and the Centennial Edition four years later, but it was an edition printed by the poet. Why is it not included? Who decides when the *Walt Whitman Archive* achieves its goals of having all Whitman-related works freely available online?

That very question can be (hypothetically) asked to two humanists with a stake in the answer. The first is Derrida, who, as already noted, was so concerned with the nature of archiving that he composed a series of lectures/essays entitled *Archive Fever*. In those lectures, Derrida explains that, "Archivable meaning is also and in advance codetermined by the structure that archives" (18). For Derrida, the decision of what to include in the archive is not a conscious decision of the archivist on a per-component basis, but instead, the decision is one made in advance as a result of the archive's structure.

In addition, and not mentioned by Derrida, is an argument of practicality. While a basic human desire for comprehensiveness would encourage every archive to be just that – comprehensive – the structure Derrida refers to is not as much a structure of what an

archivist might want to include, but what can reasonably be included considering the archive's (and life's) physical limitations. For example, an archivist specializing in Shakespeare, in an ideal world with no constraints of time and space and money, might want a copy of every version of every Shakespeare work ever printed, but such a goal is not practical. Instead, the astute archivist spends his time (and resources) as best he can in order to obtain the most complete archive available. Whether that archive becomes the largest archive of *Othello* texts, or the largest archive of Shakespeare pre-1600 texts, or the largest archive of all Shakespeare texts is more a question of resources than intent.

Digital archives, in relation to Derrida's pronouncement, are a way of overcoming some – but certainly not all – of an archive's physical limitations. They can minimize physical limitations of space and access, making it possible to archive anything and everything that might seem relevant. They can, through digital replication, even minimize the limitation of having only one copy of a document or component. As a result, the *Walt Whitman Archive,* along with many other academic and non-academic online repositories from Amazon.com to Google, is tempted into believing it can achieve comprehensiveness, but it still cannot. Posing the same question asked of Derrida to the second invested humanist explains why. If asked, "Who decides when the *Walt Whitman Archive* achieves its goals of having all Whitman-related works freely available online?" what would Walt Whitman himself say?

No one can technically ask Walt Whitman, but his poetry already provides a sort of answer. One example appears in Whitman's poem "To A Stranger." In it, the poet writes:

Passing stranger! You do not know how longingly I look upon
you,
You must be he I was seeking, or she I was seeking, (it comes
to me as of a dream,)
I have somewhere surely lived a life of joy with you,
All is recall'd as we flit by each other, fluid, affectionate,
chaste, matured,
You grew up with me, were a boy with me or a girl with me,
I ate with you and slept with you, your body has become not
yours only nor left my body mine only,
You give me the pleasure of your eyes, face, flesh, as we pass,
you take of my beard, breast, hands, in return,
I am not to speak to you, I am to think of you when I sit alone
or wake at night alone,
I am to wait, I do not doubt I am to meet you again,
I am to see to it that I do not lose you.

The theme Whitman creates in this short poem is one often repeated throughout his poetry. The title, "To A Stranger," indicates his audience, and to that passing stranger he explains that, whether they realize it or not, they have had and will continue to have a lasting impact on one another's lives. They are connected, by friends, relatives, events, actions, and all other sorts of interactions that ripple, chaotically, through the progressions of life and time. As a result, even though Walt Whitman might never speak to the passing stranger, that stranger's life is connected to his. And if an archive is to achieve the goal of having all Whitman-related content, Whitman himself might wonder, "Where is information about every man, woman, and child I ever passed along the street?"

As though recording the lives of those who had merely passed Whitman would not prove challenge enough for any archive, Whitman believes he is also influenced by those he's never met, those from past generations, and those from future generations. He expresses this belief in the sixth section of "Song of Myself" where he asks:

> What do you think has become of the young and old men?
> And what do you think has become of the women and children?
>
> They are alive and well somewhere,
> The smallest sprout shows there is really no death,
> And if ever there was it led forward life, and does not wait at
> The end to arrest it,
> And ceas'd the moment life appear'd.
>
> All goes onward and outward, nothing collapses,
> And to die is different from what any one supposed, and
> luckier.
>
> (123-130)

For Whitman, every person – past, present, and future – is connected to, influenced by, or has an influence on every other person. Thus, if asked what a comprehensive archive might include, Whitman would surely expect the inter-connectedness of mankind to necessitate the inclusion of everything, making all the seemingly infinite space and accessibility of the digital archive appear ill-suited to the task of comprehensivity.

Perhaps, in the very comprehensiveness and inclusiveness of his poetry that suggests universal interconnectedness, Walt Whitman is providing the only viable example of a truly comprehensive archive – the universe itself.

While the *Walt Whitman Archive* continues its admirable attempt at comprehensiveness – however contradictory to the beliefs of its central subject matter that attempt may be – not all archives make the same editorial decision. The editors of the *Dickinson Electronic Archives,* for example, take a different approach. That approach, however, was not without its own seduction by the idea of digital comprehensiveness.

In her introduction to *Emily Dickinson's Correspondence,* Martha Nell Smith, editor and founder of the *Dickinson Electronic Archives*, admits the original goals of the

Archives, explaining: "Immensely exciting about the original goal of the *Dickinson Electronic Archives* scholarly edition was to collect – by deep linking and markup – this diaspora of surviving Dickinson documents, gesturing toward the promise of completeness." Smith, unlike Folsom and Price, recognized the futility of such a goal, describing it instead as "the romance of comprehensivity."

The result of the DEA's departure from attempted comprehensiveness is a digital archive that dramatically deviates for the *Whitman Archive* model. Whereas the *Walt Whitman Archive* noticeably and immediately directs its users to the vast stores of collected Whitmania held on its servers, the *Dickinson Electronic Archives* focuses on pieces of Emily Dickinson's source documents, analyzing them in order to build and share the knowledge those documents inform. The imperfect metaphor I will appropriate for this comparison is that of a puzzle, with the central figure of the author being the broken picture. The *Walt Whitman Archive* attempts to provide all the pieces of the puzzle but leaves the adjoining of those pieces entirely to the user. The *Dickinson Electronic Archives* provides fewer pieces, but offers suggestions for ways in which those pieces might be joined.

Instead of arguing which current approach to digital archive is better (the decision is surely rooted more in personal preference and personal intentions than anything else), the more important lesson is recognizing how neither approach creates comprehensiveness. The *Whitman Archive*'s approach can have an expansive collection of pieces to the Whitman puzzle without ever having them all, and the DEA's approach can offer an expansive collection of ways to piece together the Dickinson puzzle without offering them all. Neither is or ever will be comprehensive.

Perhaps as importantly as recognizing the inability to achieve comprehensiveness, Smith and her original attempt to create comprehensiveness with the DEA provides a valuable lesson about why the quest for comprehensiveness is problematic "That promise [of comprehensiveness]," Smith warns:

> Temporarily obscured what are in fact vitally important critical achievements that can be facilitated in the digital realm, achievements that do not depend on the romance of comprehensivity. That mind-blowing capacity for gathering together that which had been scattered can distract one from posing questions about the archival logics of the physical and virtual archives and about the archival practices both informed by and informing those logics.
>
> (*EDC*, introduction)

Smith's statement will provide the foundation for all further discussion of digital archives. The creators of digital archives cannot be consumed by the "mind-blowing capacity for gathering together that which had been scattered." Instead, the creators should pose questions about the distinct natures of virtual archives, and from the resultant answers, they must decipher the most responsible and useful practices of the archival construct as related to the user's needs.

The user's needs are the final organizing component in digital archive concepting and construction. As with any tool of cultural expression, an archive exists for an audience, and an archive is successful when it adequately addressing that audience's needs. However, no set of rules dictate what person or entity is or should be responsible for the creation and maintenance of digital archives. Should libraries manage them for the benefit of patrons? Should scholars manage them for the benefit of researchers? Should universities manage them for students? Should foundations manage them? Should governments manage them? Should publishers?

To this point in their history, digital archives have been managed primarily by literary scholars for academic research. Academic Whitman enthusiasts, for example, manage the *Walt Whitman Archive.* Academic Dickinson enthusiasts manage the *Dickinson Electronic Archives*. The *Rossetti Archive* is managed by, as expected, academic Rossetti enthusiasts. The result of this trend does more to define what literary archives should be than the fact that digital archives can, technically be managed by anyone.

For example, digital archives could be managed by libraries, or publishers, or technology offices. Digital archives might even be managed by people entirely unaffiliated with the university. Such a model is common on the Internet. A Brittney Spears fan website or a Washington Redskins fan website might be completely unaffiliated with the entities they discus. Why couldn't a digital Milton archive be managed not by a university-affiliated Milton scholar, but instead a person who simply enjoys reading John Milton?

Though anyone or any entity can, theoretically, manage a digital archive, the responsibility has been taken by university-affiliated literary scholars. This distinction of ownership is important because, more than any other archive facilitating component, it defines the ways in which digital archives are and should be structured. Literary scholars are not libraries, and as such, are not required to do the work of libraries; as a result, a digital archive should not be a comprehensive repository of research materials that might actively assist, but does not actively create knowledge. Literary scholars are not publishers; they do not need to distribute the writings of others, and they do not need to develop an archive that is profit-driven. Literary scholars are not information technology

specialists; while they might rely on technologies of the digital medium, their purpose is not the development of new technologies. And literary scholars are not casual fans; while they often are enthusiasts of their topics, their purposes extend beyond that of the traditional fan whose goal is to know more about his passion.

The literary scholar's goal is the production of knowledge. Libraries don't produce knowledge, they compile knowledge. Publishers don't produce knowledge, they distribute knowledge. Technology specialists don't produce knowledge, they distribute knowledge in a digital medium. And fans don't produce knowledge, they acquire knowledge.

Using these distinctions of purpose between the literary scholar and those of other entities that might have taken responsibility for digital archives, digital humanities scholars can define the purpose of a digital archive run by literary academics. Components of the functions other managers might perform will exist. An archive cannot produce knowledge without first compiling knowledge. For an archive to be beneficial it must distribute knowledge. Since the nature of the medium is technological, the unique distribution medium will require some technology innovation. And because those doing the work of the digital archive are enthusiasts of the materials being archived, they will want a place where they can acquire new knowledge about their subject. As a result, the digital archive will incorporate and require aspects of a library, of a publisher, of a technology specialist, and of a fan. But the ultimate purpose for the literary scholar is a digital archive that provides new knowledge and becomes a tool of cultural expression. Achieving this goal is not the product of ignoring the other functions a digital archive might have, nor is it a product of ignoring the functions for which other

managers might be more responsible. Instead, the most successful digital archive managed by the literary scholar is an archive that synthesizes the components other entities are normally responsible for to produce a space in which new knowledge can be created and shared.

Inter-Section: Digitizing the Library of Babel

The universe (which others call the Library) has changed a great deal over the last 60 years. According to the older men of the Library, it used to be composed solely of an indefinite and perhaps infinite number of hexagonal galleries, with vast air shafts between, surrounded by very low railings. The galleries connected to one another, either through narrow hallways or stairwells, and the arrangement of each gallery repeated the previous gallery invariably, with twenty shelves, five long shelves per side (except two), with each shelf containing thirty-five books of uniform format. Each book was four hundred and ten pages; each page, of forty lines, each line, of some eighty letters which were black in color.

As the many generations of men passed through the library, they gradually began to discern a sort of order to the seemingly infinite chaos. First, they discovered that the total number of orthographical symbols in each book was twenty-five. Second, they believed that the Library contained all possible variants, combinations, and permutations of the twenty-five orthographical symbols on 410 pages, meaning the Library contained all possible books. While some books – in all probability, most books – would appear as absolute gibberish, somewhere in those countless books and repeating hexagons were books with definitive answers and statements and explanations. Some men even believe on some shelf in some hexagon there exists a book which is the formula and perfect compendium of all the rest. But, to my knowledge, it has yet to be found.

The library is vast – some even argue it is infinite and interminable – meaning the probability of finding any one book, even that catalogue of catalogues, can be computed as zero. Still, that improbability has not stopped the men of the Library from searching.

Someone once proposed a regressive method: To locate book A, consult first book B which indicates A's position; to locate book B, consult first a book C, and so on to infinity. In searching adventures such as these, many men have squandered and wasted their years.

More than half a century ago, one of the wanderers of the Library developed a new method of searching for books – a method many in the Library believed would not only revolutionize the knowledge search process, but would also ensure that we would find the books we had previously sought in vain. He called the process "digitization." Instead of wandering the hexagons and paging through the books one leaf at a time, he created a machine he called a "scanner." This scanner could make a digital image copy of a page and store it on a device he called a "drive" which took up no more room than a person's hand. Each drive could hold millions of pages – equaling thousands of books – and thus, instead of distributing the knowledge of the books through vast and untravelable amounts of hexagons, the man argued every book could be digitized and stored together in one compact and central place. Then, without ever leaving a single hexagon, people could access the digitally stored page images through a device he called a "computer." The computer has changed shapes over the years, mostly getting smaller. The first computers took up entire hexagons, but today's computers are not much larger than the books they are replacing and have a glowing sheet of glass beneath one of their covers capable of displaying varying images.

At first, the elders of the Library did not care for the man's computer invention, and they did their best to outlaw the process of digitization, but as is the case for all men

who resist societal progress, those men eventually died and were replaced by younger generations who saw the potential of centralizing information.

As the years progressed, so too did the popularity of the computer and digital archiving. Thousands of men were sent throughout the Library to scan every book on every shelf in every room. Some of the most dedicated men could scan an entire room in a week (if they worked through most nights), and in the decades since the task began thousands upon thousands of rooms have been digitized. The process is still not complete today, but the best estimates believe we have digitized nearly a third of the Library, though how you can digitize any portion of a possibly infinite repository remains a source of discussion and disagreement for many.

Regardless of the percentage of the Library now digitized, the current electronic archive is vast, and other men – those not appointed to the task of scanning – are searching the books in their digital formats in our continued attempt to probe and uncover the Library's secrets and revelations. Some men, such as myself, rely on computers only part of the time. They still enjoy the occasional freedom of wandering hexagons and manually paging through books, though they increasingly spend more time scanning the Library with computers. Other men, however, neglect the physical library completely, opting instead to spend those hours, those days, those weeks, those years, those lifetimes once reserved for shuffling through the Library's many hexagons to instead stare at computer screens, continuously rotating through page image after page image.

Thousands of hexagons of books have been displaced or destroyed – after digitization, of course – to make room for terminal hexagons (as hexagons with computer terminals are known). These terminal hexagons have their four walls of books replaced

by computer shelves, six computers per wall and totaling twenty-four computers per room, as well as a table centrally located in the hexagon with a main computer attended by a technology professional who both oversees the work of the others in the hexagon as well as solves any computer errors that might arise during the process of searching. There are many computer errors and the technology professional is often a hexagon's busiest person.

Instead of shuffling through their Library universe, those men who live and work in the terminal hexagons allow their universe to shuffle, more conveniently they argue, around them. Some men have never even left the hexagons in which they were born, all but their most basic arm and hand muscles atrophied by lack of use. These men, men who have viewed in a decade as many books as some men view in a lifetime, are highly revered in our society for the vast amounts of knowledge they've encountered. One, the eldest grandson of the computer's inventor, is said to have encountered a book with 12 coherent pages in a row that, once translated from the Anglo-Germanic dialect of its original wording, was determined to contain a detailed description of the humming bird's reproductive cycle. And while no one from the great terminal hexagons has ever encountered a humming bird, assuming one should eventually fly in, perhaps in some distant lifetime, they will surely understand the little creature's reproductive processes far better than I.

Despite these small successes of the newly digital archive, a growing number of the Library's inhabitants have expressed concerns. They complain, since not everyone has access to the computers, any books displaced or destroyed by the many thousands of terminal hexagons are not accessible to those without computers. But the builders of

terminal hexagons counter this problem by constructing more of these hexagons, arguing that soon every inhabitant of the Library will have computer access, and thus, there will no longer be a need for physical book objects.

This insistence on giving all inhabitants of the Library computer access has its complaints as well. Some Library travelers have argued, perhaps correctly, that digitizing the Library does not make the Library more accessible, nor does it make the Library's users any more likely to find the answers for which they are searching. Instead of users moving through the Library, they point out how the digitization process merely forces the Library to move around its users, but the probability of finding any specific book in the same vastness is still as unlikely as ever. Again, the proponents of the digital library have responded. Less than two decades ago they introduced a "search" function. This function allows users of computers to scan all the digitized text for certain words and phrases, making it possible to find in the Library every instance of a specific orthographic symbol cluster.

Some have hailed the invention of the search function as one of the most important developments in human history, perhaps only trailing the computer itself. But the more pragmatic men among the library have noted the search function's limitations. For example, if the Library is indeed as expansive as men believe it to be, even a computer searching one million times faster than a man would still require any number of lifetimes to complete its search, and the man reviewing those search results may never complete his task. But, as I begin to feel my eyes strain more every day I stare at the soft glare of a computer monitor, I find myself wondering how useful a search function is if one can never know exactly what he should search for.

Not too many years ago, certainly no more than a decade has passed since, while on one of my increasingly less-frequent trips away from computers and the digital archive, I was many days walk from the nearest terminal hexagon when I came upon a young man laboring over a cluster of what looked to be broken computer parts scattered about the floor. I assumed he was one of the rumored technology professionals to have gone insane as a result of the constant computer errors he'd been forced to fix, and I would not have disturbed him, preferring, instead, to slip quietly into another nearby hexagon, but for a small piece of the detritus I accidentally stepped on. To my immense relief, when the man turned upon hearing the crunch beneath my foot, he did not look the least bit insane and, to the contrary, insisted I be the first to test his new invention.

As he hovered over the device, appearing to make some final adjustments, he explained that, while digital reproductions of texts were powerful tools for compacting and disseminating the written content of books, their fault was that they did only that and nothing more. "What if," he reasoned, "the content of books is more than just the words on the page?" He presented a catalog of other variables about each book: the margins, the bindings, the page thickness, even the smell. His point, I'm sure, was that while digital copies recreated the physical image of each page of a book, they were not detailed enough to accurately and completely digitally reproduce every component of the physical object, and perhaps the true answers we were seeking inside the library could be found not only in a book's letters and words, but in those other physical characteristics.

This man was not, I should explain, the first to put forth such theories. The elders of the Library still tell stories of a legendary man who read books by holding them to light, arguing that the translucence of a page influenced the meaning of the text. Using

this method he discovered a book he claimed predicted the day of the Library's destruction. The day he predicted is now nearly three centuries past, but the lesson of his story is a repeated reminder that the answers to searches might be visible in places we do not commonly look. Even an old tale traditionally told when putting the children of the Library to sleep speaks of a man who found a book that, while he could not read the language, he was positive was a cook book because each page smelled of a different kind of pastry.

While in my youth I admit to ascribing to theories of the importance of the physical artifact while reading books, analyzing such components was too time-consuming, and the digital archive limited the extent to which a man might scrutinize the physical object. So I, like most others when searching the Library, learned to concentrate on the text of a book and ignore all other aspects. This man I had met, however, refused to overlook the physical components delivering the text, deciding instead to develop a way to digitally replicate them.

He presented to me his new invention; it was a marvelous object. It had all the letters from a book, but also reproduced seemingly every element of the physical book object. The detail on every page was exquisite. Each margin of the digital page equated perfectly to that of its corresponding page in the book. The fading or darkening of fonts was recreated gracefully and without error. The three dimensional presentation of the pages could trick even the keenest of eyes, and the mechanism to turn from one digital page to the next was so realistic I felt as though I was turning a page in an actual book. Even the smell of the digital object he created had the scent of a dusty old Library book, untouched for hundreds, perhaps even thousands of years. I marveled at the device as he

explained it. He told me the amount of digital storage required to create such an exacting copy could have stored thousands of books in what he described as “the old way” – the way in which books are presently digitally preserved. But the extra storage was essential to properly recreate all of a book’s physical properties.

My amazement at his invention must have encouraged the man, and he was eager to begin digitizing the next book so that he might have an entire hexagon digitized before he shared his invention with the rest of the Library’s inhabitants. I excused myself, not wanting to disturb him any longer, and walked toward the hall leading me to another hexagon. As I left the room, I watched the man. He closed the cover on his device and fitted it onto the shelf. Again, I was amazed at its exacting reproduction – its dimensions allowed it to fit perfectly in the space on the shelf where the book it was reproducing once rested. As he wedged into the slot his digital reproduction, the man withdrew the next book on the shelf, and began work on its digitization while I, in a new hexagon, opened one of the Library’s long-untouched books and wondered when would come the day in which all books in the Library would be perfectly and exactly digitized.

Section 3: Digital Archives as Forms of Cultural Expression

Archives might not seem an obvious form of cultural expression, especially when compared to more artistic examples such as narrative, lyric, dance, and painting. Even when compared to something less artistic but still culturally expressive – architecture, for example – archives might seem drab. But, like architecture (and narrative, et al.), archives similarly preserve and express cultural ideals and distinctions. While, on a trip to Washington, DC, people are more likely to visit the Washington Monument than they are to visit the nearby Library of Congress, both structures preserve and present information about cultural ideals and distinctions.

A digital archive acts in much the same fashion, preserving and presenting cultural information about the contents of the digital archive, as well as information about the digital archivers themselves. The example of digital archive that has already taken prominence in this paper is the *Walt Whitman Archive,* and the preserved and presented cultural information is clearly related to the American poet Walt Whitman. But before exploring the cultural expressions of the *Whitman Archive,* understanding how a digital archive is a tool of cultural expression might be discovered more easily through a simpler example. One such accessible example is provided by Matthew Kirschenbaum in a talk entitled "Every Contact Leaves a Trace."

In his talk, Kirschenbaum presents a disk containing the 1980 Sierra Online game *Mystery House*. A game on a floppy disk is, at its most basic level, an example of a digital archive. While not as expansive or complexly coded a web of data and user interfaces as the *Whitman Archive,* at their core construction levels, the two samples of digital archives are the same. Both the *Whitman Archive* and the *Mystery House* game

are programs coded in a "language" readable by another computer program. In addition, both physically exist not as touchable versions of the objects they visually represent on a screen, but in micro-magnetic storage, with simple "switches" representing a binary code of zeroes and ones compiled as a database. The different orderings of those zeroes and ones in their respective databases create the differing on screen products. Those differing orders of zeroes and ones are acting similarly to the differing orders of words in a narrative, stanzas in a poem, or colors in a painting, and all are producing cultural expressions by organizing and interpreting database.

Just as manuscripts reveal a progression toward a final literary product, or sketches reveal a progression toward a finished painting, digital archives have equivalent pieces of creation marginalia – those components that show progress toward a final cultural object. In Kirshenbaum's *Mystery House* disk example, despite being used to play the game *Mystery House*, the code of the disk reveals traces of games that had existed on the disk prior to its current remnants but had been, so far as the user was concerned, overwritten. The digital marginalia reveals that the disk once stored code for the games *Dung Beetles* and *Blitzkrieg*. With this information revealed, Kirschenbaum creates a narrative for the disk, explaining:

> So, let us conjecture: at some point the user pulled out a well-worn floppy disk that contained old games no longer much played and overwrote it with a copy of the now-public domain *Mystery House*. The user would have probably owned many games, probably many of them pirated, and since they came cheap he or she might have been in the habit of writing over the older and less played ones after a time.
>
> (7)

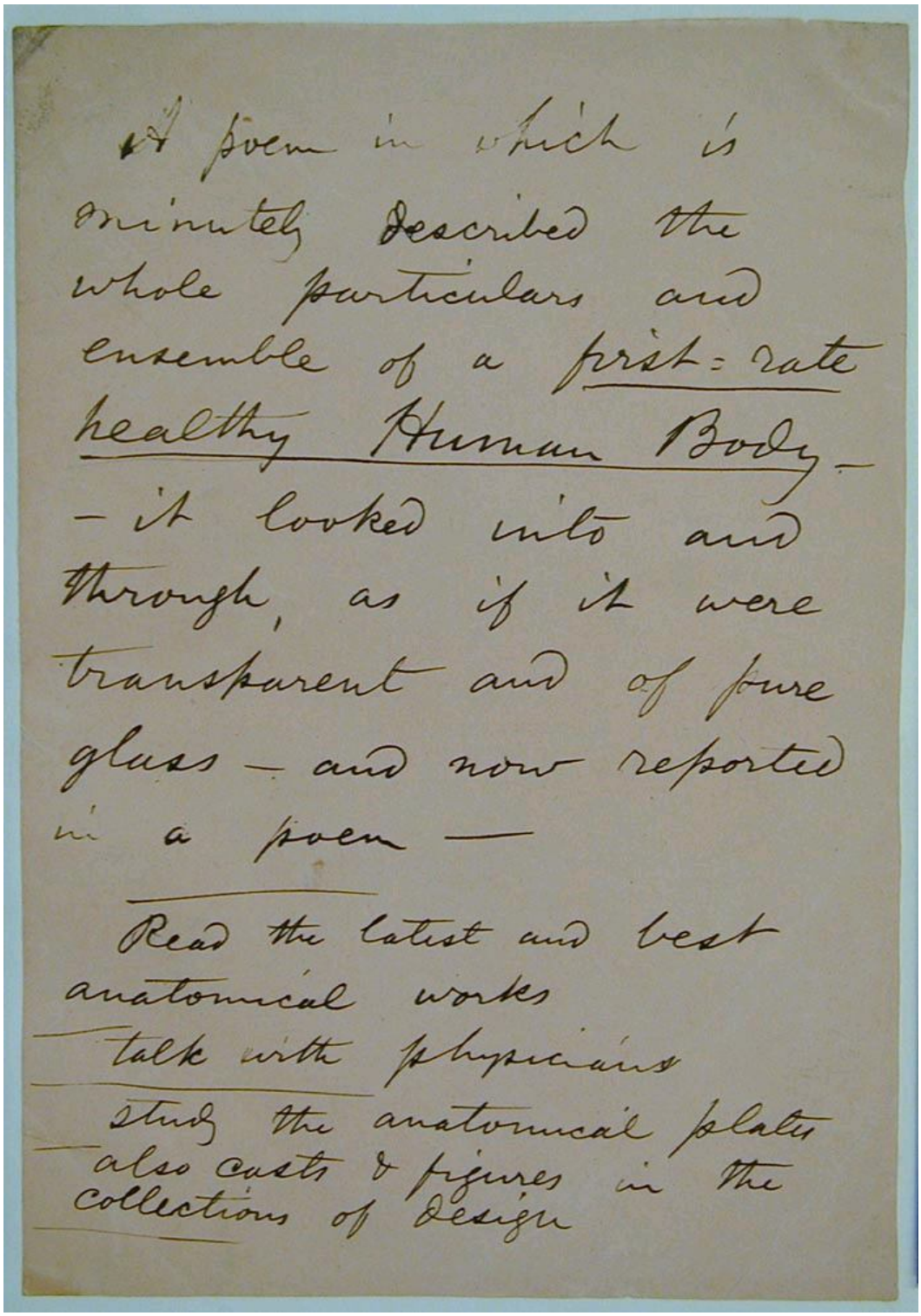
Kirshenbaum's narrative demonstrates how the disk presents multiple cultural expressions. In one respect, the digital archive of the computer code on the disk, when

read by a standard computer, reveals one expression of the culture in which the game existed. It expresses the technological capabilities of programming, common themes and practices for computer games of the day, and even the technological level of progression, as surely the 1980s *Mystery House* game could not be easily mistaken for a video game programmed 20 years later. In the other form of cultural expression taking place, the digital archive of the code, when read by a second "computer" (the human mind), reveals a secondary expression of the culture in which it was created – the common operating practices of that digital culture. Kirshenbaum explains this culture, stating, "A floppy disk image can reveal the hand of a prior reader, owner, or user. We don't know who this person was, but we can learn something about digital culture at this moment, as well as something about electronic textual transmission in general"(7).

Both lessons of cultural expression extrapolated from the *Mystery House* disk provide an example of digital archive acting as a form of cultural expression. They are simplified examples, but they are not unique examples. Another digital archive, the *Walt Whitman Archive*, similarly serves as a mode of cultural expression for both Walt Whitman and his culture, as well as an expression of contemporary digital culture. As a result, the *Whitman Archive* and the documents it presents can be "read" in the same way Kirshenbaum "read" the *Mystery House* disk.

When clicking through the hundreds of manuscripts and collected papers of Walt Whitman stored in the *Walt Whitman Archive*, it would be easy to overlook a rather unexciting document. It is not, at least by Whitman manuscript visual standards, particularly interesting. The words are relatively legible (unlike many of Whitman's

notes to himself), appear in a traditional prose ordering, are not encumbered by unrelated notes on the same page, and the document seems to suffer from an overall lack of noteworthy and often unintelligible Whitmanian markings. The manuscript is, in fact, so ordinary and legible, rather than transcribe it here to aid readability (as is often required for most Whitman manuscripts to ensure understanding for those not akin to his curious hand), reprinting the page itself here for all to read will function equally as well.



A poem in which is
minutely described the
whole particulars and
ensemble of a prist=rate
healthy Human Body —
— it looked into and
through, as if it were
transparent and of pure
glass — and now reported
in a poem —

Read the latest and best
anatomical works
talk with physicians
study the anatomical plates
also casts & figures in the
collections of Design

As the self-proclaimed "poet of the body" ("Song of Myself," 21.1), Whitman's concern for a poem considering the body is more than simply apt. Such a poem is a sort of requisite to the poet – a necessity the above manuscript confirms. Whitman is

describing a poem, or an idea for a poem, intimately showcasing the anatomical attributes of a human body. He eventually creates that poem in the form of what would come to be called "I Sing the Body Electric."

"I Sing the Body Electric" is one of the original 11 poems to appear in the first, 1855 edition of *Leaves of Grass*. Though not in its final form, and untitled, the poem's existence 36 years before the last edition of *Leaves* suggests Whitman's desire for a poem of the body was early in his poetic career. His desire was so great that, in the second, 1856 edition of *Leaves of Grass*, he titles the poem "Poem of the Body" and adds to it its infamous ninth section: a cascading list of body parts. Howard Waskow, in his book *Whitman: Explorations in Form*, describes this list as "the most notorious of Whitman's catalogues" (86). It is, indeed, notorious, as most any discussion of Whitman's catalogues will include the ninth section of "Body Electric"

Like most of Whitman's poems, "I Sing the Body Electric" matured over the years, not settling on a final form until well after its first printing. What began as its own poem was eventually incorporated into a section of poetry called "Children of Adam," where "Body Electric" joined other physically descriptive poems in becoming one of Whitman's most controversial segments. The abrasive construction and deconstruction of the human body even caught the attention, in 1881, of Boston district attorney Oliver Stevens. In a letter to the publisher of Whitman's 1881 edition of *Leaves*, J.R. Osgood & Co., the district attorney wrote:

> *Gentlemen*, – Our attention has been officially directed to a certain book, entitled *Leaves of Grass*, Walt Whitman, published by you. We are of the opinion that this book is such a book as brings it within the provisions of the public statutes respecting obscene literature, and suggest the propriety of withdrawing the same from circulation, and suppressing the edition thereof; otherwise the complaints which are proposed to be made will have to be entertained.

After an exchange between Whitman, his publisher, and Stevens, the district attorney furnished a list of proposed excises, of which the largest came from "Children of Adam" including from his catalogue in "I Sing the Body Electric" an entire 16 lines.[5]

Rather than make any of the requested alterations, Whitman pulled his book from the Boston printing house, explaining "The list, whole and several, is rejected by me, and will not be thought of under any circumstances" (Bucke, 148). The poet obtained the original plates from Osgood & Co. and delivered them to Philadelphia where printing resumed without any changes to the poetry.

While Whitman's reluctance to alter his body-based poetry at the request of a legal authority might have the appearance of a rejection of censorship, other ideological confrontations surrounding "Children of Adam" suggest Whitman was responding to more than just figures of governmental authority – he also bucked literary authority. Specifically, "Children of Adam" met the concern of Ralph Waldo Emerson, the very poet who once greeted Whitman "at the beginning of a great career."

During a visit to Boston, Whitman spent an afternoon with Emerson strolling through Boston Common while the elder poet explained his concerns. Whitman describes the encounter in a prose passage from *Specimen Days*:

> I walk'd for two hours, of a bright sharp February mid-day twenty-one years ago, with Emerson, then in his prime, keen, physically and morally magnetic, armed at every point, and when he chose, wielding the emotional just as well as the intellectual. During those two hours he was the talker and I the listener. It was an argument-statement, reconnoitering, review, attack, and pressing home, (like any army corps in order, artillery, cavalry, infantry,) of all that could be said against that part (and a main part) in the construction of my poems, "Children of Adam." More precious than gold to me that dissertation – it afforded me, ever after, this strange and paradoxical lesson; each point of E.'s statement was unanswerable, no judge's charge ever more complete or convincing, I could never

[5] Lines 13 to 28 (inclusive)

> hear the points better put – and then I felt down in my soul the clear and unmistakable conviction to disobey all, and pursue my own way. "What have you to say then to such things?" said E., pausing in conclusion. "Only that while I can't answer them at all I feel more settled than ever to adhere to my own theory, and exemplify it," was my candid response. Whereupon we went and had a good dinner at the American House. And thenceforward I never waver'd or was touch'd with qualms, (as I confess I had been two or three times before).
>
> (Whitman, Prose, 191)

Whitman's refusal to censor his physically descriptive poetry even at the behest of a literary idol of the day suggests that Whitman's intentions for "Children of Adam," if not decodable by future readers, were certainly deeply considered by the poet. Readers may never know the poet's exact intentions, but considering the history of the section itself and Whitman's resolute refusal to alter it according to anyone's ideas but his own, readers might well feel that sense of authorial intention bubbling seductively beneath the poem's surface.

Walt Whitman's unwillingness to change "Children of Adam" makes the poems in that controversial block an intriguing case study. Was everything in the final iteration of the poem as close to the poet's original designs as any composition ever could be? Records of Whitman's compositional and production practices seem to reinforce the possibility. The poet's longtime friend and eventual literary executor, Dr. Richard Bucke,[6] in a book chronicling the life of Whitman, describes the prepping of the 1881 edition of *Leaves of Grass* like this:

> A peculiarity of Walt Whitman has been his careful attention to the minutest details of typography (he is a printer himself, be it remembered) in all the issues of *Leaves of Grass* and especially in the final one. Instead of sending on his copy and receiving back proofs by mail, he goes personally to Boston, takes a little room in the printing office, settles on the size of page, kind of type, how the pieces shall run on, etc. After which, for six or seven weeks, every line is vigilantly scanned; every day for two or three hours he is at Rand & Avery's (the

[6] Burke is one of three literary executors, the others being Thomas Biggs Harned and Horace L. Traubel.

> printing office and foundry) reading proofs, sometimes to the third and fourth revision.
>
> (Bucke, 147)

Whitman was, as Bucke notes and scholars agree, more involved in the printing of his poetry than most writers of his day, or, for that matter, any day. This involvement in every aspect of the eventual *Leaves of Grass* printed product places all features of the poetic text, intended or not, on Whitman's broad shoulders. Certainly no writer could predict every possible innuendo, allusion, reference, and interpretation of his or her work. However, in the spirit of Whitman, he might ask readers to do just that. Bucke even explains, "On the completion of the plates, [Whitman] remarked that if there was anything amiss in the material body of the work, it should be charged to him equally with its spiritual sins, for he had had his own way about it all" (147).

If readers are to take Whitman's advice and charge him for his poetry's "spiritual sins," why not charge him specifically on "Children of Adam," where his poetry seems to directly confront society's spiritual sins? And of those poems comprising "Children of Adam," why not charge him for the very poetic body he so infamously and controversially creates?

For the task of better understanding the controversial human body Whitman's poetry flaunts, his readers have a unique tool: the body's source manuscripts (see Appendix B). Included in the *Walt Whitman Archive* is a series of manuscripts from Duke University's Trent Collection that feature, primarily, generic male and female body parts, many of them traceable to the ninth section of "I Sing the Body Electric" and Whitman's infamous catalogue. These list manuscripts offer a link between the poet's conceptualization stages and his eventual poetic product. While not presented here with

the goal of capturing Walt Whitman's authorial intentions, they are presented to offer insight into an oft-cited, controversial, and curious poetic decision. Why did Whitman introduce into the middle of his poetry a 36 line catalogue of body-related words? And why did he do so despite criticism and controversy surrounding those words?

At first glance, readers might assume Walt Whitman created his thorough catalogue of body parts as an afterthought to the original poem that would one day be titled "I Sing the Body Electric." The surface clues indicate such a reading. First, the body part catalogue did not appear in print until 1856, a year after the original iteration of the poem was published. In addition, if its late arrival to the poem weren't indication enough of the catalogue's secondary nature, the manuscript notes themselves seem like afterthoughts. The notes appear to be on the verso of a crossed out series of verses that would comprise "Poem of Wonder at The Resurrection of The Wheat" (later titled "This Compost") which also first appeared in 1856.

Reading the obvious temporal clues to determine the history of "I Sing the Body Electric" provides a narrative for the steps through which Whitman incorporated the body catalogue in the ninth section of *Leaves of Grass*. That narrative would go something like this: In preparation for printing the 1856 version of *Leaves of Grass*, Walt Whitman had already composed "Poem of Wonder at The Resurrection of The Wheat" and finalized it for the press. This ordering was perhaps indicative of the 1856 edition's compositional process. Whitman would have composed and finalized all the new poems he would add, then he would return to the original 12 poems so the new edition would contain revised and finalized versions. In doing so, the poet returned to what would eventually become "Body Electric" and decided it had not done enough to praise the

human body. Though it concludes with the powerful lines: “Who degrades or defiles the living human body is cursed,/Who degrades or defiles the body of the dead is not more cursed,” Whitman wanted his celebration of the physical form to be more explicit. As such, he renames the poem “Poem of the Body” and decides to include a list of all the wonderful pieces of the human form in a new, ninth section. In his haste to discern just what those pieces were, he struck through the already finalized drafts of “Resurrection of The Wheat” (as the strike marks appear to indicate in the manuscripts) flips the pages over, and scrawls out his lists.

The Walt Whitman Archive validates this narrative, at least in terms of the manuscripts’ verbal priorities. In a brief note on the manuscripts showcased in this article, the editors of *The Whitman Archive* describe them like this:

> On four leaves, an early version of portions of the poem ultimately titled "This Compost," first printed under the title "Poem of Wonder at The Resurrection of The Wheat" in the 1856 edition of *Leaves of Grass*. On the reverse sides of these leaves is a list of words regarding the physical body and connected in concept to "I Sing the Body Electric," a poem that first appeared as the fourth poem of the 1855 *Leaves of Grass*. With this list, Whitman was gathering material for the noteworthy final section, a paean to body parts, that he added to the poem in 1856. Glue residue shows that these leaves were formerly pasted to two other leaves, upon which is written a prose manuscript fragment regarding California Vigilance Committees.
>
> (…/manuscripts/finding_aids/integrated.html)

Describing the notes to “Resurrection of The Wheat” first, then using the phrase “on the reverse sides of these leaves” indicates a prioritizing of the manuscripts as, first and foremost, the verse drafts of “Resurrection of The Wheat.” Their secondary purpose was as the scratch paper on which Whitman scribbled out a list of every body part he could conceive of.

However, a closer examination of the minutiae of the manuscripts suggests a different narrative – a narrative in which Whitman revised "I Sing the Body Electric" to include the body catalogue early in the process of creating the 1856 edition, and may have even had the list of body parts prepared before the printing of the 1855 edition. The most obvious clues to the "secondary" nature of the catalogues are the striking out of the poetry on the other side, giving the impression of Whitman using the documents as scrap paper. However, those vertical lines that seem to be so obviously retracting the verses from "Resurrection of The Wheat" were actually on the pages before the poetry. The vertical lines on the reverse sides of the manuscripts mirror those lines on the fronts. They are dividing lines used with the intention of making columns out of the page – columns for more lists. As a result, the narrative of the manuscripts and Whitman's compositional process is different from the one assumed by the editors of the *Whitman Archive* – it is reversed. The narrative should, more accurately, go something like this: In attempting to best represent the human body, Whitman decided to compose a list of as many body parts as he could come up with and use that list to better inform his poetry. He may have been attempting to "free-write" the list (i.e. envision a human body and, starting from the top of the head, work his way to the feet, recording every part). Since he did not want anything to impede that listing process and he knew he would have to list many hundreds of body parts, he chose to divide his pages into columns before he began writing. To be sure he had enough space and would not have to interrupt his cataloguing for anything, Whitman drew vertical lines down both the fronts and backs of his pages. The lists, though long, never required the backs of his pages, and as such, they remained blank with the exception of the vertical division lines. At a later time, in need of space to

write and considering the cost of paper in the mid 19th century, Whitman opted to use the hardly sullied "backs" of his list manuscripts to jot down lines that would eventually be incorporated into "Poem of Wonder at the Resurrection of the Wheat."

Just as the vertical lines down the backs of Whitman's body parts manuscripts serve first as misdirections and then as eventual clues to the poet's compositional process, another guttural marking misdirects then reinforces the history of Whitman's catalogues. The gutter of the manuscript pictured in Appendix C, MS 13 of Duke University's Trent Collection, includes the following mathematical notation:

$$\begin{array}{r} 1876 \\ \underline{1776-} \\ 80 \end{array}$$

The two numbers are easily recognizable as dates. 1856 was when Walt Whitman was publishing his second edition of *Leaves of Grass*, while 1776 is immediately recognizable as the official year of American independence. The calculation is also simple. Subtracting 1776 from 1856 results in 80, and, assuming these numbers are years, Whitman was determining the number of years between American independence and his own moment of writing/printing/publishing.

Why was the poet doing this math? Before answering that question, I will note how this calculation misdirects. Combining the use of the number "1856" with the logic that the catalogue of body parts was added to "I Sing the Body Electric" in 1856 reiterates the argument that these manuscripts were created in 1856 between publication of the first and second editions of *Leaves of Grass*. However, such a rush to judgment overlooks other evidence which suggests that the body part catalogue was composed before the 1855 edition was completed.

The most helpful clue for understanding the notation's history is to understand why the notation was created. In many cases involving Whitman's manuscripts, or any manuscripts, tracing marginal notations to their causes is near impossible. It would be akin to someone looking at a draft of this article in 100 years and trying to understand what a six-digit number in the margin of page 17 means when it was really just a confirmation code that I had paid my phone bill on time, I needed a place to jot it, and page 17 was open on my desk. Sometimes, however, scholars get lucky and can trace a note to its probable root. The case of the 80-year calculation offers just that kind of luck. In section three of the same poem, "I Sing the Body Electric," the verse speaks of an old man, "a common farmer, the father of five sons,/And in them the fathers of sons, and in them the fathers of sons" (33-34). Later in this section, the poet describes this old man by explaining that, "he was over eighty years old" (38). To have a man in excess of eighty years in the same poem with a manuscript linked to it in which Whitman derives the number 80 in a simple, marginal calculation certainly suggests a relationship. And a closer look at the years in the calculation further verifies this connection. In 1856, the United States was on the verge of civil war because all Americans were not free – many of them were enslaved. In 1776, the same was true. America was on the verge of war because all Americans were not free – they were subjects of a foreign, British ruler. Though a current reader reading about a man "over eighty years old" might simply picture an old man with an abundance of life experience, a reader of the same 80-year-old man in Whitman's day would recognize something different. He would recognize a man who experienced the enslavement of the colonists to Great Britain, and he would see the parallel of that repression to the enslavement of blacks.

Whitman's calculation, as the historical evidence suggests, was a poetic calculation. He had to be sure his old man was the appropriate age to symbolize an understanding of slavery and oppression in "I Sing the Body Electric" – a poem largely about slavery and oppression.

Establishing the connection between the marginal math and the poem still does not explain the chronological irregularity. The "1856" in the equation still indicates that the calculation was performed in 1856, a year after *Leaves of Grass*'s first publication. In addition, the 80-year-old man is still described as "over eighty years old" in the 1855 edition. Why would Whitman have made the calculation using the year 1856?

Math in Whitman's day was not the same as math in the digital age. Yes, one plus one still equaled two, but the way people performed calculations was different. Without the aid of calculators, people relied on simplifying their math, including rounding their numbers so as to produce approximate solutions. In the case of Whitman's marginal equation, subtracting 1776 from 1856 is much easier than subtracting 1776 from 1855 because the sixes in the former of the two equations (and the one Whitman used) canceled out. Since Whitman didn't need a man who was exactly old enough to have been born in 1776 and lived through to his moment of publication, but instead needed a man who was born before 1776, he was able to use the approximate man "over eighty years old" instead of a man exactly 79-years-old.

A helpful understanding of this process of approximation comes from Whitman himself. The poet, while serving as editor of the *Brooklyn Daily Eagle*, once recommended a math textbook he found particularly helpful, writing:

> To teachers who have felt the want of good text books, (as what teacher has not?) we think we can conscientiously recommend the *Practical Arithmetic*, prepared

> by James B. Thomson, and published by Mark H. Newman, 199 Broadway, N.Y. It needs but an examination and trial of its merits, to make itself its best recommendation. Can it not be put in our Brooklyn Schools?
>
> (Freedman, 152-153)

The book Whitman recommends, *Practical Arithmetic*, is a mid-19th century textbook that extols the virtues of teaching a practical form of arithmetic – one which teaches students how to efficiently perform mathematical calculations through devices such as rounding and approximation. This insight into Whitman's preferred style of mathematics eliminates the need for the equation in the gutter of MS 13 to use the year 1855 in order to have been written in 1855. Instead, the equation, combined with the vertical lines down the center of the page, extols a more precise timeline behind the creation of "I Sing the Body Electric" and the manuscripts in this article – a timeline that goes something like this: In order to write a poem describing a "first-rate healthy Human Body," Whitman tries to look "into and through, as if it were transparent and of pure glass – and now report[s it] in a poem" (see Appendix A). To do this, Whitman attempts to familiarize himself with all the pieces of the human body, eventually composing an extensive catalogue of body parts. With those body parts in mind, the poet produces the first edition of *Leaves of Grass* which includes a poem (to eventually be named "I Sing the Body Electric") about slavery, and it incorporates a man old enough to have lived in America when it was still a territory of Great Britain. The first iteration of the poem, however, did not adequately look through a human body as though it were transparent and of pure glass so Whitman revised it, eventually settling on incorporating entire groups of body parts from those very lists he first used to conceptualized the poem. Only then, after the list manuscripts had already been composed, did the poet use the backs of

the documents, despite their being soiled with vertical lines drawn down their centers, to compose verses for "Poem of Wonder at the Resurrection of the Wheat."

In the above example, I used the manuscripts in the *Walt Whitman Archive* to distill information about Whitman's culture of producing poetry just as Kirshenbaum used the digital marginalia of the *Mystery House* disk to distill information about the disk owner's game-playing process. The similarity of Kirshenbaum's reading of the disk and my reading the *Archive* demonstrates the link between printed words as a form of cultural expression, physical archives as a form of cultural expression, and digital archives as a form of cultural expression. The poetry itself, as the example of the printed word, is already an accepted form of cultural expression. But the expressions produced by the poetry were aided by the physical documents in Duke's Trent Collection, which is a physical archive. And those documents that could be found in the physical Trent Collection archive were instead, for the purposes of this document, found in the *Walt Whitman Archive*, a digital archive. As importantly, all three forms of cultural expressions that are here informing one-another are derivatives of database. The digital archive used is a product of digital database in computer storage. The physical archive where the original versions of the digital documents are housed is a form of database in which the manuscripts themselves are the organized data. And, just as the database of the *Mystery House* disk, along with the digital marginalia, is read by the computer to produce the game, the database of Whitman manuscripts were read by a different sort of computer to produce a form of cultural expression. In one case, that database of manuscripts was read and processed by me to produce explanations of Whitman's poetic production process. In a second, and perhaps more important case, that database of manuscripts was

originally read and processed by Walt Whitman himself to ultimately produce the poem "I Sing the Body Electric."

Contrary to the terms of engaging digital archives set out by Folsom in the *PMLA* discussion, in my examples the databases are never usurping the power of cultural expression. Instead, the tools of cultural expression are different methods of organizing databases. The poetry is an organization of verbal data. The Trent Collection is an organization of physical data. And the *Walt Whitman Archive* is an organization of digital data. All three are forms of cultural expression, and none can exactingly replicate the work of the others.

Section 4: The Real (Literary) Victim of the Digital Age

In one respect the discussion incited by Folsom in the *PMLA* article is correct: Products of the digital age are doing the work of an ancient form of cultural expression. However, the two modes of expression potentially at odds with one another are not database and narrative. The two forms of cultural expression competing are physical archive and digital archive. This competition is highlighted by the manuscript work performed in Section 3. Before the advent of digital archives, tracing Whitman's compositional process would have required accessing the physical archive. But with the help of a digital archive I was able to perform the same work without entering the archive's holding library.

I could, like Folsom, proclaim a dramatic assault – in this case, an assault on physical archives. Instead, the use of digital archives might better be understood as an agent of change for how physical archives are used. In its most basic example, the digital *Walt Whitman Archive* could not have existed without the Trent Collection and other similar physical archives, and the same could be said for any digital archive cataloging physical objects. In addition, the digital archive, by eliminating the need to interact with the physical objects, limits physical deterioration.

A more complex example appears by examining the poetry itself in a return to the same database of body parts in "I Sing the Body Electric." As one of Whitman's original 12 poems, "I Sing the Body Electric" underwent a variety of revisions, small and large, that would eventually lead to the final version of the poem. Of these changes, its most notable revision took place in 1856 with the addition of the ninth section that includes a 36-line catalogue of body parts. Following the 1856 *Leaves of Grass*, Whitman, in his

lifetime, published six more editions. In all those editions, despite the other changes to "I Sing the Body Electric," including moving it into "Children of Adam," Whitman would make to the 36-line catalogue only one change. Between the 1871 edition and the 1881 edition Whitman deleted from line 140 the words "finger-balls." What was the significance of this deletion?

Before addressing the significance of the deletion itself, the process of discovering the deletion is important for understanding the physical archive and digital archive relationship. Determining any changes from the 1856 edition of *Leaves* to the 1881 edition requires being able to scan the poem in its different iterations. Since the most commonly printed physical editions of *Leaves of Grass* are the first edition (1855) and "Deathbed Edition" (1891), having physical copies of all the editions is unlikely. Without an electronically accessed digital archive, scanning the editions would require a physical archive with all the editions available, and because many of those editions are rare, accessing such a physical archive is not always convenient, and often not possible. However, the *Walt Whitman Archive* has the major editions of *Leaves of Grass* digitally encoded. As a result, accessing the digital archive seems to eliminate the need for the physical archive.

But the deletion of "finger-balls" presents a unique problem. The deletion appears between the 1871 edition and the 1881 edition, the two major editions offered by the *Whitman Archive*. The *Whitman Archive* does not include the lesser known edition Whitman issued between those two editions – the 1876 "Centennial Edition." The editors of the *Whitman Archive* might claim they did not include the 1876 edition because Whitman made no changes between it and the 1871 iteration, but as described in Section

3, the editorial chronologies of the *Archive* have already proved an unreliable source. Since the change occurs by the removal of only two words in a 36 line list that Whitman otherwise resolutely refused to change over almost four decades of revisions, a responsible researcher would want to verify the change does not occur in the text of the Centennial Edition. Without that text being available on the digital archive, the researcher would have to find a copy of the Centennial Edition in a physical archive, underscoring one important and irreplaceable component of physical archives: Physical archives serve as a sort of source material to the digital archive text. Just as a poetry editor might return to the manuscripts of a poet to verify word choice, so too can a digital archive editor return to the physical archive to verify the digital archive's substance.

In this example's case, a return to the physical archive verified that the change in Whitman's body parts catalogue did not occur until after the Centennial Edition of *Leaves*. This information narrows the time during which Whitman could have made his revision. Instead of spanning a decade, the influence on his revision took place in a smaller window of time – from 1876 to 1881.

In another shortcoming of digital archives, while "finger-balls" is deleted from "I Sing the Body Electric," the phrase itself is not specific to Whitman, and thus not discussed on the *Whitman Archive*, nor is "finger-balls" a label regularly used in contemporary society. As a result, to understand the archaic term, the user has to leave the digital archive – and even the digital archives of current dictionaries where the term does not appear – and explore a physical archive that is Whitman's contemporary. The best clue comes from another notable 19th century author, Mark Twain, who refers to the "balls of your finger" in his novel *Pudd'nhead Wilson*. Twain's character explains:

> This autograph consists of the delicate lines or corrugations with which Nature marks the insides of the hands and the soles of the feet. If you will look at the balls of your fingers – you that have very sharp eyesight – you will observe that these dainty curving lines lie close together, like those that indicate the borders of oceans in maps, and that they form various clearly defined patterns, such as arches, circles, long curves, whorls, etc., and that these patterns differ on the different fingers. [Every man in the room had his hand up to the light now, and his head canted to one side, and was minutely scrutinizing the balls of his fingers; there were whispered ejaculations of "Why, it's so – I never noticed that before!"] The patterns on the right hand are not the same as those on the left.
>
> (185-186)

According to Twain's story, finger-balls correlate with what is today called a person's fingerprints; however, the concept of fingerprints as uniquely identifiable was not common knowledge during the majority of Whitman's life. As a result, when the poet first introduces "finger-balls" in his inventory of body parts, he was not considering them as a sort of signatory trait.

If Whitman's finger-balls disappeared from the poetry between 1876 and 1881, what should readers make of this deletion? As already discussed in Section 3, Whitman would not change any part of "I Sing the Body Electric" for censorship purposes. As also discussed previously, Whitman was acutely aware of every change that took place during the *Leaves* printing process, particularly of the 1881 edition. Thus, the deletion of the curious body-part was not likely a result of a printing error. Instead, any change to the text, particularly the removal of "finger-balls," was a conscious and purposeful choice.

While the definitive reason for the choice is unclear and might always be unclear, a peculiar coincidence was happening around the same time. Yes, when Whitman first published the body part list in 1856, fingerprints were not recognized as individual to their owners. However, in 1880, a little-known Scottish doctor by the name of Henry

Faulds published his new discovery concerning the balls of one's finger. In a book titled *Dactylography; or, The Study of Finger-prints,* Faulds proudly writes:

> In *Nature*, October 28th, 1880, appeared my article which was indexed shortly afterwards as the first contribution on the subject, in the *Index Medicus* of the United States thus: "Faulds, H. – On the skin-furrows of the hand, *Nature*, London, xxii, 605."
>
> (23)

According to this note, the first article suggesting individuality of fingerprints appeared thanks to Dr. Faulds in 1880, a perfectly placed historical moment between the 1876 *Leaves of Grass* with "finger-balls" and the 1881 *Leaves of Grass* without them. Did Whitman know or read this *Nature* article? Again, his readers will probably never know. But the significance of fingerprints (finger-balls) changing dramatically around the same time Whitman removed them from his poetry certainly seems related and open to a narrative or justification for why the poet, having learned about this unique trait of fingerprints, made the only alteration to the catalogue that remained virtually unchanged over its 35 year publishing history. Did Whitman not want something like a fingerprint – uniquely identifiable to a specific person – incorporated into a list of otherwise generic body parts?

While discovering the deletion of finger-balls and the potential historical rationale for the poet's action is relevant to the study of Whitman, the deletion's importance to the study of digital archives is less concerned with the logic of the revision and more concerned with the process of discovery. The *Walt Whitman Archive* did not have a copy of Mark Twain's book revealing the meaning of finger-balls. Nor did the *Whitman Archive* contain the history of fingerprinting. Those discoveries, while certainly capable of being digitally archived, were discovered in physical archive form, further

emphasizing Derrida's pronouncement that "archivable meaning is also and in advance codetermined by the structure that archives" (18). Digital archives, while capable of archiving those things in physical archives, only archive those components of physical archives deemed worthy of or relevant for digitization. The analogy is similar to that of a poem's manuscripts. The printed poem is the finalized text, but the source documents contain more than what was printed. Digital archives exist in much the same way. They are forms of a text that can be traced to a text of source documents – physical archives – that contain more than their digital counterparts.

The small collection of manuscripts discussed in both this section and the previous section inspired a wealth of new knowledge and understanding about Walt Whitman's life and compositional practices, yet my engagement with the documents surely only extracted from them a mere sampling of their potential. But the purpose of the exercise was not to understand the power of the specific manuscripts discussed, but instead I explored the manuscripts as a vessel through which I could better understand the *Walt Whitman Archive* specifically, and digital archives generally. In this regard, the exercise revealed powerful information.

I must begin with praise. The *Archive* itself was more often an asset than a burden. However, the power of the *Archive* was not what I had expected. While I began the experiment expecting the ability to access manuscripts to be digital archives' most beneficial resource, I ended the process recognizing more the benefit of having multiple versions of *Leaves of Grass* digitally available and easily searchable. More often than not, the questions arising from the manuscripts themselves forced me to turn to the poetry. However, instead of requiring every version of *Leaves* cluttering my desk and me

scanning page after page in search of specific words and phrases, the *Archive* made finding passages simple.

Perhaps the benefit of digitizing the many versions of the texts themselves is unique to Whitman, a poet who, unlike his peers, published many versions of the same text. As a result, when analyzing Whitman and his works, readers are forced to consider content in tandem with chronology. This uniqueness of exploration is part of why the editors of the *Whitman Archive* chose to digitize the poet. Ed Folsom explains this decision well, writing:

> Our choice to try editing all of Whitman on the Web derived from our belief that, while Whitman was primarily a maker of books, his work resists the constraints of single book objects. It is impossible even to talk about *Leaves of Grass* as a book, since the entity we call *Leaves of Grass* is actually a group of numerous things – six books, three written before the Civil War and three after, each responding in key ways to a different biographical, cultural and historical moment. Add to this Whitman's incessant revisions, many of which are scrawled directly into copies of his books, along with his array of thousands of poetry manuscripts, never gathered and edited; his letters; his notebooks; his daybooks; his other books; his voluminous journalism – and the database darts off in unexpected ways, and the search engine turns up unexpected connections, as if rhizomes were winding through the vast hidden web of circuits. We who build *The Walt Whitman Archive* are more and more, as Whitman put it, "the winders of the circuit of circuits" (*Leaves* [1965] 79), and Whitman's work – itself resisting categories – sits comfortably in a database.
>
> (*PMLA*, 1573)

But every poet is unique. The digitization of other poets already has and will continue to reveal other unique and unforeseen digital archiving benefits. However, revealing the non-manuscript benefit of a digital archive might prove one of the *Walt Whitman Archive'*s most powerful revelations.

Despite the many versions of *Leaves of Grass* Whitman produced, they constitute only a portion of the thousands more manuscript documents, each one infinitely complex and, to borrow a phrase from Folsom, rhizomorphous. When totaled, the knowledge

contained in those documents presents what might be best described as a Library of Babel's worth of information. As the parable of the Library explains, having too much knowledge available can make finding answers difficult; and as knowledge increases, the probability of finding answers decreases, ending at zero.

Considering the complexities of Walt Whitman's manuscripts – or any poet's manuscripts – plus the complexities of his poetry as well as the vast corpus of Whitman scholarship, perhaps a digital archive does not need to be a comprehensive collection of knowledge. Perhaps it need not even be a large collection of knowledge. Instead, a digital archive becomes a far more powerful tool when it can help users better understand the information they already posses in the process of creating new knowledge.

The new knowledge being created by the digital archive is, in broad terms, an explanation of the purpose for digital archives; more specifically, the knowledge built with digital archives serves as a sort of response to the *PMLA* argument surrounding database and narrative. Digital tools are a form of cultural expression. In one sense, they help reproduce other forms of cultural expression. Such is the case with a digital archive like the *Walt Whitman Archive* that reproduces the material of physical archives. The same is true for a digital image of the Mona Lisa or the Great Wall of China. The digital archive is reproducing an older form of cultural expression. However, as digital technology reproduces older forms of cultural expression, it does its part to create its own form. For example, the printed poem is different from the handwritten poem and tells about the artifact's cultural moment of production. That moment is different from a poem produced in an age before the printing press, and even that handwritten poem's cultural moment is different from the cultural moment of the poem transmitted orally.

The same will someday be said of digital archives. The state of digital archives as electronic repositories of items available in physical form will likely change. In one case, it must change. While an archive like the *Whitman Archive* reproduces handwritten correspondences, many correspondences of today's preeminent writers is already digital. What will happen when the products of those same writers – narratives, lyrics, poems – exist only in digital formats? How will the medium of digital archives as a form of cultural expression change?

Post Section: Humanizing Humanities through Digitization

This document is, itself, a fantastic contradiction. While I have used the topic of digital media to produce all of its content, in order to achieve acceptance by the field to which it is directed, I will have to use traditional publishing channels. I will have to either revise it into a smaller, publishable article, or I will have to expand it into a book-length work. The composition must be accepted by a press or journal. The "thoughts" must be vetted and re-vetted by editors, type-setters, peers, and professors. Then, once the product is printed, its readers (if they're diligent) will have to read my work alongside the poetry and manuscripts discussed, and move back and forth between the many multiple texts. If someone then wants to publicly discuss my claims – whether to agree, refute, or add to – he must embark on the same complex and archaic knowledge production process.

The process is a long-standing business model. It profits – both professionally and monetarily – those who continue its antiquated existence. It is, however, going to be usurped by digital publication. The unavoidable truth is that I can digitally publish this composition, complete with any grammatical errors and errors of thought, right now. True, my work might not be accepted as scholarly by "The Academy," but – though crass as my statement may be – everyone currently in The Academy will eventually die, and they will be replaced by young scholars who are entirely comfortable in the digital world. These young scholars are coming of age with a process that teaches them research begins not in a library, but with a commercial search engine. If people who are being held out of the "accepted" publishing and knowledge dissemination process are the only ones digitally publishing, the first knowledge these young scholars encounter will not be peer-

reviewed articles and books, but haphazardly posted papers and websites that rise to the tops of search engine result queries.

Humanists who both enjoy and believe in the purpose of their work have a responsibility to ensure that mechanisms of scholarly "quality control" persist and flourish in the digital realm. What better tool to accomplish such a goal than the digital archive? The digital archive, as it becomes a hub of information on a given topic quickly discovered through simple search engine queries, has the ability to become a hub of knowledge building. To be clear, a hub of knowledge building is different from a hub of knowledge. While the temptation is to make digital archives vast and comprehensive databases, that temptation is impractical at best, and destructive at worst. The temptation is impractical not only because necessary resources do not exist, but because the product overlaps the work of others such as schools and libraries. And the temptation is destructive because it undermines digital archive's true powers as a resource for exploration and communal knowledge building.

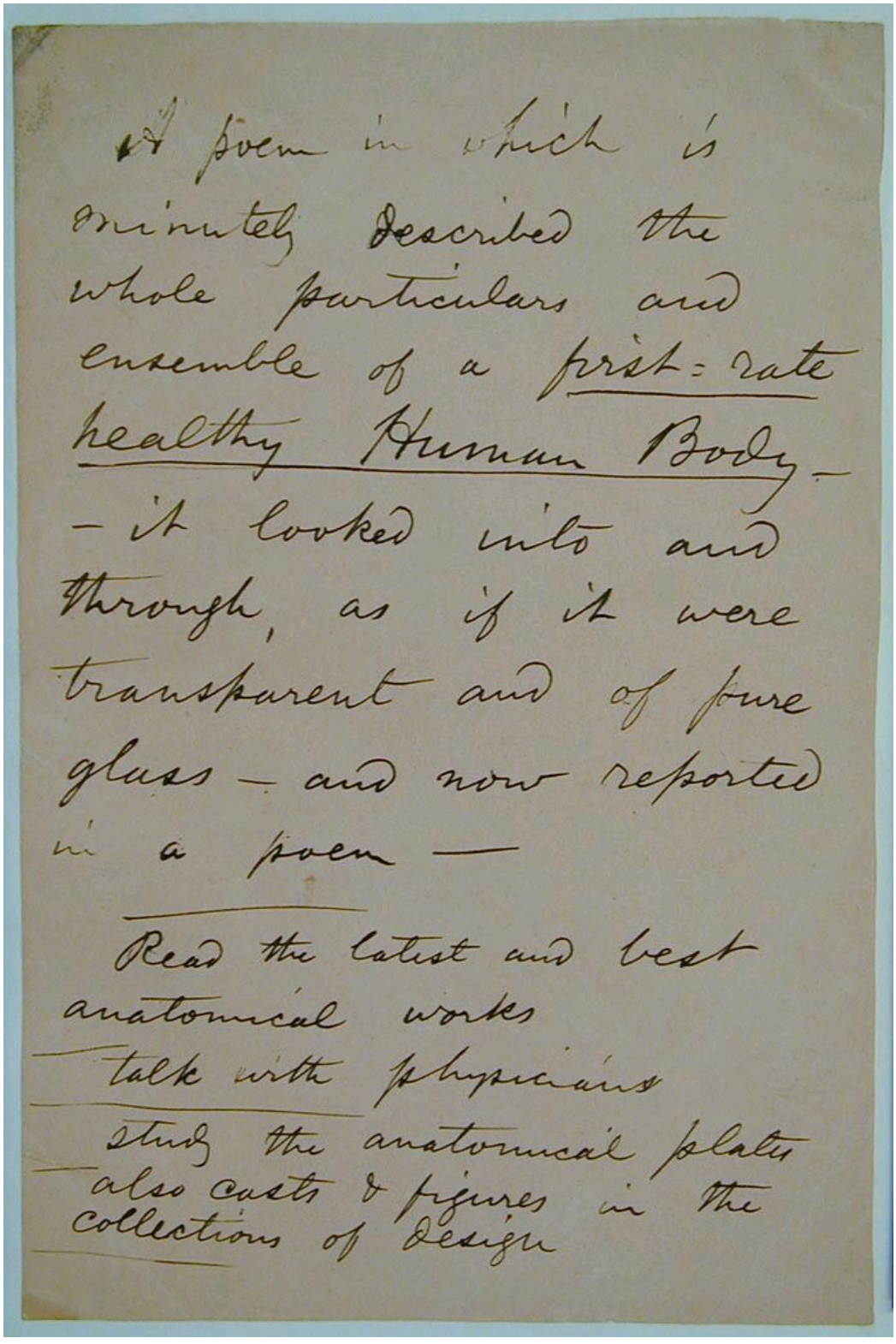
One of these powers is already being realized with digital archives: the power to facilitate exploration. For example, one of the best experiences resulting from my use of the *Walt Whitman Archive* was when, to find answers to questions the *Archive* had created, I had to reach beyond the *Archive*. The *Archive* sent me to the Library of Congress, and the experience of that mammoth library can never be digitally replicated, nor would I want it to be. Digital archives' responsibility is not to recreate the Library of Congress, but to send users to it.

The other power of digital archive – the power to build communal knowledge – is the component that has yet to be realized. As I come to an end in this discussion, I

realize – with a pang of unexpected sadness – that it is not, in any meaningful sense, a product of communal knowledge building. The thoughts have been mine. The works of others I've incorporated were because of my interpretations of those thoughts. But I can imagine a version – a digital version – in which each presented idea results in discussion. And, as I continue my original discussion, each new discussion spurs, in parallel, more new discussions being led and added to by others. And, through our conversations, we, the users of a digital archive, create a new database of thoughts, ideas, information, and knowledge that exist parallel to one-another, each continuously spurring new knowledge and new discussions and recreating the database model that is life. Because life, as the story of the Sybil at Cumae reminded us, and as the parable of the Library of Babel reminded us, and even as the *Walt Whitman Archive* reminded us, is a database of knowledge.

Appendices

Appendix A



A poem in which is
minutely described the
whole particulars and
ensemble of a prist: rate
healthy Human Body —
— it looked into and
through, as if it were
transparent and of pure
glass — and now reported
in a poem —

Read the latest and best
anatomical works
talk with physicians
study the anatomical plates
also casts & figures in the
collections of design

Appendix B

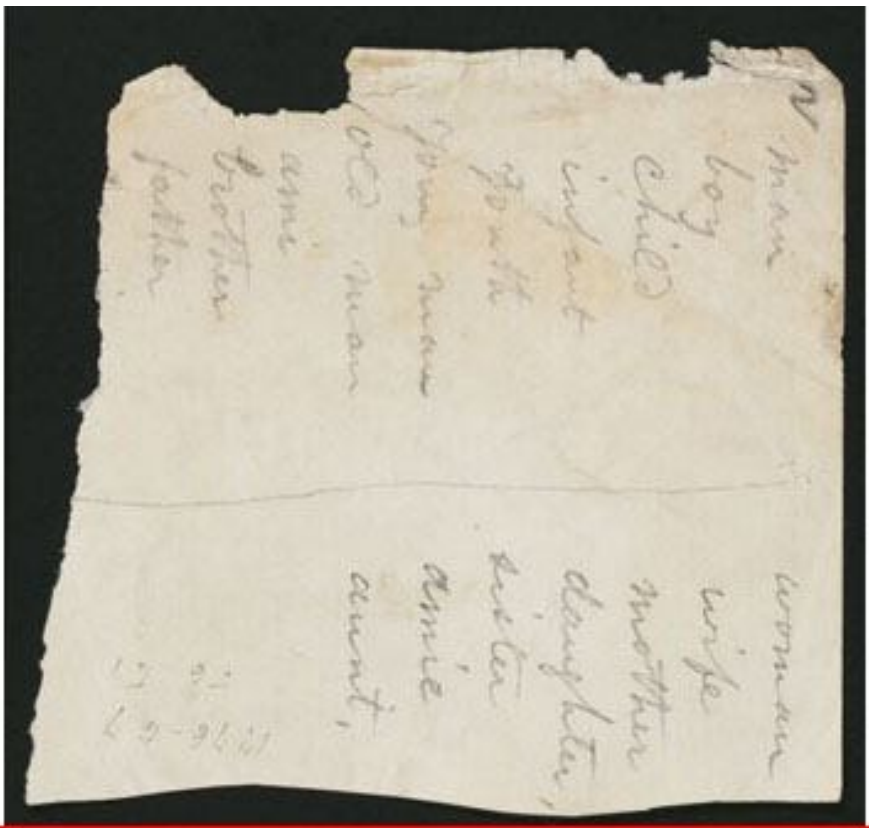


Figure 1

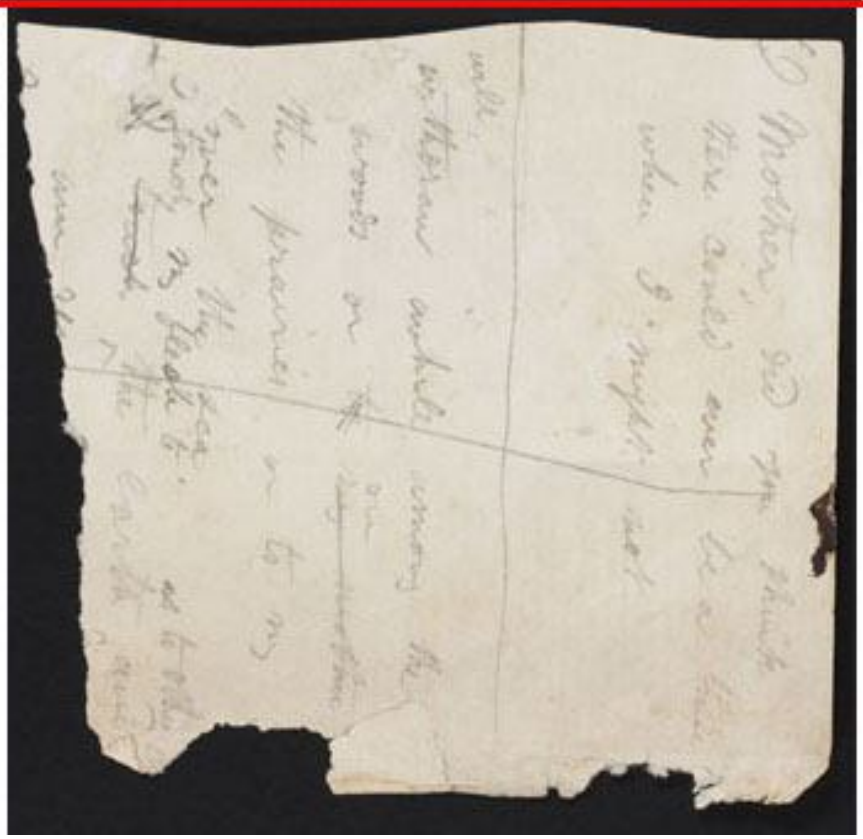


Figure 2

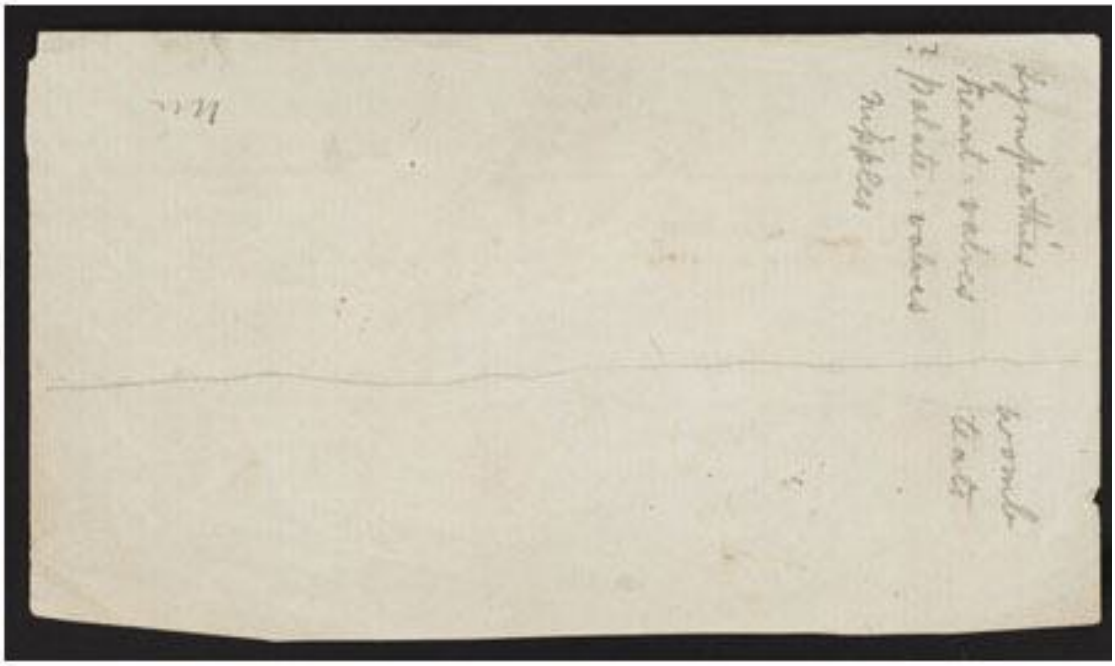


Figure 3

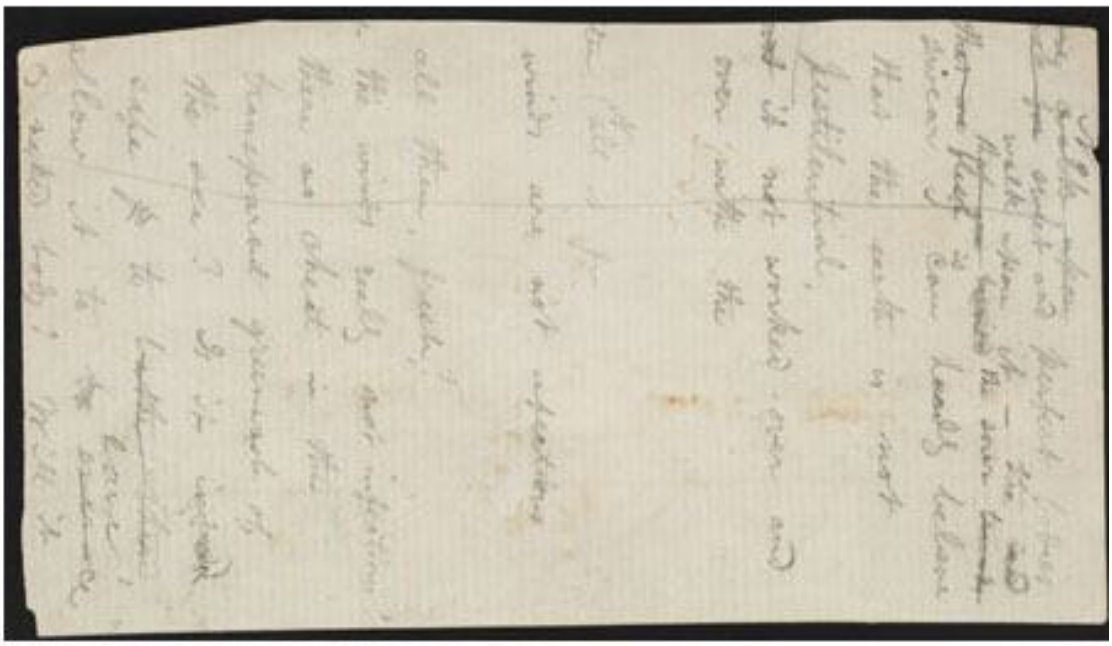


Figure 4

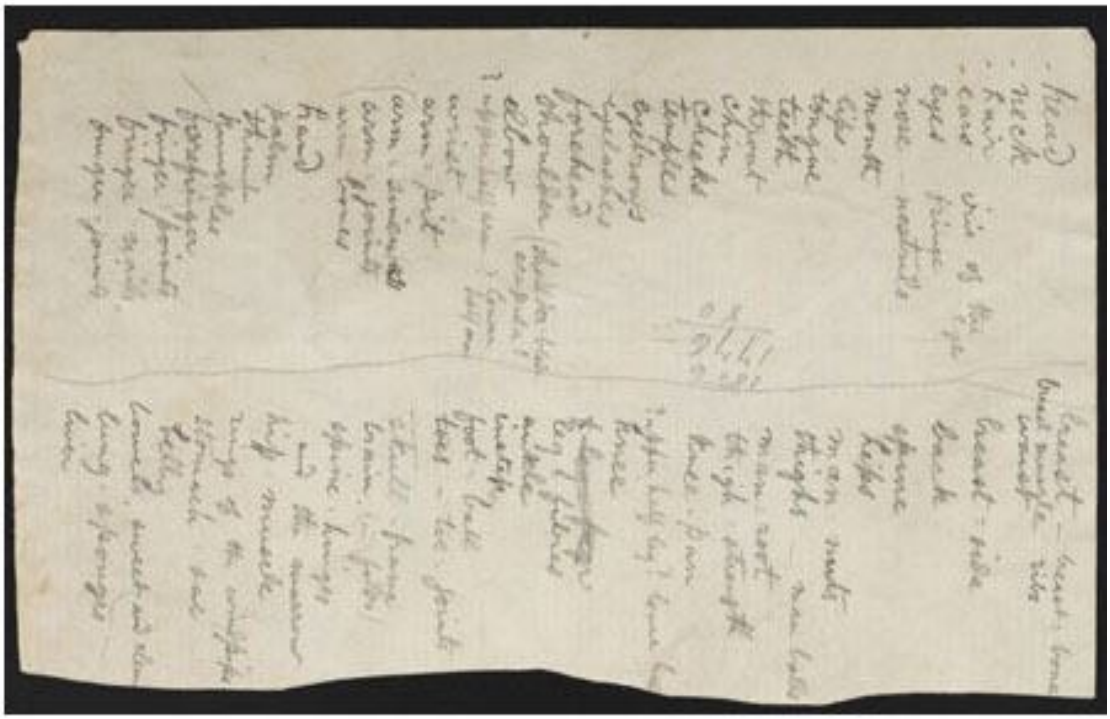


Figure 5

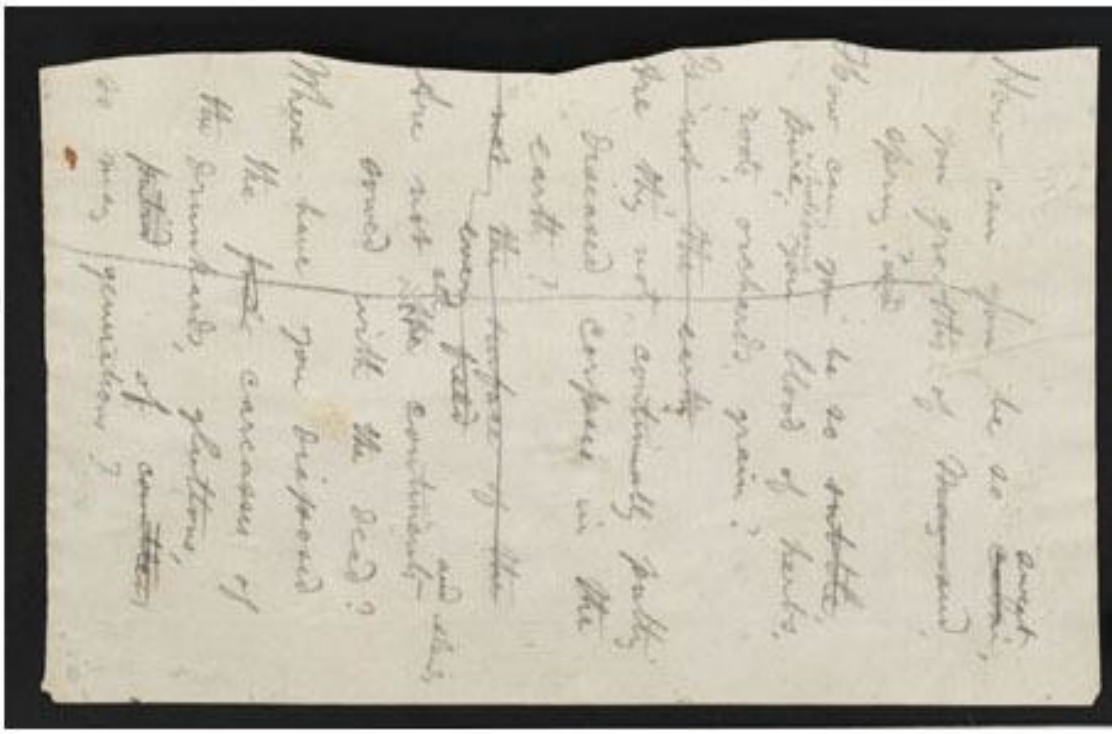


Figure 6

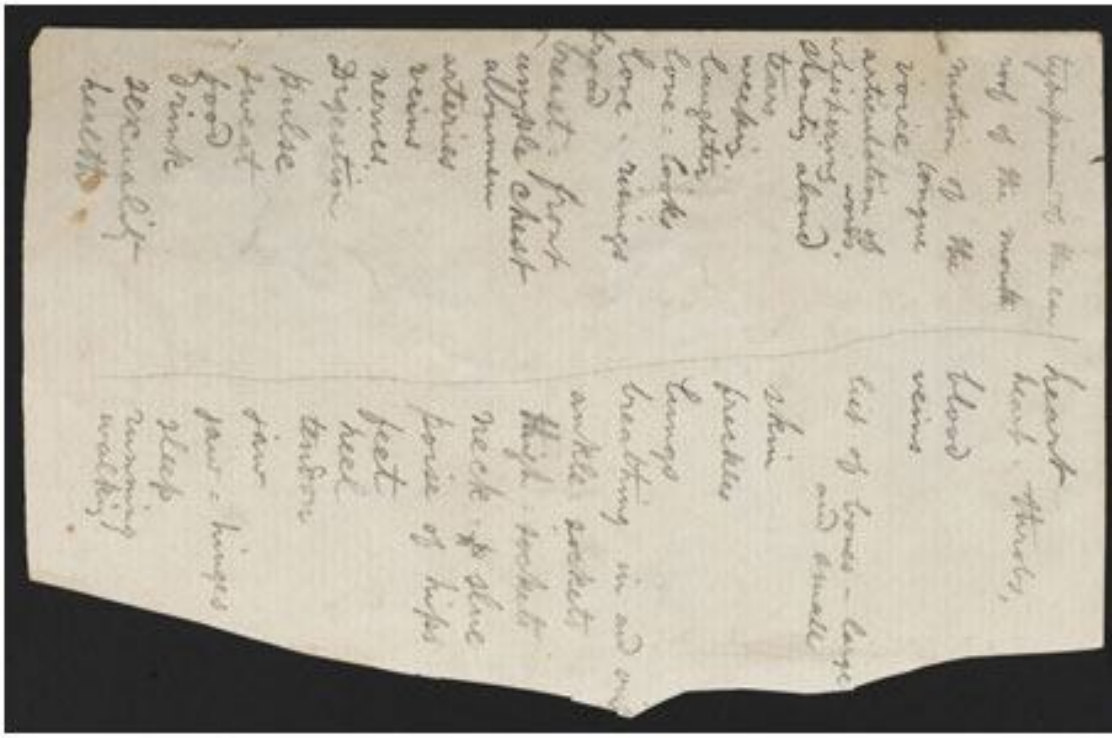


Figure 7

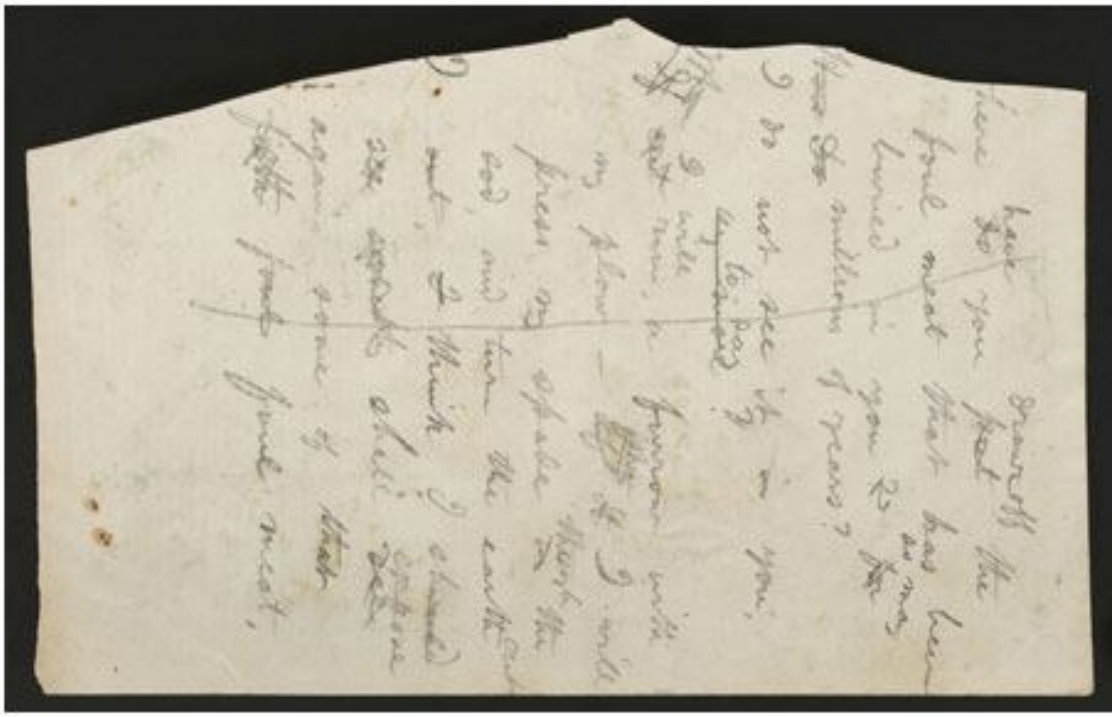
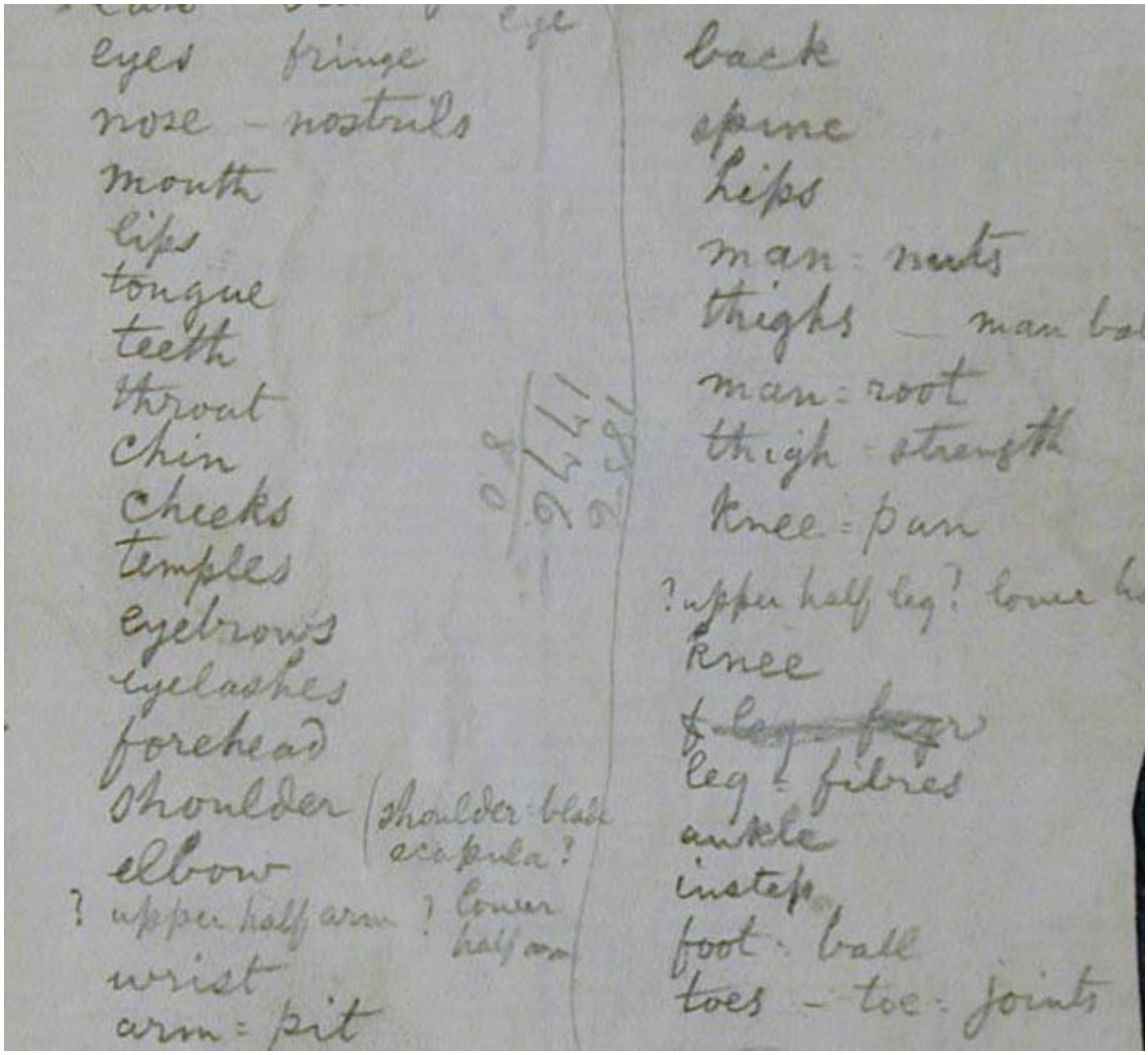


Figure 8

Appendix C


eyes
fringe
nose - nostrils
mouth
lips
tongue
teeth
throat
chin
cheeks
temples
eyebrows
eyelashes
forehead
shoulder
(shoulder-blade
scapula?
elbow
? upper half arm ? lower half ar
wrist
arm = pit
back
spine
hips
man = nuts
thighs — man bo
man = root
thigh = strength
knee = pan
? upper half leg? lower l
knee
leg = fibres
ankle
instep
foot = ball
toes - toe = joints

Bibliography

Works Cited

Borges, Jorge Luis. “The Library of Babel” Trans. J.E.I. <Westnet.com http://jubal.westnet.com/hyperdiscordia/library_of_babel.html>

Bucke, Richard Maurice. *Walt Whitman*. Philadelphia: David McKay, 1883.

“Database.” Def. 1. *The Oxford English Dictionary*. 2nd ed. 1989.

"Database." *Dictionary.com Unabridged (v 1.1)*. Random House, Inc. 10 Apr. 2009. <Dictionary.com http://dictionary.reference.com/browse/database>.

Derrida, Jacques. *Archive Fever*. Chicago: The University of Chicago Press, 1996.

Folsom, Ed. “Database as Genre: The Epic Transformation of Archives.” *PMLA* 122.5 (2007): 1571-1579

Folsom, Ed. “Reply.” *PMLA* 122.5 (2007): 1608-1612.

Freedman, Florence Bernstein. *Walt Whitman Looks at the Schools*. King’s Crown Press, New York, NY, 1950, Pages 152-153

Hayles, N. Katherine. “Narrative and Database: Natural Sybionts.” *PMLA* 122.5 (2007): 1603-1608.

Jennings, Pamela. “Narrative Structures for New Media: Towards a New Definition.” *Leonardo*, Vol. 29, No. 5, Fourth Annual New York Digital Salon (1996): 345-350.

Kirschenbaum, Matthew. “Every Contact Leaves a Trace: Computers, Forensics, and Electronic Textuality.” Lecture/Reading. English 601. U. of Maryland, College Park, 20 Nov. 2007.

Manovich, Lev. *The Language of New Media*. Cambridge: MIT P, 2001.

McGann, Jerome. “Database, Interface, and Archival Fever.” *PMLA* 122.5 (2007): 1598-1592.

Smith, Martha Nell. “Introduction,” *Emily Dickinson’s Correspondences*. University of Virginia Press, 2008. 10 Apr. 2009. <http://rotunda.upress.virginia.edu:8080/edc/introduction.xqy>

Smith, Martha Nell. “The Human Touch – Software of the Highest Order: Revisiting Editing as Interpretation,” presented at Digital Textual Studies: Past, Present and Future, Texas A&M University Department of English, October 2006.

Twain, Mark. *Pudd’nhead Wilson*. New York: Simon & Schuster, 2004.

Walt Whitman Archive, The. Ed. Ed Folsom and Kenneth M. Price. 2006. The National Endowment for the Humanities, the US Department of Education, the Institute of Museum and Library Services, University of Iowa, University of Nebraska-Lincoln, and the Institute for Advanced Technology in the Humanities at the University of Virginia. 3 November 2007 <http://whitmanarchive.org/>.

Whitman, Walt. *Leaves of Grass and Other Writings.* Ed. Michael Moon. New York: W.W. Norton & Company, Inc., 2002.

Whitman, Walt. *Prose Works.* Philadelphia: D. McKay, 1892.

Works Referenced

Dickinson Electronic Archives. Ed. Martha Nell Smith. 1994. University of Maryland. 3 November 2007 <http://www.emilydickinson.org/>.

Gopen, George. *Expectations: Teaching Writing from the Reader’s Perspective*. New York: Pearson Education, 2004.

Gopen, George. *The Sense Of Structure: Writing from the Reader's Perspective*. New York: Pearson Education, 2004.

Thomson, James B. *Practical Arithmetic*. New York: Ivison, Phinney & Company, 1847.

Works Consulted

Brogan, Martha L. *Contexts and Contributions: Building the Distributed Library*. Washington, D.C.: Digital Library Federation, 2006.

Chandler, Robin L., and William E. Landis, eds. *Archives and the Digital Library*. Binghamton, NY: Haworth Information Press, 2006.

Clark, Leadie Mae. *Walt Whitman's Concept of the American Common Man*. New York: Philosophical Library, 1955.

Cvetkovich, Ann. *An Archive of Feeling: Trauma, Sexuality, and Lesbian Public Cultures*. Durham: Duke University Press, 2003.

Deibert, Ronald J. *Parchment, Printing, and Hypermedia: Communication in World Order Transformation*. New York: Columbia University Press, 1997.

Freedman, Jonathan. "Whitman, Database, Information Culture." *PMLA* 122.5 (2007): 1596-1603.

Folcroft Library Editions. *On Walt Whitman*. Folcroft, PA.: Folcroft Library Editions, 1976.

Gohdes, Clearence, and Rollo G. Silver, eds. *Faint Clews & Indirections; Manuscripts of Walt Whitman and his Family*. New York: AMS Press, 1965.

Hanrahan, Michael and Deborah L. Madsen, ed. *Teaching, Technology, Textuality: Approaches to New Media*. New York: Palgrave Macmillan, 2006.

Hindus, Milton, ed. *Leaves of Grass One Hundred Years After; New Essays by William Carlos Williams [and Others]*. Stanford, California: Stanford University Press, 1955.

Hovagimyan, G. H. "Art in the Age of Spiritual Machines (With Apologies to Ray Kerzweil)." *Leonardo*, Vol. 34, No. 5, Ninth New York Digital Salon, (2001): 453-458.

Jensen, Beth. *Leaving the M/Other: Whitman, Kristeva, and Leaves of Grass*. Madison, New Jersey: Fairleigh Dickinson University Press, 2002.

Klammer, Martin. *Whitman, Slavery, and the Emergence of Leaves of Grass*. University Park, PA.: Pennsylvania State University Press, 1995.

Kummings, Donald D., ed. *Approaches to Teaching Whitman's Leaves of Grass*. New York: Modern Language Association of America, 1990.

McGill, Meredith L. "Remediating Whitman." *PMLA* 122.5 (2007): 1592-1596.

Moretti, Franco. *Graphs, Maps, Trees: Abstract Models for Literary History*. New York: Verson, 2007.

O'Donnell, James J. *Avatars of the Word: From Papyrus to Cyberspace*. Cambridge, Massachusetts: Harvard University Press, 1998.

Orlik, Peter B., Steven D. Anderson, Louis A. Day, W. Lawrence Patrick. *Exploring Electronic Media: Chronicles and Challenges*. Malden, MA: Blackwell Publishing, 2007.

Padgett, Ron, ed. *The Teachers & Writers Guide to Walt Whitman*. New York: Teachers & Writers Collaborative, 1991.

Price, Ken. “Edition, Project, Database, Archive, Thematic Research Collection: What’s in a Name?” Rosenzweig Forum on Technology and the Humanities. University of Maryland, College Park. 11 Mar. 2008.

Price, Kenneth M., ed. *Walt Whitman: the Contemporary Reviews*. New York: Cambridge University Press, 1996.

Reynolds, David S., ed. *A Historical Guide to Walt Whitman*. New York: Oxford University Press, 2000.

Reynolds, David S. *Walt Whitman’s America*. New York: Vintage Books, 1996.

Ryan, Marie-Laure. “Stacks, Frames and Buondaries, or Narrative as Computer Language.” *Poetics Today*, Vol. 11, No. 4, Narratology Revisited II, (Winter, 1990): 873-899.

Salska, Agnieszka. *Walt Whitman and Emily Dickinson: Poetry of the Central Consciousness*. Philadelphia: University of Pennsylvania Press, 1985.

Stallybrass, Peter. “Against Thinking.” *PMLA* 122.5 (2007): 1580-1587.

Thacker, Eugene. “The Science Fiction of Technoscience: The Politics of Simulation and a Challenge for New Media Art.” *Leonardo*, Vol. 34, No. 2, (2001): 155-158.

White, William, ed. *1980, Leaves of Grass at 125: Eight Essays*. Detroit: Wayne State University Press, 1980.

Wilcox, Leonard/ “Baudrillard, DeLillo’s “White Noise,” and the End of Heroic Narrative.” *Contemporary Literature*, Vol. 32, No. 3, (Autumn, 1991): 346-365.