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Populism and Plants: A Mixed-Methods Analysis of Thomsonian Literature, 1825-1860

by

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"The trouble with the maples
And they're quite convinced they're right
They say the oaks are just too lofty
And they grab up all the light"

Geddy Lee / Alex Lifeson / Neil Peart

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Chapter 1

Thomsonian Medicine as Populist Medicine: An Introduction

1.1 Thomson and his System

The year is 1809. Locked inside a small cell in the Newburyport jail, there sits a man named Samuel Thomson. Though he is only forty years old, he has already begun to amass fame among the poor, the disenfranchised, and the uneducated. With his own two hands, he has lifted them up; he has *healed* them. Though the court would argue that he's being held on the charge of murdering a patient, he'd argue that it's his popularity— nay, his power— that is the true cause of his current predicament. Pondering this fact, he sits in wait, scrawling lines of poetry into a notebook.* Soon, he'll be acquitted, and he'll return to the people to give them what it is he knows they need: a system of healthcare free of cumbersome regulation, ill-experienced doctors touting useless Latin phrases, and deadly bloodletting scalpels. For now, though, he sits in his cell writing

*These poems would later be published in a volume titled "Learned Quackery Exposed." Many poems in the volume were written by Thomson while he sat in jail awaiting his trial. (Throughout his years practicing, Thomson was accused of accidentally killing several patients.)

lines on whatever paper he can get his hands on, continuing his work to provide the people with power over their own health. [1]

Verse after verse, he tells the tale of a patient whose health is ravaged by the poisonous medicines of a traditional physician. It's a medical treatise of sorts, but it's unlike what the regular physicians write. It's lyrical. It's simple. It's memorable. And one day, it will be widely read. Upon his release, Thomson will go on to write his magnum opus, *New Guide to Health*, a medical manual that will be published in thirteen editions across less than twenty years. He'll acquire three patents for his "Thomsonian" system, a large following, and an even larger reputation. The community that follows his system will produce a variety of periodicals and commentary on his work. All of these texts—the manuals, the periodicals, and the commentary—will contain language that differs drastically from the more cold and scientific language that is used throughout the "regular" medical community. The following chapters will contain an exploration of the differences in language between the Thomsonian and non-Thomsonian sects of the medical community.

While scholarship on the American medical community has not disregarded Thomson and his movement, existing works tend to focus on the movement through a purely historical lens. John Haller, Michael Flannery, and several others have done a wonderful job cataloguing the *who*, *what*, *when* and *where* of the Thomsonian movement.[†] To date, however, there is very little scholarship that focuses deeply and comprehensively on the literary aspects of the works which Thomsonians published, distributed, and read.

Despite its lack of scholarly attention, this literature is rich in prose that varies significantly from what one might think of as "scientific" or "medical" writing. Rather,

[†]For a more detailed account of the Thomsonian movement's history, I advise the reader to look at *The People's Doctor* by John S. Haller and *Vox Populi* by Alex Berman and Michael Flannery.

unlike other texts from the period that are associated with the regular medical community, texts associated with Thomsonian medicine tend to use simpler and more accessible language. They present cases in ways that humanize patients; and ultimately, they seek to give power and voice to those without money, education, and social standing. Furthermore, they contain ad-hominem attacks against the "elite" structures of the regular medical community. These features, combined with the movement's unique structure and historical situation, help make the case for the notion that the Thomsonian movement—and the rhetoric that is associated with is—is inherently populist.

1.2 A Brief Historical Overview

Of course, I would be remiss to explore the differences in language between "regular" and Thomsonian medical texts without first examining the historical context and political climate into which Thomson's movement was born. Samuel Thomson's rise to fame as the populist leader of a short-lived herbal medical movement—and the conditions that allowed it to occur–can be traced 43 years back, to the charter of the New Jersey Medical Society in 1766, which marked the first attempt at creating an organizational body to regulate the practice of medicine in the United States. Much like the Bank of the U.S., which was created years later in 1791 to establish firmer regulations and bounds for U.S. fiscal policy, the society was created in order to regulate standards of practice, fees, and codes of ethics for medical practitioners in the state.[2]

Throughout the late eighteenth and early nineteenth centuries, many states moved towards increased standardization of the medical discipline. It was not until the turn of the century, however, that the pace at which states developed regulatory bodies began to quicken. For example, the first proprietary medical college, the Medical Society of the

County of New York, was founded in 1807. Between the years 1802 and 1876, sixty-two medical schools were established throughout the nation. By the end of the nineteenth century, the number of students enrolled in a medical college was 25,000, compared to only 650 in 1810. By 1852, all medical schools were required to adhere to a fairly comprehensive set of standards, including the minimum years of study required and a requirement for which subjects were taught. [3] This pattern of increasing regulation and institutionalization was not met with enthusiasm from all sides.

In the early to mid nineteenth century, the increases in standardization and regulation in both the medical and financial sectors of the U.S. were met with resistance from a variety of groups. When a bill was introduced to recharter the Second Bank in 1832, President Andrew Jackson vetoed the bill on the grounds that the "entire control of the institution would necessarily fall into the hands of a few citizen stockholders, and the ease with which the object would be accomplished would be a temptation to designing men to secure that control in their own hands by monopolizing the remaining stock." In simpler terms, Jackson feared the the rechartering of the Second Bank would be "dangerous to the liberties of the people."[4] The "people" here likely refers to Jackson's many supporters, most of whom were uneducated, living in rural areas, and staunchly opposed to the class of political elites in Washington. Indeed, Jackson's veto of the charter was in keeping with the populist ideologies of the time, embracing ideas of anti-elitism, anti-intellectualism, and anti-regulation.

A similar reaction took hold in certain sects of the medical community at around the same time. Prior to the 19th century, the term "doctor" could be ascribed to essentially anyone with a reputation for the healing arts. With the advent of medical licensing laws, however, this changed. With their validity as doctors being threatened, the community of herbalists— those who sought to treat maladies via plant-based medicine—

reacted with fervent distrust of (and often, animosity towards) the growing community of licensed, learned physicians. Multiple systems of medicine, all varying in their levels of distance from and distrust of orthodox medical practices, persisted throughout the mid-nineteenth century.

Such practitioners are generally referred to as "empirics." These doctors existed at the bottom of the hieracrchy of the medical profession, while physicians having been trained at a medical college existed at the top. While medical schools at the time embraced a dogmatic pedagogy, empirics relied on informal apprenticeships and experiential learning over more established forms of schooling. Unlike regular physicians, who tended to practice in cities, empirics were far more likely to practice in rural areas.[5] The empiric system of medicine that stood most staunchly opposed to standard practices was that of the Thomsonian system, which relied on a series of herbal remedies as a method of treatment.

Thomsonians' distrust of and distaste towards learned physicians bears a great deal of similarity to the feelings of distrust and distaste that Jacksonians had regarding the rechartering of the Bank of the U.S. in 1832, and more generally, to the political elite. Indeed, both movements—Jacksonianism and Thomsonianism—are marked by similar of populism. Such was the climate of the era. In examining the rhetorical devices and features of Thomsonian texts, it becomes apparent that this climate—its ideologies and its energies—bled into the movement's literature.

While "populism" can take many forms, for the purpose of this thesis, I'll define it as the political scientist and prominent scholar of populist movements Cas Mudde defines it:

> ...a thin-centered ideology that considers society to be ultimately separated into two homogenous and antagonistic groups, 'the pure people' versus 'the corrupt elite,' and which argues that politics should be an expression of the volonte generale (general will) of the people.[6]

In other words, for these purposes, populism refers to an ideology which favors rogue individuals over organized, "elite" groups and experience over wealth and education.

Both movements were founded on such ideologies, embracing anti-intellectualism, anti-elitism, and individualism. While Jackson "helped create a sense of power justly residing in the hands of each man rather than in the state"[7] Thomson wished to give the people "a complete understanding of the obtaining, preparing and using all such vegetables as are made use of in [his] system" [8] in order to "release them from the tyranny of regular physicians." [9] Just as Andrew Jackson "came to symbolize the potential of any citizen to rightfully take and administer the rains of government," [10] Thomson symbolized the right of any citizen to take and administer their own medicine. The language that is present in the texts associated with his movement contain rhetoric that is inherently populist.

While the language used in Thomsonian texts is the primary focus of this thesis, one cannot ignore the sociopolitical and historical context of these texts, as the historical and cultural topography of the era had a great influence on the movement. Indeed, in order to understand the full degree to which Thomsonian medicine embraced populist ideals in the language and rhetoric that it used, it is important to understand not only the historical context of the movement at its peak, but also the historical development of the movement's earliest stages.

1.2.1 An Overview of the System's Origin, Motivation, and Structure

Samuel Thomson was born in 1769 to a poor family who lived off of a small plot of land in Cheshire County, New Hampshire. Growing up in a rural area, he'd often visit the fields with his father. Through these visits, he found in himself an innate desire to "know the names of all the herbs [and] what they were good for."[11] Because his family lived in relative isolation, they relied on a widow by the name of Benton, who practiced as a "root doctor," for most of their medical care. Rather than prescribe mineral treatments, as was the fashion among most orthodox or "regular" physicians, Benton relied on local herbs and roots.[12] Thomson took a great interest in these treatments. Later in life, Thomson's distrust of the regular medical community—and his faith in herbal cures over mineral cures—solidified after watching his mother die of consumption at the hand of regular physicians who prescribed lethal doses of mercury and opium. [13]

Thomson began to treat his family and friends via such herbal cures that he tested and developed himself. According to his autobiography, *Narrative of the Life of Samuel Thomson*, his interest in herbal cures began at a very young age. Eventually, word of his successful treatments spread, and he set up a travelling circuit, treating people throughout the northeast. When it became evident that his methods were becoming increasingly popular, Thomson officialized his "system" and obtained a patent in the year 1813.[14] Pertinent to note is the fact that Thomson went on to secure two more patents on his system, one in 1823 and another in 1836. These patents were three of less than 100 medical patents granted between the years 1790 and 1836.[15] Thomson's ability to acquire these patents speaks to the momentum and popularity that his movement gained. However, more pertinently, the patents allowed him to structure his medical movement in a way that differed greatly from that of the regular medical community.

While medical colleges required attendance at lectures and the likes, once he'd acquired the patents, Thomson began to sell the rights to full access to his system and the herbs that it required.

In 1822, he published *New Guide to Health*—a medical manual which would later be published in over ten editions in ten years. This manual was to be purchased along with the rights to the system. After selling a certain number of rights in an area, Thomson would encourage the establishment of Friendly Botanic Societies. These societies consisted of around 50 members, all of whom had paid the fee to use Thomson's system. Thomson's patent, along with membership to the society, cost 25 dollars, the equivalent of 450 dollars today. This fee was relatively inexpensive, considering that it allowed the rights-holders to open their own practice and attempt to earn a living by treating patients via the Thomsonian methods. Though regular physicians were not banned from joining these societies, upon joining, they were made to renounce all their connections to the regular practice, and were often subject to a higher rights fee than non-physicians. Thomson allowed societies to appoint agents to sell more rights, allowing the system to spread rapidly. Agents shared in the profits earned by selling rights.[16]

Here, populist ideals manifest in the Thomsonian system's *motivation* and its *structure*. Thomson's system was motivated by a desire to give people without a medical degree from a chartered college both the *ability* and the legal *right* to practice as herbal physicians. Furthermore, Thomsonians placed more value on individual experience than on institutionalized learning, and were generally fairly hostile towards the notion of introducing the "abstruse sciences such as chemistry and other discoveries that have nothing to do with medicine" into their practice.[17] Rights-holders could, at a very low cost, not only become free from the "tyranny" of the learned physician, but also could earn a living administering Thomsonian medicine. Licensed doctors wishing to convert

to Thomson's system, however, were charged a higher fee than what the "common man" (ie: the uneducated practitioner) was asked to pay. [18] This practice of upcharging the "elite" physician demonstrates the contempt with which Thomsonians viewed the regular practice and serves as an example of the line that they drew between themselves and the "elite"—a key tenet of populist ideology.

We also see populist ideals manifesting within the structure of Thomsonian medicine—namely, in the administrations of *rights* to the system's use. Rather than vesting the power to practice in a degree granted by an institution, Thomson chose to grant power in the form of *rights* to individuals, regardless of their affiliations or credentials. While societies such as the Friendly Botanic Society were instrumental to the movement, one can argue that they were recognized more so as a collection of individual-rights holders than as a collective and unified institution. Furthermore, Thomson's system of agents is, in itself, a structure that places the power in the hands of the individual rather than in the institution.

In addition, there exist many parallels between Jackson and Thomson as leaders of populist movements; both men have been regarded by critics as tyrants. While Jackson "advanced a new vision of the President as the direct representative of the people" he is largely remembered for his "vigorous exercise of his executive powers." [19] Likewise, Thomson exercised his powers with gusto. Similar to Jackson, who "fired cabinet secretaries who would not carry out his orders," [20] Thomson did not hesitate to punish those who did not conform to his orders.

This behavior is particularly evident in the case of Elias Smith. Because Thomson was uneducated, he relied Smith in order to write *New Guide to Health.* Smith was a preacher, herbalist, and populist from Vermont. Prior to the publication of the first

edition of *New Guide*, Thomson had trained Elias Smith in his practice in the year 1816.[21] Fearing that he'd be unable to sufficiently describe his system in writing due to his lack of formal education, Thomson commissioned Smith to write *New Guide*.[‡] However, when Smith began to advertise the Thomsonian system in his periodical, *Herald of Life and Immortality*, Thomson began to worry that Smith would attempt to take ownership of his followers, or at the very least, that Smith's writing on the system outside of *New Guide* would discourage the purchase of his patent. [22] Thomson brought up litigation against Smith for infringement on his patent, though the case did not hold up in court. Perhaps due to their falling out, Smith receives no title-page credits for his work with *New Guide*.

This example is only one of many examples of Thomson's tendencies to power-grab, particularly in situations involving his more educated peers. And of course, having such an aversion to the educated class furthers the notion that Thomson not only held populist ideals, but also that his actions were often underwritten by these ideals. The question remains though: to what extent did Thomson's populist leanings seep into the "scientific" texts that were associated with his movement?

1.3 Moving Forward: A Mixed Method Approach

The connection between Thomson's system of medicine and Jacksonian democracy is by no means novel, and it has been noted by nearly every scholar of the system. Thomson's biographer, John Haller, writes extensively on the egalitarian nature of the Thomsonian movement. Historian Michael Flannery goes further in creating the connection,

[‡]The degree to which Elias Smith assisted Thomson in writing the manual is still a point of scholarly debate.

acknowledging not only Thomson's "preference for experience over theory, instinctive genius over acquired knowledge, and equality of commoners over elitist rank and privilege" but also his tendency to engage in "populist rhetoric."[23] Flannery is somewhat unique in his discussion of the rhetoric of the movement, with most scholars discussing only the movement's general association with populist ideals. However, though Flannery recognizes that there existed a "fairly extensive literary network of [Thomsonian] pamphlets, books, broadsides, and journals," he only goes on to discuss a small handful—namely, *New Guide to Health*, *The Thomsonian Recorder*, and *A Narrative of the Life and Medical Discoveries of Samuel Thomson.*[24] In order to fully understand the ways in which Thomson's system engages in rhetoric that is inherently "populist," it is necessary to take a wider-lens view, exploring a greater breadth of texts.

As Flannery points out, in addition to *New Guide to Health*, Thomsonian agents published a variety of periodicals, manuals, and commentary pieces surrounding the movement throughout the early to mid 19th century. The number of these publications is far too large to conduct a close reading of each piece. Furthermore, there is not a large body of scholarship on these texts. It would therefore be unwise to select a small sample of texts from which to make overarching generalizations about the nature of the movement's rhetoric.

Because of this, in the chapters following, I have engaged in a mixed-methods analysis, employing both computational "distant" reading techniques across a large corpus, as well as a more focused series of selected close reads. Computational methods will allow me to examine a wide variety of Thomsonian texts, in order to determine how they are situated within the social and historical landscape of the medical community. In seeking to understand the degree to which Thomsonian texts are or are not "populist" texts, it is necessary not only to examine them in relation to one another, but also

in relation to other non-Thomsonian medical texts from the period. Therefore, I have constructed a corpus that contains both Thomsonian texts and non-Thomsonian texts. Conducting a computational reading of the corpus makes it easier (and perhaps more fruitful) to then return to the corpus for a close reading for populist rhetoric within the texts. In other words, the distant reading helps illuminate the texts' relative ideological locations in relation to one-another, and the close readings will illuminate more specific rhetorical techniques and appeals (or lack thereof) to populist ideologies.

Chapter 2

Computational Analysis

2.1 Why Computation?

Throughout the 20th century, literary critics have focused primarily on the aesthetic features of individual texts, asking questions that are discernible solely through close reading and analysis. This methodology, however, is suitable only for answering a specific set of questions, as the critic is limited by what he or she is able to read. Reading deeply and closely, while certainly illuminating, inevitably narrows the scope of analysis that is possible. In order to conduct a large scale, comparative study – a study which effectively explores discourses that occur across dozens of texts and several decades, it is necessary to turn towards a different methodology than that of the close-read. Enter distant reading.

Coined by Italian scholar Franco Moretti, the term "distant reading" refers to the practice of using computer-assisted techniques to "read" texts at a scale not possible for a human reader. Machine-readable versions of texts are fed into a computer program, which then analyzes the texts for certain patterns. Computational techniques allow

scholars to explore texts on the order of hundreds and thousands at a time, providing the opportunity to "focus on units that are much smaller or much larger than the text: devices, themes, tropes - or genres and systems." [25] Computational text analysis broadens the scope of inquiry, thereby changing what questions can be asked and answered. A wide-angle lens examination of the rhetoric contained the Thomsonian movement presents such an opportunity to pose and explore such broad historical questions about a set of texts. In other words, by examining the texts computationally, I'll get a better understanding of their situation within the topography of medical literature at the time.

This is not to say that such an inquiry can or should be devoid of close reading. Indeed, as Paul Simpson states, the computer is "wholly incapable of inferring" [26] meaning from textual data. Or, as Moretti puts it, "if we want to understand the system in its entirety, we must accept losing something." [27] Unlike evaluation within a scientific or mathematical framework, conclusions drawn from literary criticism are drawn from deep discussion and understanding of a work's aesthetic features. These features, which are generally lost in computational analysis, are often integral to a text's meaning. As such, while this study will lean heavily on computational methods, it will not allow these methods to entirely replace more traditional modes of literary criticism. Rather, I will follow a mixed methodology, as defined by J. Berenike Herrmann in his piece *In a Test Bed With Kafka: Introducing a Mixed-method Approach to Digital Stylistics.* As Herrmann states:

> Close and distant reading complement each other when adding meaning to numbers, and precision to hermeneutically obtained insight....the generalizability of qualitative findings can be increased, as quantitative findings can be grounded in context-driven analyses.[28]

Herrmann outlines a four step methodology, which I have described in the context of my own research in the sections that follow.

1. Generation of a hypothesis from existing criticism

In the pages prior, I've provided both a general historical overview of the Thomsonian medical movement as well as a more focused review of current scholarship that explores the movement's political and legal motivations. It will also be necessary to explore the history of the movement's situation in regards to the orthodox, or "regular" medical community. While the American medical community in the 19th century was rich and complex, for the purpose of this analysis, I'll narrow my scope to comparing Thomsonian practitioners with state-affiliated medical societies, as these particular regular medical groups provide the most stark juxtapositions with the Thomsonian movement. The texts that I include in my corpus, therefore, come from these state-afficiliated societies as well as from the Thomsonian movement.

2. Quantitative Hypothesis Testing

Throughout out this chapter, *Computational Analysis*, I explore the general hypothesis that Thomsonian texts fundamentally differ in style compared to more orthodox texts. I use Principle Components Analysis (PCA) to ascertain statistical differences in discourse and word usage across selected texts from the Thomsonian and state-affiliated medical communities of the 19th century.

3. Quantitative exploration

After noting any statistical differences that exist between the rhetoric contained within the Thomsonian and regular medical communities, I begin to ask *why* these differences may be present. I use Topic Modeling to probe differences across the corpus

over time, beginning to consider observed difference in rhetoric within the contexts of each text's historical situation.

4. Qualitative text analysis

In the pages that follow my quantitative analysis, I engage in a qualitative (ie: close-reading-based) exploration of texts that present particularly interesting cases. Selected on the basis of the results of the computational analysis, I dig deeper into four texts that exhibit the most distinctive dialogue within their respective communities.

2.2 Rigorous, Retrievable, and Replicable

Throughout the computational analysis of my corpus, I follow Simpson's criteria for stylistic analysis, as outlined in *Stylistics: A Resource Book for Students.* Simpson states that stylistic analysis must be *rigorous*, in that it must be "based on an explicit framework of analysis," *retrievable,* meaning that it is "organised through explicit terms and criteria," and *replicable*, or in other words, "sufficiently transparent as to allow other stylisticians to verify them, either by testing them on the same text or by applying them beyond that text."[29]

In keeping with these criteria, and in order to ease future replicability and maintain transparency, in this chapter, I outline the processes of corpus building, text-processing, and analysis that I followed while conducting the computational exploration of my corpus. Additionally, I recognize that computational text analysis involves a variety of choices made on the part of the researcher— choices that ultimately affect the nature of the results. Therefore, I aim not only to to provide a detailed account, but also a justification of the choices that I made when preparing and analyzing my texts.

2.3 Corpus Building

Before outlining the methods by which texts were analyzed, I must first describe the process of selecting texts for inclusion in the corpus. My goal was to create a corpus that would help me answer the questions that I am seeking to answer, namely: *In what way does the rhetoric contained within the Thomsonian medical movement differ from that of the orthodox medical community, and to what degree are the Thomsonian texts in keeping with the ideological tenets of populism?* In order to do this, it was necessary to build a corpus that contained a curated variety of medical texts from the 19th century, keeping in mind the historical context in which the texts were created. In curating this set of texts, I aimed to emulate Katherine Bode's concept of a scholarly edition, which she defines as "a model of literary works that were published, circulated,and read – and thereby accrued meaning – in a specific historical context, constructed with reference to the history of transmission by which documentary evidence of those works is constituted."[30]

Because of the unique legal history of the Thomsonian movement, I chose to incorporate not only medical manuals associated with the movement, but also a variety of periodicals and lectures that followed the Thomsonian system. Additionally, because I aim to compare Thomsonian rhetoric to that of more orthodox medical communities, I also chose to include a variety of journals that were associated with state-affiliated medical societies. In this way, my corpus brings together texts that were published and circulated within both the Thomsonian medical community and the regular American medical community of the 19th century. Doing so will allow me to make comparisons between the two groups. In scientific terms, the State Medical Journals will serve as a

"control group" of sorts, against which to judge the "populist-ness" (or lack thereof) of the Thomsonian texts.

In keeping with best practices, I'd like to remain transparent about the ways in which I have accessed my texts and created my corpus. The state-affiliated medical journals were sourced from the State Medical Journals collection, which is housed within the Medical Heritage Library. These texts were accessed using the Internet Archives API. The State Medical Journals collection contains texts spanning from 1845 to 2017, but for the purpose of this study, I extracted only texts that were published between 1845 and 1865. Because this collection does not contain texts from the early 19th century, I also hand selected pre-1845, state-affiliated journals from the Historical Medical Journals collection, also housed within the Medical Heritage Library. Because there is no pre-existing, curated collection of Thomsonian texts, in order to retrieve this portion of the corpus, I extracted all items in the Internet Archive which contained the term "Thomsonian" in either their title or description, and were published between the years 1824 and 1863. I then hand-sorted through the results and discarded any irrelevant texts – ie: texts that used the term Thomsonian, but were not affiliated with Samuel Thomson's medical system. *

In addition to compiling texts in a machine readable format (.txt), I also acquired metadata for all texts. When available, the following metadata fields were acquired: *Collection, Contributor, Creator, Date, Description, Format, Genre, Identifier, item size, Mediatype, Public date, Publisher, Rights, Source, Subject, Title, Type, Volume,* and *Year*. For a table containing the texts within the corpus, as well as all corresponding

*One potential flaw in this method of corpus creation is that it relies on texts being a linked with thorough, accurate metadata. For example, my method would miss any texts that were not tagged as "Thomsonian" in the Internet Archive.

metadata, see the associated GitHub repository, linked at the end of this section. The corpus contains a total of 59 texts.

After texts and their corresponding metadata were acquired, the corpus was manually broken down into four groups, with each group containing texts with distinct differences in their audience and purpose. The following table contains a breakdown of each group and its contents:

Class (abbreviation)	Count	Description
ThomsonianManuals (tm)	18	Texts that serve to describe the Thomsonian system and its applications. Generally aimed at the laymen for practical use.
ThomsonianPeriodicals (tp)	7	Serial publications, aimed at both presenting case studies and updating practitioners on the system.
ThomsonianCommentary (tc)	16	Testimonies, lectures, reports, etc discussing the merits of the system in comparison to orthodox practices.
MedicalJournals (j)	18	State affiliated serial publications, containing cases aimed at physicians.

2.4 Text Processing and Cleaning

Before conducting analyses, texts in the corpus were cleaned and processed using the tm and NLP packages in R. The corpus was transformed to lowercase, and all numbers and punctuation were removed. In keeping with standard practices of corpus

preparation, English stopwords were removed. A full list of stopwords can be found in the documentation for the tm package. Additionally, the corpus was stemmed so as to remove variance created by different forms of the same word. (For example, prior to stemming, the computer will recognize "doctor" and "doctors" as two different and unrelated tokens. This is not advantageous to my analysis.) While the removal of numbers and punctuation changes the ultimate composition of the corpus, I chose to remove them due to the nature of the questions that I am asking.[†] The script that was used to clean the texts can be found in the following GitHub repository:

`https://github.com/abigailella/dh-thesis`

2.5 Principal Components Analysis

Principle components analysis (PCA) is a means of summarizing multidimensional data while maintaining the relationship between variables. It is sometimes called "eigenvector analysis" or "latent vector analysis". [31] PCA is used frequently in Computational Stylictics, a field of study which "aims to find patterns in language that are linked to the processes of writing and reading, and thus to 'style' in the wider sense." [32]

2.5.1 A Brief Mathematical Explanation

Before exploring the findings of a PCA run on my corpus, I find it necessary to give a brief explanation of how PCA works within the context of computational text

[†]I conducted a version of this analysis with an un-stemmed corpus, but found that stem variants made the results more difficult to interpret. Therefore, I decided to go the stemming route. However, there are hot scholarly debates surrounding best practices for corpus pre-processing. Many of these debates center or whether or not to stem a corpus. Interested readers might want to check out Matthew Jockers' blog: http://www.matthewjockers.net/2013/04/12/secret-recipe-for-topic-modeling-themes/ and the following article by David Mimno and Alexandria Schofield: *Comparing Apples to Apple: The Effects of Stemmers on Topic Models*

analysis. PCA uses "the frequencies of occurrence of p function words in n text blocks as input for the analysis."[33] In other words, the analysis must begin with a matrix of the frequencies for each word in a corpus, across every text in that corpus. For clarity, I've provided an example of what such a matrix might look like, below.[‡]

	life	**nature**	**cell**	**right**
text_1	2	3	4	0
text_2	2	5	0	4
text_3	1	3	1	3
text_4	4	2	1	2
text_5	1	6	0	2

This matrix shows us that the word "nature" occurs in text_1 three times, compared to text_2, where it appears five times. A matrix like the one shown above is the starting place of PCA. However, imagine that this matrix was expanded to include every word that happens to occur within a corpus of dozens, hundreds, or thousands of novel-length texts. Such a matrix would be so large that we'd be unable to glean any useful information from it. In layman's terms, PCA helps to reduce the dimensionality (ie: the *size*) of the matrix so that it may be more easily summarized and visualized, while not erasing meaningful information contained within the matrix.

When a computer conducts PCA it starts from the matrix of raw word frequencies. From there, it then calculates the *mean corrected* and *standardized* frequencies. The *mean corrected* frequencies are calculated by taking the frequency of a given word in a single text and subtracting the average frequency of that word across the entirety of the corpus.

[‡]This matrix is not taken from any specific text and has been constructed for pedagogical purposes only. A "real" matrix would contain one column for every unique word in the corpus and one row for every document in the corpus.

This process is repeated for each text in the corpus. The *standardized* frequency, also calculated for each text, takes the *mean corrected* frequency and divides it by the standard deviation of the word across the corpus. The standard deviation is simply a measure of "spread" in the data. In the example matrix provided above, "life" has a spread from one to four across the five text, whereas the word "cell" has a spread from zero to four. "Cell" will therefore have a higher standard deviation than "life". For reference, the standard deviation for any given word across the corpus is given by the following formula, where x represents the *mean corrected* frequency and n represents the total number of texts in the corpus:

$$s = \sqrt{\frac{\Sigma(x)^2}{n}} \tag{2.1}$$

In layman's terms, this gives us a sense of the "spread" of the data. We can then calculate the variance for each word by taking the square of the standard deviation of the word's frequency across the corpus. In other words, s^2.

However, it is not particularly helpful to look only at each word's individual variance without also examining how this variance compares to the variance of each of the other words contained in the corpus. In order to understand how each word (or rather, *column of word frequencies*) in the matrix contributes to the overall variance within the corpus, we must look at measures of covariance. The covariance between any two columns in the matrix is given by the following formula, where x_1 is the mean corrected frequency of the first column of words and x_2 is the mean corrected frequency of the second column of words:

$$s = \frac{\Sigma(x_1 * x_2)}{n} \tag{2.2}$$

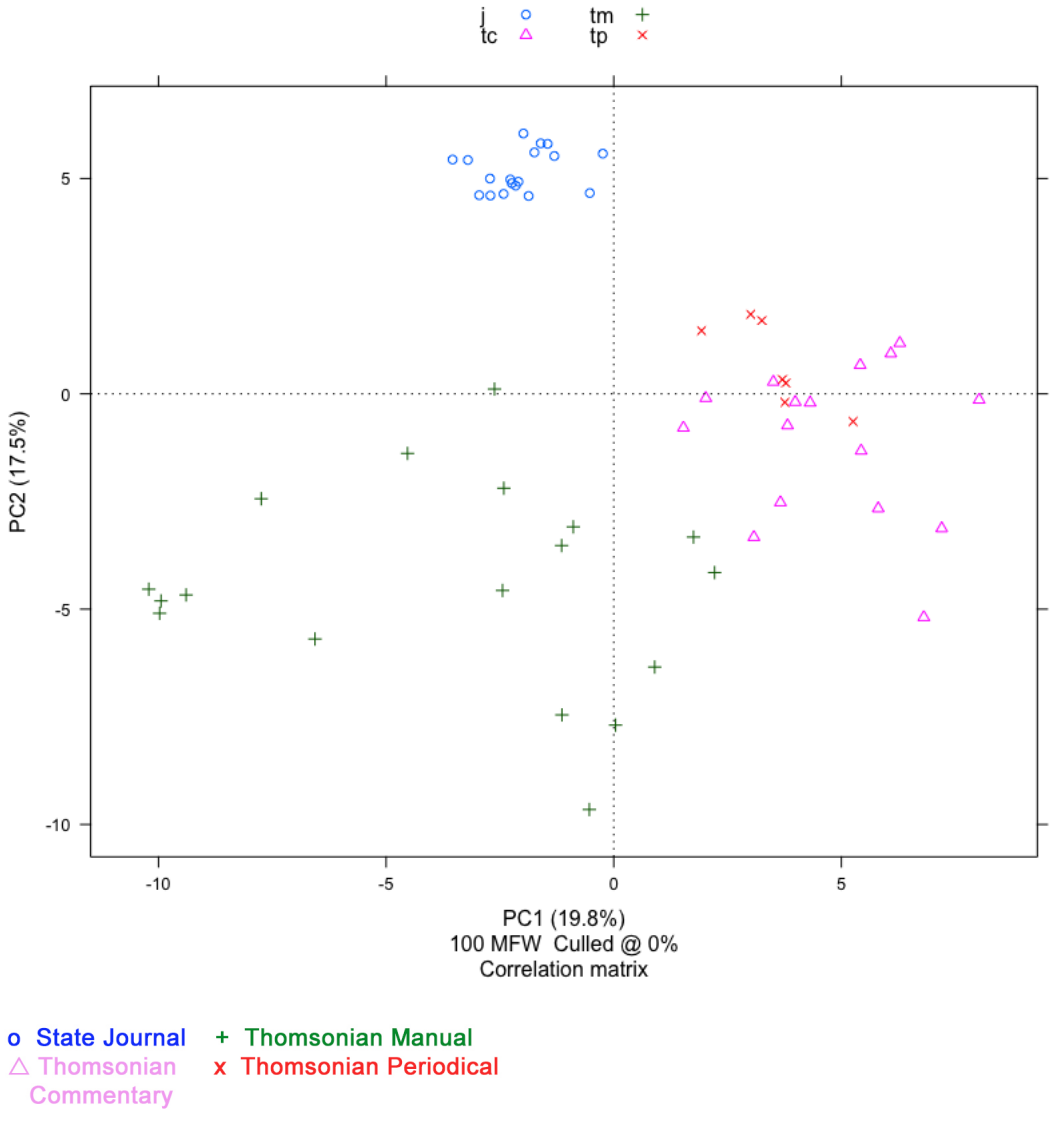
In a corpus, however, there are far more columns than merely x_1 and x_2, as there are far more than two words contained within any given corpus. We must calculate the covariance for all *all* possible word pairs within the corpus. Luckily, covariance across a corpus can be plotted in a matrix.

Even so, we are left with yet another large matrix. Principle Components Analysis attempts to reduce the dimensionality (or *size*) of our covariance matrix on the basis of which components (in this case *words*) contribute the most variance to the data set. The combination of words contributing most to the variance is called the first principle component, or *PC1*, and the combination of words contributing the second most to the variance is called the second principle component, or *PC2*. Components of the corpus that do not make a significant contribution to variance are discarded in the process of PCA, thereby reducing the dimensionality of the matrix.

When we plot the results of our Principle Components Analysis, we end up with a graph situated around the axis of the first two principle components. Interpreting a PCA graph may seem daunting at first. There are a few pieces of information to keep in mind when attempting to glean information from the analysis. First and foremost, on a PCA graph, each point represents a text. Second, the longer the distance between the points, the more different they are based on their principle components. Therefore, on a PCA graph, a cluster of points represents a cluster of texts with a high level of word similarity. Points that are farther away from each other on the graph, then, have a lower lever of similarity. They are, one might say, more "distant."

2.5.2 Results and Interpretation

The following PCA correlation matrix was created using the stylo package in R. Note that, for ease of interpretation, texts have been labelled by category. PC1 accounts for 19.8% of the variance in the corpus, and PC2 accounts for 17.5%. Note that the Journal class has formed a distinct cluster. Similarly, the Thomsonian Commentary and Periodicals groups are situated together. While the Manuals appear to be the most disaggregated of the classes, they are still distinctly different from the Journals category. As a reminder, the closer two texts are on the graph, the more similar they are in regards to their patterns of word usage.



In examining why this graph is the way it is, it is important to consider the historical and social conditions under which the texts were produced. Who wrote, edited, and published these texts? What audiences would have read them, and how might they have functioned in the day-to-day life of their readers? The state-affiliated medical journals were published, read, and circulated within a small but growing circle of medical professionals: those who attended a medical college and practiced as licensed physicians. Much like their scattered pattern on the PCA graph, the Thomsonian texts, however, were read and circulated among a wider circle of people.

Looking at the graph, the Thomsonian manuals are particularly scattered. This is perhaps due to the wider nature of medical topics that Thomsonian manuals covered: everything from family medicine to women's care. These manuals were directed towards literate men and women of any education level, and often contained appeals for the usage of the self-administered Thomsonian system over that of the trained physician in addition to containing medical knowledge.

Archival and historical evidence corroborate this theory of a wide-audience. It's likely that such manuals were used in a variety of households across the East Coast and into the Midwest, given that *New Guide* in its various editions was published and printed in those locations.[§] Of the manuals contained within this corpus, publication cities ranged from as far south as Tennessee, as far north as Vermont, and as far west as Ohio. Jennifer Connor of the Institute for the History and Philosophy of Science and Technology writes that these manuals were also printed and read as far north as

[§]It may be too much of a jump to suggest that the publication of a book in a certain place ensures that it had a strong readership there. However, many of the Thomsonian medical manuals contained place-grounded information regarding where to obtain Thomsonian medicine. For example, *American Family Physicians*, published by Thomson's colleague, Elias Smith, contains a list of medicines and prices – by pound, quart and oz – along with an address provided where readers can purchase them. In this case, the address reads: *54 High Street Boston, Doctor E. Smiths hospital and boarding house, complete with rules and recommendation for people staying there.*

Canada.[34] Though its ideological ties with Jacksonian democracy are distinctly American, it is particularly interesting that Thomson had a readership that reached outside the borders of the United States.[‡] Unlike the state-affiliated medical journals, which were written and read in a relatively closed community of learned men, Thomson's writings were circulated across state and international borders, among a population that was far more varied along lines of race, class, gender, and nationality.

In my own experience sifting through copies of Thomsonian Manuals, I've discovered a few that have errant scribbles scattered throughout, almost as if a child had gotten a hold of the book. While there is of course no way to confirm this, such findings suggest that Thomson's manual may have been a fixture of the household, readily within the reach of all. These facts alone are not enough to confirm the notion that the difference we see in the PCA graph can be attributed to the wider audience at which Thomsonian manuals were aimed (as compared to the narrow audience at which medical journals were aimed). However, the historical facts, the archival anecdotes, and the computational findings are a convincing triangulation of evidence.

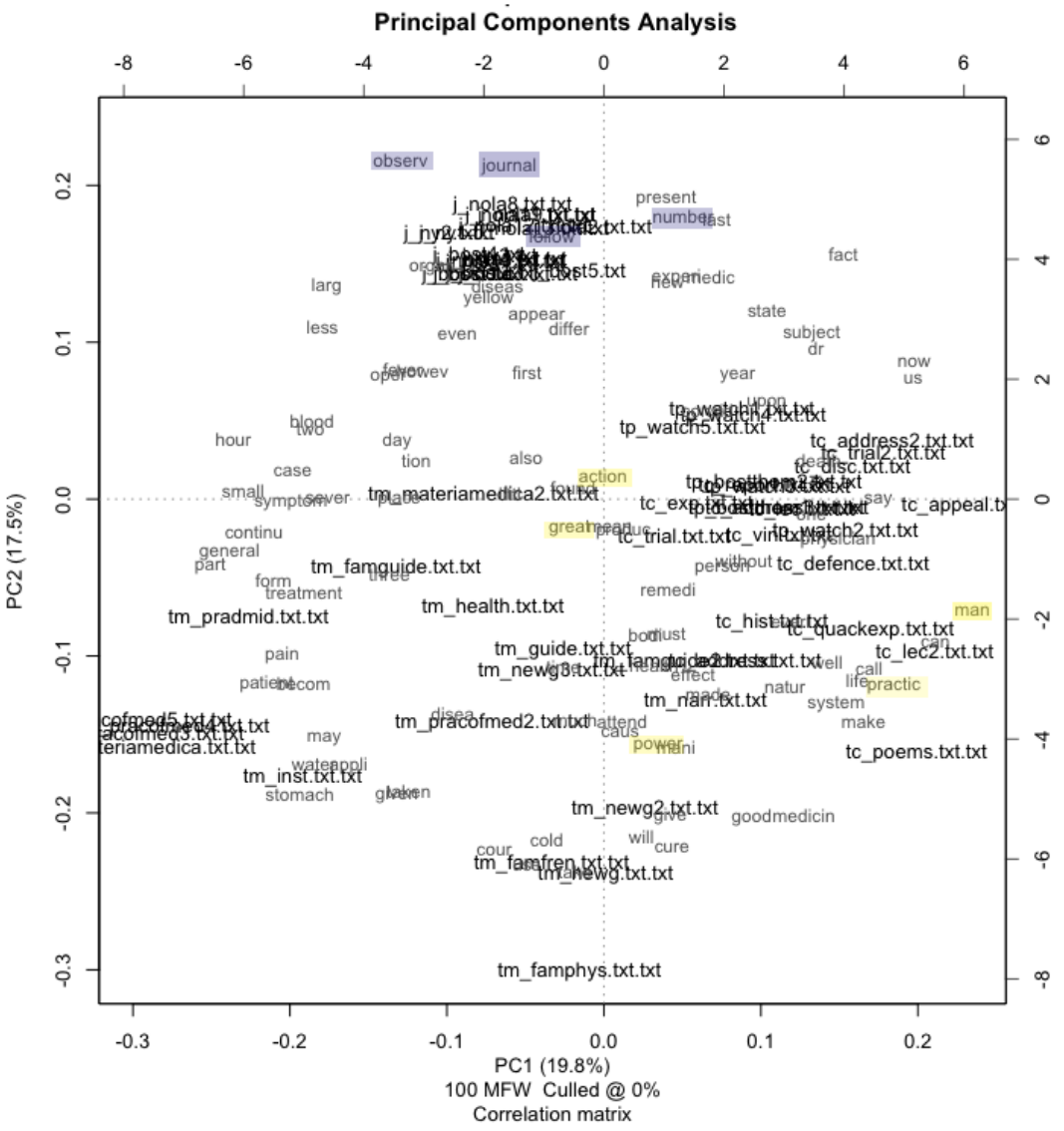
In marked contrast to the Manuals category, the Periodicals category (denoted with x symbols on the graph) are relatively condensed. It may be tempting to compare the clustered nature of the Periodicals category with that of the Journals category, concluding that Thomsonian periodicals contain a very similar sort of writing to each other, much in the way that the orthodox journals are similar to each other. While this is true, in that both the Periodicals and Journals categories have very little difference within their respective type, it's important to consider the differences that exist regarding the composition of these two categories.

[‡]The reason behind the appeal of Thomson's texts to non-American readership is certainly an interesting line of inquiry; however, it falls beyond the scope of this project.

All of the texts in the Thomsonian periodicals category were published in Boston between the years 1835 and 1840. The texts in the Journals category, however, were published in a variety of locations (Massachusetts, Louisiana, and New York) across a longer span of years: 1824 to 1859. When considering these facts, the tightly clustered nature of the Thomsonian periodicals is less surprising, whereas the tightly clustered nature of the Journals category is quite remarkable. In order to get a better comparison between these two groups, it'd be necessary to start with a corpus that contained roughly equal numbers of texts in each group, spanning a roughly equal number of years. For accessibility reasons, the creation of such a corpus wasn't possible for this analysis. We can only hypothesize as to why the Journals group is so remarkably clustered: perhaps this is reflective of a higher degree of standardization—not only in regards to medical practice but also in regards to medical discourse, among licensed physicians?

It is certainly true that beginning in the 19th century, regular physicians began to interact with each other at national conventions. In 1845, Dr Nathan S. Davis of the New York Medical Association called for the establishment of such a convention. Eventually, this led to the establishment of the American Medical Association, a body that regulated medical practices on a national (as opposed to state) level.[35] While Friendly Botanic Societies met in isolation from each other and resisted the development of national standards, regular physicians strived to keep up-to-date on the national standards. Thus, it makes sense that there was a higher degree of coherence within the state medical journals as compared to the Thomsonian texts.

While the previous graph is helpful for visualizing the clusters that exist within the corpus, it does not describe which words within the corpus are contributing to the clusters. The following graph depicts the same analysis, but shows which words (in black) are pulling which texts in which directions.



Here, we see the different words that are associated with each cluster. From this graph, we can begin to make generalizations about the nature of the words that different text classes tend to contain. Note that the top-most words, *observe*, *journal*, *follow*, and *number*, (highlighted in purple) seem to pull the clump of state medical society (category J) texts towards that side of the graph. Meanwhile, these words appear to have very little pull on the majority of the Thomsonian texts. Other words such as *man*, *power*, *practice*, *action*, and *great*, (highlighted in yellow) seem to have more pull on the Thomsonian texts than the state journals. This information helps provide a picture of the sort of

vocabulary that the different text groups might me more heavily associated with. A more thorough examination of these words and their uses in each text group will be conducted in the following chapter.

These differences, while distinct, represent an amalgamation of difference that is occurring across the corpus. The PCA graph does not, however, give us a sense of how the differences that exist between texts may have changed over time. In order to gain a sense of time-scaled differences in language use within the corpus, I will turn to another computational technique: topic modeling.

2.6 Topic Modeling

2.6.1 A Brief Mathematical Explanation

Topic modeling is a technique helpful for determining which discourses are contained within a text or set of texts. Topic models look at groups of words that tend to occur across texts, while preserving the context dependent meaning of words. For example, the word "nature" might occur in reference to trees and forests, but it might also occur in the context of one who is "good-natured". Topic modeling is able to examine word usage as it aligns with meaning, not just frequency. Thus, it is a good technique for examining topics, or discourses, that occur within a corpus. One technique common to topic modeling is that of Latent Dirichlet Allocation, or LDA. While the mathematical underpinnings for LDA are fairly complex, it can be explained more generally by the following formula, provided by Ted Underwood in his piece *Topic Modeling Made Just*

Simple Enough.[36]

$$P(Z|W,D) = \frac{\#\,of\ word\,W\ in\,topic\,Z + \beta_w}{total\ words\,in\,Z + \beta} * (\#\,of\ words\,in\,D\,that\,belong\,to\,Z + a) \tag{2.3}$$

Before beginning to understand this formula, it's necessary to think of texts not as a collection of words that are written by an author, but rather, as a collection of words that are produced by *discourses.*[37] In topic modeling, we aim to understand which words in a text belong to which discourses, or "topics", that text might contain. In other words, what is the probability that a word - let's call it "W", belongs to a certain topic - let's call it "Z"? In order to find out, we look at the proportion of the occurrence of word W in topic Z as compared to the total number of words in that topic. We then multiply that by the number of words in the entire text (D) that belong to topic Z. The added beta and alpha are merely hyper-parameters, or as Underwood aptly calls them, fudge-factors.[¶]

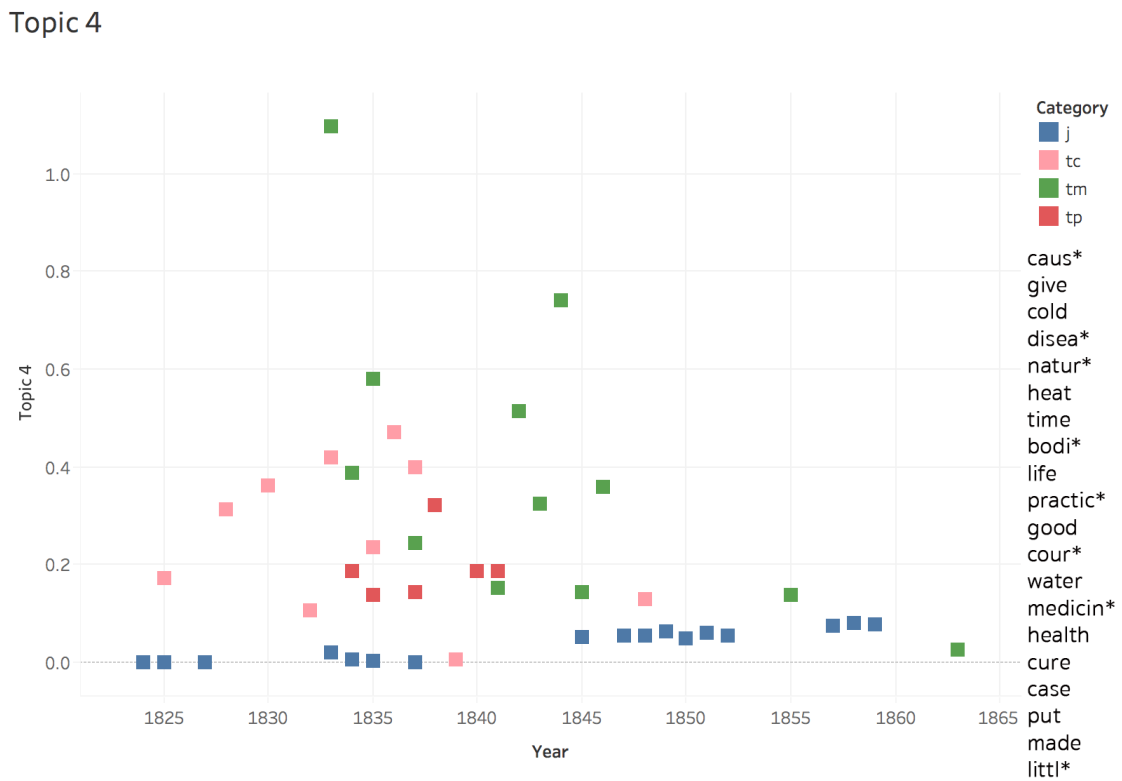
2.6.2 Topic Modeling: Results and Analysis

The topic models created for this analysis were modelled by MALLET using the GUI wrapper "Topic Modeling Tool", maintained by Scott Enderle.[§] Metadata files containing the associated category and publication date for each texts were linked to the analysis. The following graphs each display the strength of a topic for each text (on the vertical y-axis) by publication year (on the horizontal x-axis.). Just as a note, for impartiality, topics are numbered but are not given interpretive or descriptive names. The practice of not naming topics is relatively standard. The texts are color-coded by

[¶]If it's still unclear exactly how topic modeling works, Matt Jockers' buffet analogy provides a useful perspective: http://www.matthewjockers.net/macroanalysisbook/lda/

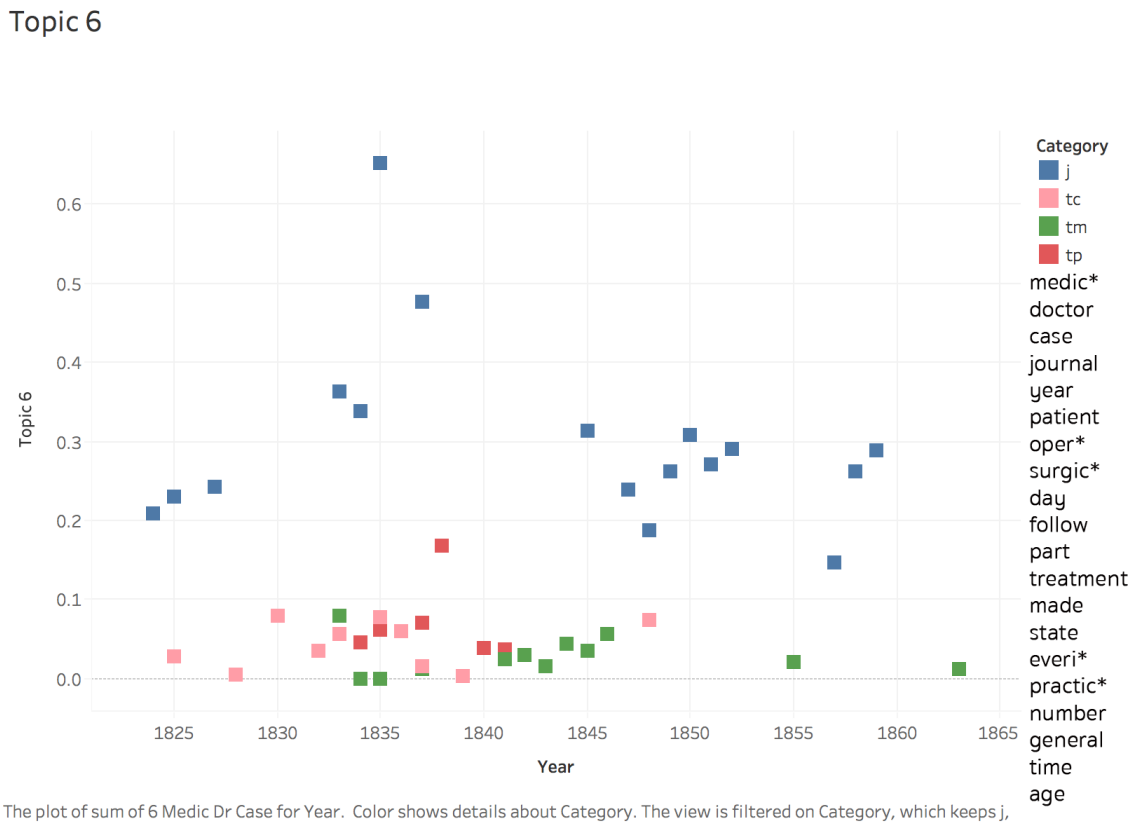
[§]For more information on the GUI for MALLET, visit https://github.com/senderle/topic-modeling-tool

their category using the same color conventions as the PCA graph. For clarity, the words contained within each topic are displayed alongside the graph. Stemmed words are indicated with a "*" at the point of stemming. This visualization shows—albeit rather crudely due to the "time-gaps" that exist within the corpus—how patterns in discourse change over time. In order to get a better picture of this, it'd be necessary to survey a larger corpus, with at least one text per category for every year surveyed. Nonetheless, this analysis gives a rough estimate of patterns in discourse over time. A full readout of all ten topics is available in the associated Git Repository, however, particularly interesting examples are displayed below.



Topic four, in which some of the most common words were "cause*", "give", "cold", and "diseas*", is extremely prevalent within all categories of the Thomsonian

texts, however, it is less popular in the Journals category. Some of the words, in particular "cold" and "heat," are artifacts of the Thomsonian medical system, which focuses in part on balancing hot and cold within the body. Also unsurprising is the fact that this topic occurs in the highest frequency within the Manuals category. Indeed, Topic 4 was one of the most popular topics within the Manuals category. On the contrary, it was one of the least popular topics in the Journals category. This information suggests that the primary mode of discourse contained within the Thomsonian Manuals was one focused on describing the medical practice itself using its own terms—terms that were not shared by the orthodox medical journals. It does not, however, suggest that the manuals were, on the whole, particularly political.

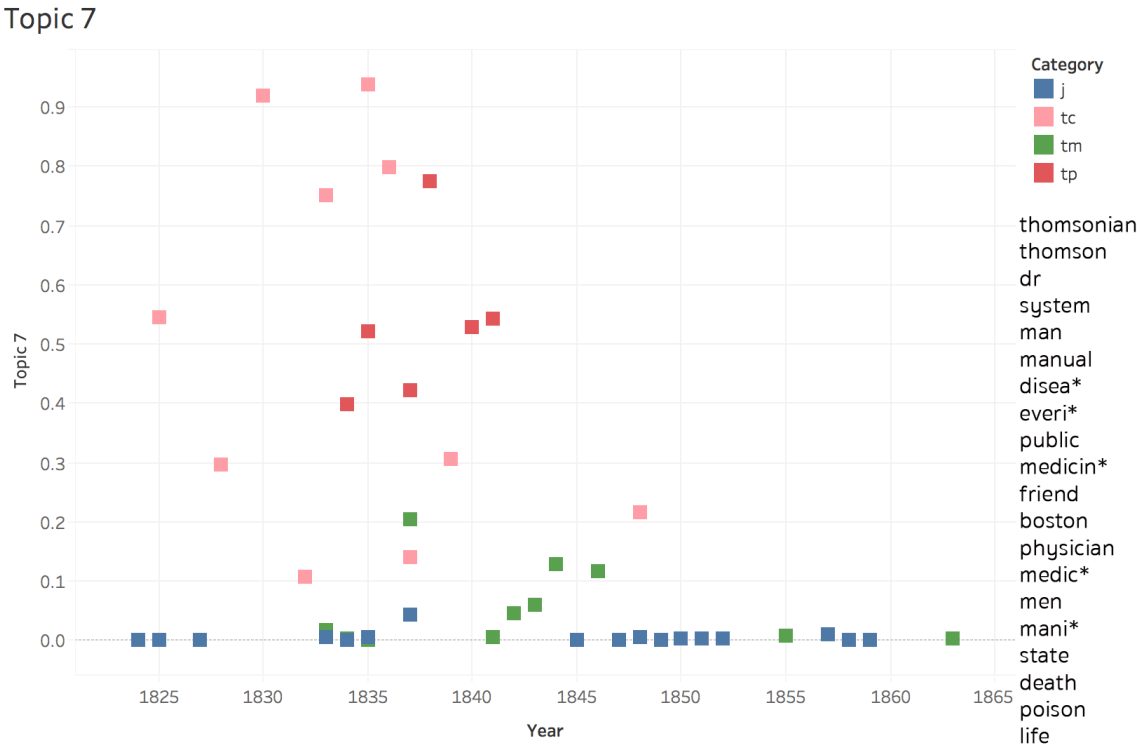


The plot of sum of 6 Medic Dr Case for Year. Color shows details about Category. The view is filtered on Category, which keeps j, tc, tm and tp.

Topic six, on the contrary, containing words like "medic*", "doctor", "case", and "journal", has a high prevalence in the Journals category and a lower prevalence in

the Thomsonian texts. Notably, the words comprising topic six (listed to the right of the graph) are more formal than the language found in the topics that are more prevalent in the Thomsonian texts. For example, the journals containing topic six use the more formal "doctor," whereas the Thomsonian texts containing topic seven use the abbreviated "Dr." Additionally, in topic six, we see words such as "case," "number", "surgic*" (a stem of surgical), and "oper" (a stem of operation and operate).

There are many possible explanations for this. Perhaps the Thomsonians refer to their patients by name as opposed to referring to the as "cases". If this is true, we might then explore the implications of such a tendency. Do Thomsonians view their patients in a way that is fundamentally different from the regular physicians? Does the doctor-patient dynamic even exist within the Thomsonian sphere? Though a close read is ultimately necessary in order to fully understand the ways in which these words are used, becoming alert to these word differences helps us understand the sort of vocabulary that the state-medical journals contain, compared to the Thomsonian texts. Within these journals, there is a clear distinction between *patient* and *doctor*, with each patient presenting a *case*. Such a distinction seems to be less present in the Thomsonian texts. In order to understand more, we'll have to return to the texts while keeping the existence of such differences in word use in mind.

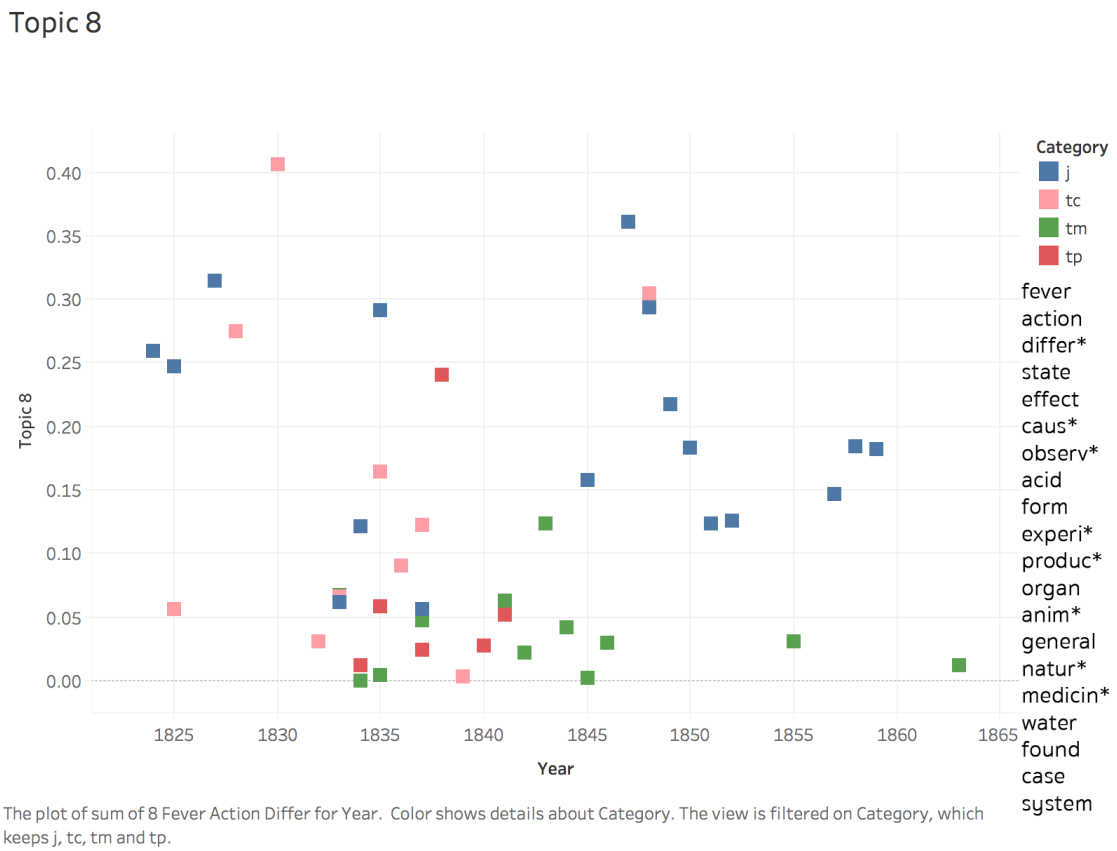


The plot of sum of 7 Thomsonian Thomson Dr for Year. Color shows details about Category. The view is filtered on Category, which keeps j, tc, tm and tp.

In topic seven, we see a very different sort of language than what is exhibited in topic six. In addition to seeing the words "Thomsonian" and "Thomson," rather than "patient" and "doctor," we see words like "man," "public," and "friend." These words do not create the hierarchy that the words "patient" and "doctor" create. Perhaps not surprisingly, this topic is very rare (though, not entirely absent) in the Journals category. This absence helps provide further evidence for the theory that Thomsonians have a tendency to speak to and about patients in a way that is less depersonalized than the ways in which the state medical journals speak to and about patients.

Furthermore, the low prevalence (or rather, the lack of a complete absence) of this explicitly Thomsonian discourse within a select few state medical journals suggests that the orthodox medical community was aware of the Thomsonians, and occasionally made mention of them in published works. This model does not, however, give much insight into whether or not the state medical journals mention the Thomsonians in a derogatory

or negative manner. A close read will further elucidate the ways in which state medical journals were aware of the Thomsonian community.



The plot of sum of 8 Fever Action Differ for Year. Color shows details about Category. The view is filtered on Category, which keeps j, tc, tm and tp.

Unlike topics four, six, and seven, which exhibited popularity in either the Thomsonian categories or the Journals category, topic eight is fairly prevalent in both Thomsonian and non-Thomsonian texts. Like in topic six, the word "case" appears, however it appears along side words such as "natur*" (a stem for natural and nature), "water", and "found". In this topics, there are also a variety or words that may have meanings that are very context-dependent. The word "state" might refer to a governing body, or it may refer to a physical or mental state. The stem "experi" might refer to experience or experiment—two very different words.[‖]

[‖]Here, we see an example of the downside of stemming. While it can prevent similar tokens (doctor vs. doctors) from clouding the analysis, it can also introduce problems.

Indeed, while topic modeling has proven itself useful in identifying patterns and trends in the corpus groups, it is very difficult to make any certain conclusions from this data alone. Such is the problem with topic modeling: while it allows us too see groups of words that appear together in context, it does not allow us to ascertain the emotional affect brought about by the words when presented within that context. In order to tease out the characteristics of this discourse as it appears in the different text categories, I turn towards a close reading of the texts.

Chapter 3

A Return to the Text: Exploring Nature and Agents

3.1 Medical Writing in the 19th Century

At the start of the nineteenth century, science writing exploded into a period of accelerated growth. At the end of the eighteenth century, there were around 100 scientific journals worldwide. By the end of the nineteenth century, this number had grown ten-fold.[38] American medical writing during this time period experienced a similar evolution, and along with it, *fragmentation*.

As Paul Starr writes in *The Social Transformation of American Medicine*, "the history of medicine has been written as an epic of progress, but it is also a tale of social and economic conflict over the emergence of new hierarchies of power and authority, new markets, and new conditions of belief and experience."[39] As medical colleges sprung up in the United States, medical education became a business, and the conditions of

belief shifted from individualized experiential knowledge towards institutional scientific knowledge.

Indeed, medical schools had monetary incentives to train more and more doctors, and doctors had monetary incentives to treat more and more patients. The education of doctors and the treatment of patients was, in many ways, a commodity. As with any mass-produced commodity, colleges relied on institutional practices in order to achieve consistency and cohesion among practitioners. Like the results of my topical modeling analysis suggested, in the state-affiliated texts, I saw a tendency to reduce patients to cases, to strip away histories and names. In keeping with this scientific (as opposed to experiential) rationale, the writing in the state-affiliated medical journals is, on the whole, more cold, calculated, and removed.

The Thomsonian system, however, sought to distance itself from the coldly-scientific, calculated, and commodified forms of medicine that the state medical societies practiced and wrote about. The Thomsonian texts, on the whole, are more deeply personal and anecdotal—and sometimes poetic—in nature. They tell the tale of the individual, rather than the case. Such writing likely appeals more to the masses that Thomson intended to target. It is, one might say, more inherently populist.

3.2 A Computationally-informed Close Read

In this section, I'll highlight some of the specific examples behind these general differences between the regular and Thomsonian medical texts. Informed by the results of the PCA and Topic Modeling, I have selected four texts – one in each category – for close reads. They are as follows: *Learned Quackery Exposed* (1836) from the Thomsonian Commentary category, *A New Guide to Health* (1835) from the Thomsonian Manuals

category, the *Boston Medical and Surgical Journal* (1837) from the Journals Category, and *The Botanic Watchmen* (1834) from the Thomsonian Periodicals category.

These texts were chosen for several reasons. Firstly, they are relatively typical within their respective categories: each text resided well within its category in the PCA graph. Secondly, I selected texts that were all published within a similar time frame, so as to reduce the possibility that the texts contained differences that came from their different historical contexts, rather than their association with Thomsonianism as a whole (or lack thereof). I'll conduct these close reads keeping in mind the questions that were brought forth from the PCA and Topic Modeling analyses, namely:

1. In what ways were the state-affiliated medical Journals aware of the Thomsonian practice of medicine? In other words, what can a close read show me with clarity what the results of the topic model could only hint at?

2. Considering the different agents mentioned within various topics – patient, doctor, man, friend– how do different texts treat these different agents and the relationship between them? In what ways do the texts interact with their readers?

3. How do conceptions of nature and power differ between categories, and what can the implications of these differences tell us about whether or not I can ascribe the term "populist" to the Thomsonian texts?

3.3 Background on the Texts

Before delving into these questions, I'd like to provide a bit of historical context for each of the texts. *Learned Quackery Exposed* was published in Boston in 1836, and

is perhaps best described as a poetic treatise on herbal medicine.* The fifteen poems contained within the volume are authored by a variety of poets, including Thomson himself. They cover several topics, from didactic explanations of the Thomsonian system to fiery attacks on the prescription of calomel, a drug commonly used in orthodox medical practices in the 19th century.

New Guide to Health, as mentioned in chapter one, was a manual central to Thomson's practice. The 1835 edition that I have selected for a close read contains both *New Guide*, as well as *A Narrative of the Life and Medical Discoveries of the Author*, which contains an autobiographical account of Thomson's journey into botanical medicine.

The *Thomsonian Botanic Watchmen* was a periodical that began in 1834 in Albany NY, and served to "show the difference between the Regular and Thomsonian practice."It was written and edited by Samuel Thomson's son, John, who was an agent of the system. The volume selected here contains only issues from 1834.

Lastly, the *Boston Medical and Surgical Journal* was created through a merger of *New-England Medical Review and Journal* and the *Boston Medical Intelligencer*. Rooted in communities of regular physicians, it was first printed in 1828. Nearly a century later, it would be sold to the Massachusetts Medical Society. Its self-professed purpose was to "furnish a bond of union and sympathy between the members of [the medical] profession." [40] The bound volume that I have selected contains issues published from 1836-1837.

*As a reminder, Thomson wrote many of these poems in a jail cell before he was acquitted from the charge of murdering a patient.

3.4 Portrayals of Thomsonianism in the *Boston Medical and Surgical Journal* - and Vice Versa

As the topic 7 graph exhibited, a few state medical journals were at least in some way aware of the Thomsonians. However, the graphs could not portray exactly how this awareness manifested. Investigating the ways in which the regular faculty viewed the Thomsonian system will help shed light on whether the community was seen as "populist" during its time. In other words, while it is helpful to look at texts with a retrospective eye as we have thus far, it it also useful to understand how Thomsonian texts were interpreted during their time of publication and circulation. Recall that one key element of populism is the distinct division between the elite and the non-elite. Investigating the ways in which the regular faculty viewed the Thomsonians and vice versa will help us understand the extent to which this line was drawn.

Searching the state medical journal for mentions of the term "Thomsonian," it becomes apparent that the Thomsonian system of medicine gained attention in the regular community relatively infrequently, just as the results of the topic models would suggest. When the term does appear, it appears primarily because of its tendency to be associated with a variety of court cases and legal proceedings. For example, an issue from June 1836 describes a lawsuit that was taken up against Samuel Thomson's son, John, in which the city of Albany attempted to bar Thomson from charging for his services because of the fact that he had not attended medical school. The initial decision ruled in favor of the city; however, John took the case to the supreme court, which ruled in his favor. The journal laments, in a rather derogatory fashion, the decision to up hold the "rights and privileges of steam quacks to pepper mankind to death."[41]

Though most mentions of Thomsons system within the journals are similarly cursory, spanning only a few lines and mentioning only legal cases, one exception is that of the "Report on Thomsonianism", contained within the January 1837 issue of the Boston Medical and Surgical Journal. In this report, there are a variety of appeals that juxtapose the Thomsonian and regular practices. These comparisons give great insight into the ways in which the Thomsonian were characterized and evaluated by those with whom they sought to obtain equality and, simultaneously, degraded.

Indeed, one of the primary features that the report notes is that of the Thomsonians' lack of education. The committee notes that the Thomsonians "ask to be placed upon a footing of equality with the regular faculty" despite the fact that "nothing is required to initiate the most ignorant man in the community into all the mysteries of their practice."[42] Here, the committee draws a clear line between the "scientific men" of the regular faculty and the "ignorant man" of the Thomsonian community.

The committee goes further in distinguishing the differences that exist between the regular and Thomsonian faculty, characterizing Thomson and his "mushroom system" as something that "sprang up in darkness" and which is "inevitably doomed to wither and perish when exposed to light."[43] This metaphor implies that Thomson's system is not only dark, lowly, and unenlightened—but also ephemeral. This characterization is directly opposite from that of the regular faculty, which the report likens to an "enlightened Legislature" of those that ascribe to a more scientific practice of medicine—a practice that "has been maturing for the last twenty centuries, and has received contributions from some of the most enlightened and brilliant minds of every age." [44] The report paints the regular faculty as an established, sturdy, and long-lasting entity. In establishing Thomson's practice as a "mushroom" and the regular faculty as

a "legislature," the report also implies that the *natural* is not always superior. Instead, the regular faulty seem to favor organization and institution.

Lastly, the report notes that "the petitioners . . . who consider themselves persecuted for righteousness sake, in common with their brethren of the same class in other States, are never discouraged." [45] This statement is interesting for several reasons. Chiefly, is it helps us understand that although they characterized Thomsonians as ephemeral and lowly, the regular medical community characterized the movement as a cohesive and far-reaching. Referring to the Thomsonian as a "brethren" connotes a certain degree of unity, and noting that the "same class in other States" felt similarly implies that the Thomsonians, despite their distaste for institutionalized medicine, were indeed a coherent enough group to span across state borders. Additionally, it is interesting that the report characterizes the Thomsonians as feeling that they were "persecuted for righteousness sake." This language of oppression and persecution is also present in the Thomsonian texts, with doctors often being referred to as "tyrants."[46] In the Thomsonian poem *Three Crafts*, the speaker states that "Law, Physic, and Divinity" are the three crafts that "keep the world oppressed and blind." [47]

Such language exhibits a characteristically Thomsonian distaste for both the regular physicians and the laws that protected their practice. In another poem, the speaker writes that the regular faculty practice a "wicked craft" and that they ought to "pray God's forgiveness."[48] This statement suggests that the Thomsonians' cause for concern regarding the regular medical faculty was not only legal, motivated by the fear of being barred from practice due to the rise of medical licensing laws, but also a moral one.

Indeed, the Thomsonian texts characterized the regular faculty in a way that appeals to moral arguments. The first issue and first volume of the Thomsonian Botanic

Watchmen contains the following appeal for Thomsonian medicine:

> . . . its simplicity, or its plain natural adaptations to the illiterate, untutored part of the human family. The poor and the illiterate require the attention of the humane and benevolent in all countries, and such are the most numerous class in all countries. To such, the Thomsonian practice holds out a helping hand to snatch them from pain and death.[49]

Here, *The Watchmen* portrays Thomson's system not as lowly and dark, but rather, as a means through which to raise people up and out of the clutches of poverty and the darkness of disease. It is true, indeed, that the Thomsonians do not make attempts to prove themselves a part of the "brilliant minds" of the "enlightened Legislature" of the regular faculty. Rather, they attempt to find strength in their position as the lesser-educated of healers. Through Thomsonianism, the low will become lofty and the lofty will lose their position of power and influence.

Instead of emphasizing their strong foundation in knowledge, as does the regular faculty, the Thomsonians instead attempt to prove their validity as a medical system by providing positive anecdotes. Such an attempt exhibits the value that Thomsonianism places on experience rather than theoretical knowledge. *The Botanic Watchmen* contains a variety of such anecdotes, including a questions and answer style dialogue between a Thomsonian and an unnamed "senior physician." In this dialogue, the Thomsonian remarks that the country is entering a "new era" in which the "student shall become the teacher."[50] The journal also contains letters from those who profess to have been nearly killed by regular physicians, only to have saved themselves using Thomsons methods. Both of these examples exhibit the reversal of traditional power hierarchies. While

Thomson seeks to uplift the impoverished and illiterate into positions of power as healers, he also seeks to overturn the hierarchy between the learned physician as teacher and the lowly and uneducated man as his subservient.

New Guide to Health contains similar sentiments, accusing the regular faculty of being "shut up in a cloister" and noting that Thomson instead seeks to "convey to the public, in as plain and simple terms as he was capable, a correct knowledge of his system of practice."[51] Here, Thomson accuses regular doctors of holding "the common people back from a knowledge of what is for the utmost importance for them to know."[52] These accusations align well with Cas Mudde's conception of populism, which holds that the "pure people" and the corrupt elites are two distinct and antagonistic groups, and that it is the "pure people" who ought to hold the power to rule—or in this care, the power to *heal.*

Learned Quackery Exposed, the volume of Thomsonian poetry, also contains appeals against the regular medical faculty. Similar to the ways in which the *Boston Medical and Surgical Journal* accuses the Thomsonians of being dark, and doomed to wither as would a mushroom when exposed to light, in *Learned Quackery*, Thomson uses appeals to light and dark to degrade the regular physicians mode of practice. He writes in verse:

> Two thousand years they boast of light
>
> Yet deadly scales obstruct their sight.

This language seems to offer a direct reply to the regular faculty's claims that they preferable because of their enlightened nature and longstanding foundations. [¶]

[¶]Though they were published at around the same time, most of the poems in *Learned Quackery Exposed* were written before the *Boston Medical and Surgical Journal* came into existence. Therefore, it's unlikely that the similarity in the imagery used in the two texts was intentional.

3.5 Portrayals of Thomson and the the non-physician

In the previous sections, we examined general characterizations of the Thomsonian and regular systems. While both the *Boston Medical and Surgical Journal* and the Thomsonian texts offer many opinions and characterizations of each other's systems, much can also be said regarding the ways in which these texts speak more specifically about various agents and stakeholders involved. These included patients, doctors, botanic practitioners, and more generally, "the public." Recall the questions that were raised by the the output graph for topic six, namely the high prevalence of cold and disembodied terms like "case" within the state journals compared to the lower prevalence of these terms in the Thomsonian texts. In topic 7, however, terms like "public" and "friend" were more prevalent in the Thomsonian texts. Further probing these differences in terminology will help us better understand how each party viewed the various stakeholders involved, thus bettering our picture of the ways in which the elites and non-elites of the medical community characterized themselves and others.

Characterizations of Samuel Thomson are particularly interesting. The report in the *Boston Medical and Surgical Journal* compares Thomson to an "officer of a campaign who . . . directs his ordinance against the ramparts of his enemy without making a single inquiry into the point where they could be most successfully assailed."[53] Such a statement depicts Thomson as a man wielding a great deal of power, who possesses little to no restraint, knowledge, or finesse. A not un-similar characterization exists in Thomson's poem, *Acrostic on the Author*. He writes that he has "madly raged [his] enemies" and goes as far as to compare himself to the "Ogg of Bashan" a biblical giant, in the literal sense.[54] In the Old Testament, the book of Amos, chapter two verse nine, cites Og as standing at "the height of the cedars" and as being "strong as the oaks."

Indeed, both the state medical journal report and Thomson himself characterize him in ways that align with the characteristics of a populist leader: larger than life, lofty despite his lowly affiliations, and having a marked thirst for strength and power.

Also notable are the ways in which the different texts characterize and interact with non-physicians, that is, those without medical training. *The Boston Medical and Surgical Journal* contains little to no appeals to the public or the common man. The Thomsonian texts, however, speak directly to their non-physician readership, as the results of the topic model suggested. Indeed, *New Guide* and *Botanic Watchmen* alike contain many appeals to "the people" and "the public." Moreover, a close read elucidates features that were not made apparent in the topic model. For example, the Thomsonian texts lapse into the second person, speaking directly to the readers. The common man is given particular attention in *Learned Quackery Exposed*, the collection of Thomsonian poetry. The choice to use the poetic form to communicate medical information is particularly important to consider when exploring the ways in which Thomson catered to the common man more so than did the state medical journals. [†]

Because of this difference in form, the texts present their information in a way that is fundamentally different from the manuals. Unlike *New Guide* and other popular medical manuals that use lengthy chapters of prose to communicate their purpose, the poems in *Learned Quackery Exposed* are markedly shorter and more lyrical than typical medical discourse. This lyricism, combined with frequent repetition of key terms and ideas, as well as the poems' use of simple, unrefined language, lends itself to a collection

[†]This detail—the fact that *Learned Quackery Exposed* is comprised primarily not of prose, but rather, of poetry— slipped under the radar of the computational analysis. This is not to say, of course, that it would be impossible to devise an analysis that would aid in better understanding various forms of poetry and/or prose in a corpus. It's only to say that this analysis, with its specific set of parameters, was not able to detect these differences.

of medical information that is far more memorable and easy to digest than a full-length manual.

All but one of the poems in the collection are rhymed and have an iambic meter. The result of this form is a song-sing cadence–even when the poems focus on more technical medical topics. For example, *Seamen's Directions* takes the form of a rhymed call and response, where questions regarding six Thomsonian remedies are answered in quatrains composed of rhymed couplets. The poem asks, "When the disorder is removed, what much we do to regain our strength?" and provides the following reply:

> Now take your bitters by the way,
> Two, three, or four times in a day;
> Your appetite if it be good,
> You may eat any kind of food. [55]

Rather than describe the desired course of medicine using disembodied terms such as "the patient" or "the appetite," this poem presents instructions in the second person, speaking directly to the reader. While scientific and medical writing is generally thought of as having a distancing effect on the reader, this poem does quite the opposite. Here, the use of the second person has the effect of placing the reader and the writer on a similar level. Both the questions that this poem asks, and the answers that it provides, are written in clear, simple language. Rather than evoking a sense of cold expertise, the question seeker (ie: the reader) and the question answerer (ie: the writer) are on the same plane. As a result, we see a breaking down of the traditional power hierarchy that exists between doctor and patient. As was the goal of Thomsonian medicine as a whole, this poem aims to place power into the hands of the reader—likely a laymen— rather than in the hands of a trained physician.

Additionally, as exhibited in the above quote, the combination of meter and rhyme present throughout the poem is somewhat evocative of a nursery rhyme. Indeed, the instructions laid out in *Seamens Directions* could easily be followed by someone with basic literacy and absolutely no medical training. Furthermore, its songlike structure makes it easier to remember than would the same information conveyed in prose. This ease of reading, resulting in a broadening of the possible audience for the piece, is by no means an accident. Indeed, the first stanza of the poem states that:

> The emetic number one's designed
> a general medicine for mankind
> or every country, clime, or place,
> wide as the circle of our race.

Here, the poem explicitly states its intent for a wide-reaching audience. These features of the texts—their song-like cadence and simple language—further corroborate my theory that the Thomsonian texts were written with the intent of gaining popular appeal, particularly among those of lower educational classes.

The *Boston Medical and Surgical Journal*, on the other hand, contains very different language surrounding the physical body of the non-physician. Instead of addressing the non-physician directly, the journal refers to the disembodied patient, writing of "the sufferer", "the blood", "the veins", and "the system." When on occasion the journal lapses out of its disconnected, third person omniscience, it never speaks directly to the reader in the way that *Learned Quackery Exposed* does. The journal contains a few first person, personal accounts from physicians; however, it never gives voice to the common man.

3.6 On "Nature" and "nature"

In the quantitative analysis, Topic eight showed us that stems of the word Nature occurred in all categories of texts—Thomsonian and otherwise. However, the topic model does not allow us to see the emotional affect of the word, nor does it allow us to see the devices (metaphors, allusions, etc.) associated with this word within the various text groups. Upon returning to the texts and reading with the intent to understand how the word nature is used, it becomes apparent that the medical journals use the concept of "nature" in different ways than the Thomsonian texts. Furthermore, the Thomsonians' self-identification as champions of nature and her laws carries subtle populist undertones.

Indeed, as the Thomsonian practice employed herbal cures, practitioners often touted themselves as using more "natural" modes of healing than regular physicians. Not surprisingly, the Thomsonian texts contain many interesting appeals to nature. Because of the multiple meanings associated with the words "nature" and "natural," these appeals are of a particular interest when examining how Thomsonians and non-Thomsonians framed the moral "rightness" of their respective practices. The Oxford English Dictionary identifies two main branches of meaning for the word nature: "the phenomena of the physical world collectively" and "the basic or inherent features, character, or qualities of something".[56] The word "natural" also has several meanings, including associations to the spiritual realm and to moral correctness.

While uses vary, in general, the *Boston Medical and Surgical Journal* tends to use the term "nature" in order to refer to inherent characteristics. We see phrases like the "nature of the disease,"[57] and at one point, a patient is described by noting that "she is of a nervous irritable temperament and rather imbecile by nature."[58] The journal also uses the term to mean correct or legitimate, with phrases such as "restore the parts to

their natural position" and "the natural impulse of reproduction." [59] In other words, the journal does not tend to refer to the term "nature' in a way that connects directly to the natural world. Rather, this journal tends to use the term in a more metaphorical sense.

The Thomsonian texts, on the other hand, tend to use the terms "nature" and "natural" in ways that connect explicitly to the natural world. In *New Guide to Health*, Thomson writes of "[giving] nature its proper command."[60] Such phrasing gives agency to nature in a way that the Boston journal fails to do. Here, Thomson acts as a partner of sorts to nature, almost implying a sort of sentience on the part of the natural world.

The personification of Nature is perhaps strongest in *Learned Quackery Exposed*. In his 1809 poem "Medical Circular," Thomson writes of the regular faculty that:

> They nature fight, till she's most done;
> Then her recovery to work out
> They leave her, and the man's about.[61]

In this poem, Thomson characterizes nature as a female figure who doctors regularly attempt to resist and oppress, but who ultimately has the power to heal the sick. Thomson then characterizes his system as a means through which this power can be understood, taken advantage of, and wielded by any individual. In doing so, Thomson stresses that the powers of nature are simple and easy to harness. He writes that "kind Nature speaks in language plain,"[62] and that through his system, "each patent doctor...stands, a champion in the cause of nature and her simple laws."[63] The implications of this phrase are two-fold—firstly that Thomson's system allows his followers to harness nature, becoming a "champion" for its cause. Secondly, if we consider the connotation

of the "cause of nature" to be unstoppable and quite powerful, it seems that Thomson is also suggesting that individuals might, by mastering the laws of nature, become more powerful and strong themselves. The notion of each of Thomson's followers standing as a champion of their own health aligns well with the populist ethos, which touts the notion that is it the "pure people" rather than the "corrupt elite" who ought to hold power and influence.

Chapter 4

Conclusions

4.1 On Moving Forward

While my close readings have been fruitful, they are by no means comprehensive. Therefore, I'd like to provide a disclaimer not only that no amount of computational analysis alone can lead to a foolproof argument and conclusion about a group of texts, but also that hand selecting texts on the basis of such an analysis cannot bring us a deep understanding of all of the texts. The understanding achieved by this mixed method, as I have executed it here, is merely synoptic. It is a starting point, from which further inquiry might proceed.

In order to gain a better sense of the evolution of Thomsonian texts over time, it'd be necessary to piece together a corpus that contains an even larger number of texts—ideally, several texts from each year that the system was in existence. This would fill in the "holes" in the topic modeling time-line. Despite these imperfections, I'd like to return to the original question that drove the analysis: *How does the rhetoric*

contained within the Thomsonian medical movement differ from that of the orthodox medical community, and how to these differences change over time?

During the computational analysis, the results of the PCA suggested that there existed a difference in the nature of the Thomsonian and non-Thomsonian texts, and the topic models helped provide further insight. The close reading has, in many ways, further elucidated these differences, providing us with a more rich understanding of how Thomsonian and non-Thomsonian texts within the corpus presented themselves to their readers and how the texts interacted with one another. However, the line of inquiry into this subject is not complete. Rather, it's just begun. Approaching a large corpus, such as the one used in this study, it would be nearly impossible to treat each individual text with the close attention that it deserves. Even so, by allowing the results of a computational analysis to guide—but not confine—close reading, it is my hope that I have drawn iteresting and useful insights from the texts.

If we return to Cas Mudde's definition of populism as an ideology which "considers society to be ultimately separated into two homogenous and antagonistic groups... and which argues that politics should be an expression of the volonte generale (general will) of the people," it seems that Thomsonianism, and more specifically Thomsonian *texts*, all fit the bill. In general, the Thomsonian texts exhibit more ad hominem attacks, second person addresses, and plain language than did the Boston Medical and Surgical journal. Of the Thomsonian texts selected for close reads, not a single one spoke of the regular faculty with respect or reverence, and any reference to the common man served to lift him up and provide him the power to become his own healer. Furthermore, these texts are presented in a manner that would have been accessible to a lower-class individual: they contain no lofty language, use concrete, rather than metaphorical terms, and sometimes directly address the reader in an almost nursery-rhyme like fashion. While

it is true that, to an extent, the *Boston Medical and Surgical Journal* also exhibits its antagonism toward the Thomsonians, the regular medical faculty lacks two key components of populist thought: the notion that the politics (or in this case, the medicine) should be an expression of the will of the people, and secondly, the manifestation of rhetoric in a form that would have been accessible to the people.

These insights contribute to the existing body of Thomsonian scholarship by offering a uniquely literary perspective. I can now confidently conclude that scholars who note the connection between the Jacksonian brand of populism and the Thomsonian movement as a whole would not be wrong to go a step further in stating that the movement is populist not only in its general motivation and structure, but also in its communications between members and its characterization of the regular faculty. Indeed, it seems that the texts associated with the movement may have been a driving factor in the movement's affiliation with populism.

In a broader sense, I hope that I have highlighted the benefits of taking an interdisciplinary approach to answering questions about the sociopolitical orientation of texts. By combining elements of historical inquiry, book and publication history, computational techniques, and traditional methods of close readings, I have brought to light a more full understanding than would have been possible using any single method in isolation. Moving forward, these techniques will be useful in any future lines of inquiry on the subject.

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