TRENDS AND TRANSITIONS IN RENAISSANCE MEDICAL-TECHNICAL

WRITING AND PAGE DESIGN: AN ANALYSIS OF TIMOTHY BRIGHT'S

THE SUFFICIENCIE OF ENGLISH MEDICINES (1580-1615)

THESIS

Presented to the Graduate Council of
Texas State University-San Marcos
in Partial Fulfillment
of the Requirements

for the Degree

Master of ARTS

by

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San Marcos, Texas
May 2012

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My thesis is an analysis of transitions in Renaissance medical writing and printing that identifies the intended readership, genre, and purpose of Timothy Bright's published medical treatise, *The Sufficiencie of English Medicines* (London1580; rev. 1615). The treatise, disseminated in the 16th and 17th centuries, represents trends in the writing and printing medical how-to books that addressed public health concerns of the day. My methodological approach includes a structural analysis of page design elements, genre theory, discourse patterns, and stylistic features, as well as a historiographical context of Bright's connection to other medical practitioners, philosophers, and writers who adapted new writing styles and printing techniques during the late English Renaissance.

I. INTRODUCTION

Many Renaissance writers were aware of the context in which readers would access a work . . . Given the evidence that Renaissance technical writers adapted page design to reading context . . . Do [Renaissance] technical books provide evidence that Renaissance technical writers and printers conscientiously used other methods to make their works appealing? (Tebeaux *The Emergence* 91)

The study and implementation of preventive health delivery systems is a relevant, up and coming topic in today's world of allied health especially in the field of scientific and technical communication. Much can be learned from trends and transitions in the writing and delivery of historical health guides during the English Renaissance. Historical trends and transitions in the creation and dissemination of health information during the late English Renaissance are germane to how modern-day technical writers create, write, and disseminate preventive health communication. Current practices in medical-technical writing, which focus on methods of document organization, design, format, as well as the use of visual page design elements to enhance readability, are a residual "influence of Ramist logic as well as improvements in typography during the second half of the Renaissance" (Tebeaux *The Emergence* 84). The dissemination of health communication during the 16th and 17th centuries relied on informative and persuasive methods of delivery, such as published treatises and lectures among medical professionals, which were presented to professional colleagues and lay people alike.

The success of self-help medical guides written during the late Renaissance was also reliant upon new concepts in page design, influenced by new print technology and

Ramist logic (Tebeaux 1991, 1997, 2004; Tebeaux and Killingsworth 1992; Houliston

1989). In England the teaching of "Ramist rhetoric was very influential" (Bizzell and

Herzberg 675). Ramist rhetoric and logic "Ramism"[1] was based on the teachings of Peter

(Petrus) Ramus, a French philosopher and teacher who advocated new methods of

presenting written, instructional material.[2] Pierre Duhamel further explains Ramus's

practical approach to rhetoric and logic:

> To make rhetoric and logic practical, logically consistent, and natural, Ramus
> proposed to limit logic to a treatment of the discovery and disposition of
> arguments, the inventio and dispositio of classical rhetoric. Rhetoric itself was to
> be concerned with the ornamentation and delivery of the material produced by
> logic, thus corresponding roughly to the elocutio and pronunciation of classical
> rhetoric. (163)

While Ramus criticized the Aristotelian logic of rhetoric, he "looked upon himself as a

reviser and adapter of Aristotelian work on logic and rhetoric, removing accumulated

errors of centuries and restating . . . what others had previously developed" (163).

Duhamel makes an interesting observation: "Ramus's division of logic into invention and

disposition of arguments is a commonly known characteristic of the Ramistic system," a

system which Ramus considered the "original intention of Aristotle" (164). In the

methodology of my thesis, my analysis of Bright's work follows a similar method of

Ramus's logic regarding the division of the arts called "'exoteric' grammar, rhetoric, and

dialectic" (165). While the content analysis examines the use of grammar and rhetoric in

Bright's work, the genre and visual design analyses incorporate a logical, dialectical

approach to understanding style and arrangement.

Ramus advocated a universal method of understanding a text, which included the

use of bracketed tables or tree diagrams, charts, and illustrations to reach a general versus

educated readership. Between the years 1500 and 1700, Ramism combined with new

printing techniques prompted new trends and transitions in the visual presentation of medical information. New styles and techniques in the presentation of printed medical discourse during the Renaissance are attributed to a Ramistic system of incorporating visual aesthetics into written medical documentation.

My thesis analyzes trends and transitions in Renaissance medical-technical writing and page design through the works of Timothy Bright, a 16th century English physician and medical writer whose works in vernacular English spanned 35 years between 1580 and 1615. I examine the two published editions of Bright's treatise *The Sufficiency of English Medicines* (1580 and 1615). The treatise is an excellent example of transitions in Renaissance medical writing and printing between the mid-16th and early 17th centuries due to Ramist-influenced logic and public health concerns, which included environment and distribution of pharmacopeia. My methodological approach includes a structural, comparative analysis of page design elements, genre theory, discourse patterns and stylistic features, as well as a brief historiographical context of Bright's connections to other English medical practitioners and writers (including Ramus) who adapted new writing styles and printing techniques. The structural analysis includes a textual analysis of Bright's language, which identifies readership and genre.

To whom Bright's addresses his concerns about health and environment is evident in his appeal to warn the "gentle reader,"[3] against the use of "strange" (foreign-made) medicines imported from other countries, and fraudulent practices of unskilled apothecaries and health care providers. The readership within this context is further elaborated in my thesis through a textual comparative analysis, which further indicates Bright's intended audience. Supplemental to Bright's argument of localization and

efficacy of home-grown pharmacopeia is his belief that medicinal remedies should be acquired based on the divine providence, wisdom, and ordinance of God (Bright *Sufficiencie 1580* 9, 10, 23). The historiographical analysis examines environmental health concerns of the day including the state of pharmacopoeia as well as fraudulent medical and apothecary practices, which influenced styles of writing and presentation of written medical discourse including recipe, self-help, and how-two guides.

I argue that *The Sufficiencie of English Medicines* should be acknowledged as a contribution to the study of trends and transitions in Renaissance writing and document design. The earlier 1580 edition presents a non-linear[4] persuasive argument written in classical form that is reflective of both sociopolitical and medical concerns. The prose is intermediary or undifferentiated, meaning the knowledge is transmittable from "professional to novice" and intended to "occupy and intermediary between professionalized 'verbal,' narrative, or informative prose" (MacDonald 180). The 1615 edition incorporates the same persuasive argument and style of prose; however, it includes syntactical edits in the text as well as Ramist-influenced visual design elements.

To better understand the historiographical context of Bright's medical discourse, I examine the general origins and trends of 16th century medical texts, treatises, and I examine governmental policies to help determine why some medical practices were regulated in England and others neglected. Special attention is given to scholarship from the historiographical perspective of Renaissance medical-technical writing and theory in 16th and 17th century healthcare discourse and genre theory. Particular attention is given to the dynamics of genre theory—the understanding of genre or form of a particular text—and the historical, intellectual, and social context of publishing and readership.

Through the study of transitions in Renaissance page design and medical writing,
I sought to understand Bright's purpose and intended readership for his treatise. By
addressing the following research questions, I attempt to interpret and validate the
purpose of Bright's work beyond the scope of what Geoffrey Keynes (1962) describes as
"a piece of medical nationalism [where] Bright did not wish to believe that any remedy
fetched from India was any more potent than the corresponding home-grown product"(3-
4).[5] By answering the following questions through my analyses and conclusions, I will
attempt to qualify *The Sufficiencie of English Medicines* as a representative model of
significant trends and transitions in late Renaissance medical-technical writing and page
design that extends beyond "medical nationalism."

A. Research Questions

1. From a historical technical communication perspective, in what ways are the first
   two editions of Bright's treatise exemplary examples of trends and transitions in
   the writing and the dissemination of written medical discourse during the late
   Renaissance?

   - How do these trends compare to modern-day methods of medical-
     technical writing and document design?

   - What is the relevance or significance of the added detailed drug index to
     the appendix of the revised 2nd edition published 35 years later?

   - What influence, if any, could Bright's treatise have on health professionals
     in the historical and present day writing of health communication?

2. To whom, for whom, and why did Bright write and publish the treatise?

One method in which intended audience and purpose can be identified is through the study of genre systems.

B. Dynamics of Genre Theory

Irma Taavitsainen (*EMEMT Corpus Description and Studies* 2010) discusses the importance of understanding the dynamics of genres to discern who the audience or readership is for a particular medical text. She writes that "genres are created with certain kinds of readerships in mind, but needs of the audiences change, and these changes are reflected in styles of writing. Old genres can be adapted to new functions" (32). Catherine Schryer and Phillippa Spoel (2005) discuss genre theory and health discourse from a similar perspective in terms of social context and identity formation in "that the very categorizing of texts reflects the social categories of their users" (252). They point out that genre systems "function within larger networks of interrelated genres [and] understanding the rhetorical motives, structures, and functions of specific genres requires recognition of their interconnections with other genres within and across health-care communities" (256). Contextualizing the corpus of Bright's work in vernacular English between 1580 and 1615 and discerning intended readership depends on understanding the scope of genre dynamics and networks in medical discourse during England's early modern period, specifically the latter portion of the Renaissance. The following is a brief introduction to my thesis, which outlines sociohistorical, rhetorical, methodological, and theoretical approaches to analyzing Bright's work.

C. Biographical Sketch: Bright's Professional Credibility

Timothy Bright was a 16th century English physician and clergyman born in Cambridge around the year 1550. In 1561, Bright attended Trinity College, Cambridge at

the age of eleven and became a Cambridge scholar in April of 1567 (Keynes 2-3). In 1570, Bright "left Cambridge before taking his M.A. to pursue medicine abroad" (2). While in Paris, Bright became a witness to the St. Bartholomew's Day massacre of 1572.[6] Upon his return to Cambridge, Bright completed his M.B. degree at Cambridge in 1573/74, and soon after became a Licentiate of Medicine in 1575 and Doctor of Medicine in 1578/9 (Keynes 3). Throughout Bright's professional career as a physician, he presented and published many written works related to the maintenance of health and preservation of life as well as a few non-medical works including his most famous, *Characterie* (1588), which was commissioned by Queen Elizabeth and from which Bright is known as the inventor of modern shorthand. His medical treatise, *A Treatise of Melancholy* (1586), is another of his more well-known works. The treatise discusses the psychiatric symptoms of melancholy as it relates to the humors. The treatise is believed by some scholars to have inspired Shakespeare's melancholic characters in Hamlet (Keynes 10-11). Bright's lesser known work, *The Sufficiencie of English Medicines* (1580), is his first published treatise concurrent with graduation from medical school and first years as a medical practitioner at Cambridge. From an early age, Bright "believed in the efficacy of the contemporary pharmacopoeia, but he was also confident that medicinal herbs and animals found in his native land were as good as any others that grew outside it" (Keynes 3).

Aside from Keynes's brief biographical sketch and bibliography of Bright's life and works, little is known or has been researched about the treatise as an influential medical text. Keynes's historical account of Bright's treatise only credits the work as a "piece of medical nationalism"[7] and limits his discussion of the work to health and

environmental issues pertaining to the efficacy of contemporary pharmacopeia developed and acquired only within the native land of England (3). As stated earlier, the primary argument in Bright's treatise could be construed as "medical nationalism" regarding the localization and regulation of medical practices in England, an argument that is consistent with similar concerns of health and environmental issues voiced by fellow university-trained medical practitioners and writers as well as accredited medical practitioners and members of England's Royal College of Physicians in the 16th and 17th century (Wear 119).

During the mid-16th through the mid-17th century, many English medical writers, such as William Harrison (*Description of England* 1577) and Nicholas Culpepper (*The English Physician* 1652) advocated for what Wear describes as "cheap medicines which could be collected by the poor [or] extolled home-grown remedies simply on a nationalistic dislike of anything foreign . . ." (127) as well as "the self-sufficiency appeal of native herbs for native disease . . . especially in the context of charity for the poor" (128). From a sociopolitical perspective, the public health and environmental issues became a topic of discussion in many medical treatises written by university-trained physicians (Wear 119). Wear further points out that "medical theory" during the early modern period (1550-1780) transitioned from the "classical authority of Galen. . . [to] Interregnum Paracelsian medicine,"(120) which opposed Galenic-learned medicine, in favor of a more popular, modern "aetiological"[8] form of communicating medical knowledge.[9]

Galen was a celebrated 2nd century Roman physician, philosopher, and surgeon who attempted to systemize medicine and who focused on humoral[10] theory for the

causation and treatment of diseases; whereas, the Paracelsians' favored a modern

ontological[11] approach to causation and treatment of disease such as the use of

iatrochemistry.[12] Phillipus Paracelsus (1493-1541),[13] a German-Swiss physician and

alchemist, promoted chemically prepared medicines which influenced a new scientific

revolution called Paracelsianism wherin "alchemy should not exist for the benefit of

medicine alone, it was to influence profoundly the development of chemistry" (72-73).[14]

> Paracelsus was an outspokenly iconoclastic figure who rejected orthodox Galenic
> humoral theory in favor of a system in which metals and minerals were the
> principle agents in both the development and the treatment of disease
> (supplemented in the latter case by herbal folk remedies). Although his work was
> largely mystical and alchemical in nature, his decisive break with the medical
> establishment of the time and his perceived reliance on practical experience,
> observation, and chemical preparations have sometimes led to his being
> considered the forefather of modern medicine. ("Paracelsus" OED)

The Paracelsians, who also favored Ramism, contributed to new trends in the

development of medical self-help or how-to guides that encouraged the use of new

medicine and a more universal, general readership.

During the latter half of the Renaissance through the mid-18th century, writers and

printers of self-help medical guides were directed toward a new, non-traditional

audience—the "new type of Christian"— and focus on "charitable medicine that would

available to all, especially the poor" (Wear 120). From a sociopolitical perspective,

"politics and medicine were clearly connected" (120) as the popularity of commercial

markets and universal accessibility of self-help medical guides were influenced by the

"changing theories of medical practitioners" (121) during the early to late 17th century.

Such theories influenced political and commercial considerations within the medical

markets including "the type of medical knowledge that practitioners chose" (Wear 121).

Bright's treatise is an example of how such political and commercial considerations may

have influenced visual changes in his work. While the scope of his treatise focuses on general pharmacopeia, as well as the regulation of medical and pharmacological practices, his submission to the needs of the commercial marketplace is most evident in the1615 edition where visual aesthetics are added for commercial and universal appeal.

The 1615 edition is reflective of transitions in medical writing wherein the writing style shifts away from a traditional non-linear prose—a style evident in scientific and medical texts published during the latter half of the Renaissance. Bright's style correlates with a form of science writing that focuses primarily on classifying scientific compounds of pharmacopeia and efficacy. Tebeaux and Killingsworth (1992) state that science writing during the sixteenth century could be "construed as [a form of] medical writing [called] pharmacological writing . . . [to include] herbals and translations of medieval encyclopedias" (23). Within this context, science and technical writing often merged as writers and printers seemed to have had, for instance, "little problem in combining information for performing tasks with current theories on the universe" (25).

While the primary prose in Bright's 1615 edition, as compared to the 1580 edition, remains virtually the same, the treatise's presentation and style moves from an undifferentiated non-linear form of prose to a linear style of organized content. The 1615 edition uses indentations to separate paragraphs and thought, and includes a table of contents as well as a bracketed and alphabetized appendix of pharmacopeia, which references terminology from within the main prose of the treatise.

An interesting contrast between the two editions is the slight de-emphasis of the sociopolitical argument in the 1615 edition. His sociopolitical argument remains in the main prose of both editions, to include his advocacy for equal access to health care

among all social classes as well as his mention of "Philosophers" and "Physicians" as witnesses. However, his sociopolitical argument regarding social class structure and universal health care in the second edition is not referenced in either the table of contents or the appendix. The table of contents only references medicinal remedies. Reasons for not emphasizing the sociopolitical argument may be indicative of: changes in governmental regulations of medical practices during the early 17th century, public perception of self-educated health care, a shift from the classical teachings of Galen toward newer approaches to the teaching of medicine such as Ramism, and a newfound tolerance within the medical profession for preparers and distributors of pharmacopoeia including the non-university trained physician or apothecary. The 1615 edition, which appeared 35 years later, incorporates Ramist-influenced methods of visual aesthetics. Based on the criteria of genre parameters, both editions of Bright's treatise fit into the categories of how-to or self-help medical handbooks (Pahta and Ratia 87). Self-help and how-to guides are further defined and analyzed in the sections "Form and Theory," and the "Structural Analysis of Genre Types" in the discussion of "Parameters in Discourse Form."

During the late Renaissance, Ramism along with the Paracelsian movement was popular among learned physicians, alchemists, and medical writers. New trends in presenting scientific and medical information were supported by Ramists and Paracelsians who advocated and incorporated Ramist methods of writing and page design into their medical texts.

D. Connections to Ramus and Paracelsus

Whether or not Bright was a true follower of Paracelsus could be discerned through Keynes's labeling of Bright's treatise as a form of "medical nationalism." Keynes's observations could imply that Bright supported the Royal College of Physicians (RCP) opposition of new, chemical remedies and his patriotism to England's traditional practices rather than the radical principles of the Paracelsians. V.H. Houliston (1989) provides an overview of the Paracelsian movement, which "did not rise much above the level of quackery before the seventeenth century" (235). Allen G. Debus (1960) describes the Paracelsian movement as consisting of physicians who "attacked ancient medical authorities" and whose practices "centered on the use of chemical therapy,[15] which was considered the most insidious innovation by most Galenists" (71). While the Royal College of Physicians first opposed the introduction of new remedies, "one-third of the members of the Pharmacopoeia committee established by the College in 1589 graduated from those European universities which led in the promulgation of chemical therapy" (72). Since Paracelsus argued against Galenism, Bright's support of the Paracelsians appears ambiguous. For example, in his treatise, Bright concurrently cites the works of Galen, Pliny the Elder, and Martinus Rulandus (1531-1602)[16] as witnesses in support of his argument for localization and against importation of foreign-made remedies. A testament to discerning Bright's affiliation with the Paracelsian Movement is his mention of Rulandus, a German physician-alchemist, was a follower of Paracelsus. However, in contrast to Paracelsianism, *The Sufficiencie of English Medicines* leans toward traditional Galenist development of herbal remedies rather than chemical medicines (Pahta and

Ratia 86), which further conflicts with Bright's personal and professional affiliations with Paracelsian supporters.

Houliston, Keynes, and Frances Dawbarn offer a plausible connection between Bright and Paracelsian supporters through his professional relationship with physician Thomas Moffet (1553-1604). Bright is noted as being a known friend and "contemporary of Moffett's during his time at Trinity College, Cambridge" (240). Moffet took a "radical approach to medicine during the 1580s" (Houliston 235), including the use of Ramism. Moffet, a supporter of both Ramus and Paracelsus, is credited with contributing to the set *Pharmacopoeia* standards that did not materialize publicly until 1618. In 1589, Moffet, a professional colleague of Bright's, was appointed to a committee to set a standard for pharmaceutical practices. In a discussion regarding the Royal College's position on standardizing and regulating pharmacopeia, Houliston points out that in 1589 Moffet

> [and the College] set the standard for the whole country. [However], the authority of previous Pharmacopoeias had been restricted to their city of origin . . . and they had not included such Paracelsian remedies as vegetable salts, extracts, and chemical compounds for internal use. (244)

In addition to his affiliations with Paracelsians, Bright also shared a common experience with Peter Ramus—the St. Bartholomew's massacre.[17] Keynes writes that in 1571, before Bright took his MA at Cambridge, he pursued medical interests in Paris, France (2) During the massacre, Ramus was martyred while Bright took refuge at the English Embassy with other Englishmen—likely fellow medical students and practitioners (Keynes 3). Frances Dawbarn writes,

> Moffet's name was linked not only with Dr. [William] Penny, but also with Peter Turner and Timothy Bright; all four had studied medicine together at Cambridge under John Caius. Through his association with

> these colleagues, we find the links between Moffet and the family and friends of Philip Sidney. Bright was a client of Francis Walsingham, in whose house he and Philip Sidney had sheltered in Paris during the St. Bartholomew's Day Massacre. (14)

Upon his return to Cambridge, the likelihood that Bright encountered the teachings of Ramus is plausible as many of his medical colleagues lectured on the principles of Ramist logic (Miller 118).[18] After Bright received his Doctor of Medicine in 1578/9, he remained at Cambridge as a medical practitioner, during which time he wrote and published *The Sufficiencie of English Medicines* (Keynes 3).

E. Scope of Intended Audience

In the sections "Form and Theory" and "Structural Analysis of Genre Types," I will explore who Bright's intended audience or readership may have been in relationship to parameters in medical genre. From a historical perspective, Bright's residency at Cambridge suggests the treatise may have been written for either teaching medical practitioners or new students becoming doctors of medicine as the treatise provides many warnings about false apothecaries and medical practices while advocating for equality of medical treatment for all social classes. Bright also dedicates the treatise to Lourd Zouch, a former Trinity colleague. The intended audience is implied in the Dedicatorie, which indicates the text is directed toward the educated practitioner or student. He writes in the second page of the Dedicatorie, "The question I once disputed in open place . . . adding thereto my reasons to be examined by men of wisdom and understanding." The first indication of Bright's intended audience implies a learned or university-educated readership that embodies both "wisdom and understanding." A second indication of readership is the topic of providing affordable health care to all social classes. Consider

the following passages from Bright's 1580 edition of the treatise:

> I say this hath bene alwayes the condition of trueth in the world . . . yet for the love I beare it, being a Philosopher by profession, & for the publike benefite, being born under that condition of men, whereby one is bound to imply his gifts for the benefite of an other. (7)

> But with the exceeding cost and charge which those medicines put us into, we are worthily punished for our follie. (28)

While the first passage advocates for affordable medicines and availability for all classes, the second passage addresses the issue of cost, affordability, and access among varying social classes.

In the *EMEMT Corpus* chapter, "Texts on Specific Therapeutic Substances," Pahta and Ratia discuss how medical treatises during the early modern period referred to "the extravagant prices of some remedies [that] resulted in new measures being proposed" (88).

> I blame none, neither tax I anye man, and I dare say there is not a learned physitian in this lande, who is not able to performe this poynte with English medicines, if they woulde take the matter in hande, whereto I rather exhorte them, then instruct them, beeing a thinge sufficiently known unto them. (47)

> And if Physicke (as it is in deed) be an art common to all kinde of men, all sorts of nations, all estates, and conditions of men: I would knowe why the meanes also of performing the actions belonging to the same art should not bee as common? (24)

These two passages address similar concerns as the preceding ones, implying a learned or university-educated readership. One indication the implied audience is of learned physicians is that Bright places himself within the context of the passage by stating "I would know why." His use of the pronouns "I" and "they" within the context of mentioning "the learned physician" indicate the text is directed toward educated practitioners or students of medicine. Within the context of "I," Bright includes himself

as part of the discussion about physicians and the "exceeding cost and charge" of medicines—providing further indication the text is directed toward the practicing learned physician.

In the discussion of foreign-made remedies, Bright discusses in the following passage what he states as "reasons which move me to suspect the use of straunge drugges" (27). Within this passage, Bright asserts his authority as a physician and reiterates warnings to the intended readership to be aware of fraudulent medical practices. Bright addresses his "gentle reader" by writing

> I knowe gentle reader, nothing doth more hinder the accepting of truth diuers times (especially such as see with other mens eyes) then the person who first propoundeth the matter, being taken rather to be an opinion of one, then undoubted truth. (27)

As Bright is speaking from the authority of a university-educated physician, the statement "I knowe" indicates the credibility of his authority in regards to the topic of medical practices. In the following passage, Bright further asserts his authority along with that of other physicians:

> I will adde to my former reasons taken from the nature of the thing, the authorities of mo[r]e doctors then one, who agreeing with this which I holde, may be a meanes to drawe the gentle reader the more seriously to consider of this matter, and trueth. (27)

F. Theoretical and Methodological Approaches

My theoretical approach to Bright's work addresses transitioning historical trends in format and page design found in English Renaissance medical texts (35). Throughout the thesis, I consider applications of rhetorical and design theory as it applies to the two editions of Bright's treatise. Applied theory considers methods of arrangement and style like those suggested by Peter Ramus and Thomas Wilson, as well as concepts of

grounded theory, data coding, genre theory, social research, and historical medical theory, as proposed by several scholars in the fields of historical and technical communication, that influenced Renaissance technical medical texts such as Bright's *The Sufficiencie of English Medicines*. Three questions posited by Tebeaux further guide my analysis of Bright's work within the context of page design principles in Renaissance printing:

1. What did these printed texts look like?

2. Did they differ from other kinds of Renaissance printed books? If so, how did they differ?

3. How did the writers and printers attempt to write how-to books that would appeal to the perceived audiences for these books?

(*The Emergence* 35)

In the "Methodology" section, I attempt to answer Tebeaux's questions as well as my own regarding the genre and intended audience of Bright's treatise. I apply qualitative and quantitative approaches to the analysis of *The Sufficiencie of English Medicines* using design principles in technical communication, grounded theory, data coding, and genre parameters in discourse form. Supplemental to the methodology, I address six observations that represent English prose development as suggested by Elizabeth Tebeaux (*The Emergence* 140). My overall methodological approach includes a structural, comparative analysis of page design elements, genre theory, analysis of discourse patterns and stylistic features, as well as a brief historiographical overview of the writing and printing of medical discourse in the English vernacular during late 16th and early 17th century England.

In the "Historiography" section of my thesis, the analysis expounds further on Bright's persuasive sociopolitical argument, which interconnects Bright's affiliations with professionals in the medical community that supported Ramism and Paracelsian ideas and ultimately influenced trends and transitions in late Renaissance medical writing and printing. Further connections are made to Bright's argument of health maintenance including environmental, and sociopolitical influences in what Wear points out as "doctrine used for patriotic propaganda purposes . . . and for expressing a political view about medicine [with] . . . a moralizing aspect where categories such as natural and unnatural came into play" (129). Environment, in Bright's case, dictates his rhetorical and visual presentation of written medical discourse.

The visual page design analysis uses principles found in printed Renaissance medical discourse (Tebeaux *The Emergence* 1997), which parallel modern-day page design elements in technical communication (Markel 2003). The visual aesthetics of Bright's two editions are compared and contrasted in relationship to how methods of writing and publishing transitioned over the 35-year-period between 1580 and 1615. The analysis of textual and visual page design is supplemented by an analysis of Renaissance pioneers in the study of style and arrangement, including Peter Ramus, Thomas Wilson, and Francis Bacon, who influenced trends in visual design principles of 16th and 17th scientific rhetoric and written medical discourse.

In my methodological approach to Bright's work I combine both qualitative and quantitative methods from which a rhetorical analysis is performed using data coding (Blythe 204). Data coding identifies phenomena and sets of artifacts in written documents called "coding schemes." Data coding requires sorting, classifying, and categorizing

written texts by genre and audience types. I use grounded theory methods (GTM), which is a systematic approach to data coding that uses textual analysis and variables to categorize and measure concepts, statistics, and theories from a corpus of data.

In the "Rhetorical Analysis and Data Coding" sections, the analysis was guided by two measurement tools that assisted in the facilitation of data coding: 1) *EMEMT Corpus* text parameters, and 2) the *EMEMT* Presenter®. Jennifer J. Connor (1993) argues that in the research of communication practices, "technical communication scholars should examine specialist historical literature" using various methods and tools to "make this task relatively easy [while researching] the history of medicine" (213). In the study of early modern medical texts, the *EMEMT Corpus* and *EMEMT* Presenter® (2010) facilitate both quantitative and qualitative approaches to the textual analysis of digitized facsimiles of historical early modern medical guides. The Presenter is a digital tool that identifies coding schemes and measures lexical connections within a text that expounds upon Bright's use and frequencies of syntax, stylistics,[19] sentence patterns, and thought-style. The coding schemes identified then indicate genre and intended audience. The *EMEMT Corpus*, paired with the Presenter[20] and data coding methods, provide a foundation from which to categorize Bright's based on specified parameters or criteria found in design elements, genre, audience type, and thought-style patterns (Pahta and Taavitsainen *EMEMT Corpus* 1). Parameters and criteria set by *EMEMT Corpus* further outline and categorize the context of domain-specific genres medical texts, which indicates Bright's plausible intended readership.

I used parameters from the "Structural Analysis," as outlined in the *Early Modern Medical Texts (EMEMT): Corpus* and the accompanying Presenter tool to assist in both

the rhetorical, structural, and discourse analyses of Bright's work from the perspective of genre and intended readership. In the study of lexicography and genres in early modern medical texts, the *EMEMT Corpus* and Presenter are used primarily to generate historical, qualitative, and quantitative data from Bright's two treatises. The data is guided by the *EMEMT* to assist in the identification of:

1. Genre and rhetorical theory, which contextualizes the treatise's purpose, intended audience, organization, and style (e.g. Ramist method)

2. Historiographical context relevant to the creation and dissemination of 16th and 17th century technical-health communication including transitional trends in page design principles between 1580 and 1615

3. Historiographical context of regulatory and unethical medical practices during the 16th and 17th century England relative to Bright's argument in favor of or against the localization and regulation of contemporary pharmacopoeia, and Bright's professional affiliations with Ramus and Paracelsus supporters

4. Bright's inclusion of theorists, philosophers, and physicians as supportive expert witnesses to Bright's argument

5. Comparative present-day trends in the writing and presentation of contemporary, persuasive medical discourse

The *EMEMT Corpus* classifies genres of medical discourse into six categories outlined in six chapters: "General Treatises" (Taavitsainen and Tyrkkö), "Treatises on Specific Subjects" (Pahta and Ratia), "Recipe Collection and *materia medica*" (Mattila), and "Regimens and Health Guides" (Suhr). Not applicable to Bright's treatise are "Surgical Treatises" and *Philosophical Transactions.*[21] To identify genre and readership

type, data from the textual analysis of *The Sufficiencie of English Medicines* was collected, coded, and assigned to each category's seven parameters: Chronological Coverage, Criteria for Inclusion, Discourse Form, Vernacularization, Target Audience, Continuity, and Images. The seven parameters, further defined in the rhetorical analysis of the "Methodology" section, identify the context of medical genre, intended audience, and literacy level of readership. My analyses will yield plausible answers to several research questions including 1) Bright's intended readership, 2) genre-type and professional accountability, and 3) the significance of Bright's sociopolitical, personal, and professional affiliations to England's medical writing community during the late Renaissance.

Results from the analyses of *The Sufficiencie of English Medicines* attempt to qualify Bright's work as a contribution to trends and transitions found in Renaissance medical-technical writing as well a model for how trends interconnected with Ramism and the Paracelsian ideologies regarding the use of new medicine, which influenced the 1) implementation of new-rhetoric[22] concepts and page design methods in medical texts, and 2) support and opposition of physicians regarding regulation of medical practices, newly introduced foreign-made medicines, and the localization of pharmacopeia in England. From a historiographical perspective, trends and transitions in page design need to be theorized and analyzed when identifying the purpose of a text and audience type.

G. Study Design

Among my various approaches to methodology, my theoretical and rhetorical analyses identify elements in late Renaissance medical-technical writing and document design including data coding methods and concepts found in grounded theory methods

(GTM). GTM and data coding together constitute a scientific method of systematically

analyzing qualitative and quantitative data, and is appropriate to the study of language

and genre in historical documents (LaRossa 838). Stuart Blythe (2007) that validates the

use of data as a method that incorporates a "valuable set of procedures for thinking

theoretically about textual materials (i.e. historical documents and the like)" (838) such as

extant texts from the past.

GTM incorporates three types of coding procedures: 1) o*pen coding*: "where data

are broken down into discrete parts, closely examined, compared for similarities and

differences, and questions are asked about the phenomena reflected in the data" (Strauss

and Corbin 102); 2) *axial coding*: "intense analysis done around one category [i.e.,

variable] at a time, in terms of paradigm items" (LaRossa 846); and 3) *selective coding*:

"main . . . theoretical stories [or] accounts of how a complex of variables are interrelated"

(LaRossa 850). The c*oding paradigm* parses "functions . . . as a reminder to code data for

relevance to whatever phenomena are referenced by a given category . . . a process of

relating categories into their subcategories" (123). Kathy Charmaz (2006) further

identifies GTM as a viable method for textual analysis through two phases of coding

called *initial* and *focused* coding, which looks at the relationships between structure and

content (40). While o*pen and axial* coding guided most of my methodological

approaches, *initial* and *focused* coding guided my page design analysis, which

specifically focuses on relationships between structured format and visual content such as

those outlined by Tebeaux (*The Emergence* 1997). *Initial* coding requires researchers to

create individual theories based on comparative data collected and not pre-developed,

outside concepts or theories. Focused coding requires "using the most significant and/or

frequent earlier codes to sift through large amounts of data" (57). Where *open* and *axial* coding categorize information, *initial* and *focused* coding use comparisons of current data found and then creates theories based strictly on that data.

A shown in the discourse analysis and Table 4. "Thought-Style Patterns," *initial* coding detects processes and actions through the identification of gerunds and their noun forms (49). Data collected from the structural discourse analysis of this thesis was obtained using a similar method of *initial* coding through the use of the *EMEMT* Presenter®. Another data coding method used, that is associated with GTM, is called "memo writing"—the creation of line-by-line margin notes in the text that are compared from either a single or multiple sources. Memos from the text are then converted into categories and subcategories through methods of *open* and *axial coding*. Data coding and GTM were the most applicable methods in the comparative analysis of Bright's two editions of the treatise. By categorizing and subcategorizing Bright's work through genre, content, and design principles, grounded theory and data coding methods provide the context for rhetorical and historical analyses of medical discourse. While data coding was most effective in the rhetorical and structural analyses, the GTM "memo writing," comparative analysis, and categorization were applied to the page design analysis as well.

II. HISTORIOGRAPHY OF SELF-HELP AND HOW-TO MEDICAL-
TECHNICAL TEXTS IN RENAISSANCE MEDICAL WRITING

The largest category of how-to books during the Renaissance was the self-help medical guide (Tebeaux *The Emergence* 14). In the discussion of studies in Renaissance vernacular literature, Tebeaux notes that self-help medical books for "non-medical readers dominated the list of best-sellers between 1485 and 1604" (qtd. in Slack 247). Experts who study Renaissance technical writing provide a historical and rhetorical context of technical books and medical documents that include treatises and self-help guides targeted "to lay readers interested in guarding their health [and] to physicians and surgeons [as well as] readers in the commercial and yeoman classes eager for works written in English rather than Latin" (Tebeaux *The Emergence* 25). As literacy became more prevalent during the 16th century, so did English readership, which in turn increased the public demand for textbooks written and printed in English. While Bright's treatise is not represented among the research of many scholars in the field of Renaissance medical-technical writing, *The Sufficiencie of English Medicines* provides an excellent model of how technical design, format, and genres written in vernacular English, transitioned from what Tebeaux describes as philosophical and ceremonial orations to a communicative utilitarian method of delivering technical information (*The Emergence* 108).

Scholars in the field of Renaissance and early modern medical-technical writing often tout Sir. Thomas Elyot's *Castel of Helth* (1536) as a prime example of new rhetoric and design concepts in historical self-help medical guides; however, Bright's treatise, in addition to his later works, is an excellent example of how technical guides transitioned into utilitarian texts. The 1580 edition of *The Sufficiencie of English Medicines* is written in vernacular English and presented in the print style of non-linear, undifferentiated prose that lacks any kind of organized and aesthetic design principles such as a table of contents, catalogue or appendix of alphabetized medicinal remedies, and indentation. Stylistically, the first edition is undifferentiated in presentation of content and typography. The 1615 edition, however, includes additional elements of visual page design and new rhetoric including variations in ornamentation, format, and technical style indicative of printers and/or writers restructuring the medical text based on intended readership and newly adapted Ramist methods. Because of variances in style, format, and visual aesthetics, both of Bright's editions offer technical communication historians a before-and-after comparison of trends and transitions in design principles and thought-style, printed in the vernacular English during the late Renaissance.

A. Study Models in Historical and Technical-Health Communication

From a modern-day perspective, James C. Wilson (2000) describes the importance of deconstructing medical models to understand how they can be used in a medical and science writing classroom to critically examine the assumptions of scientific discourse (149-161). Wilson uses disability studies as a medical model. He writes how "deconstructing the medical model of disability helps students understand how science is socially constructed" (149). By studying assumptions of scientific writing and then

deconstructing the discourse to reflect medical condition or treatment, students gain a better understanding of how to effectively write and communicate scientific information. Deconstructing Bright's treatise in a similar fashion can help students of technical and health communication understand the social implications of historical health communication and how such methods of communicating public health concerns changed the course of writing and presentation of public health policies. For example, Wilson discusses the modern-day *Stedman's Medical Dictionary* as an example of how a medical guide indicates "assumptions of medicine and science" and how it "pathologizes disability" (151). Bright's treatise makes similar assumptions of medicine in regard to the dispensing and use of pharmacopeia, localization, and regulatory control of medical practices. From this historiographical perspective, I deconstructed and analyzed the work of Renaissance medical self-help guides using transitioning medical theories from the early modern period as proposed by Andrew Wear (1998), as well as applicable historical theories in genre and page design.

In a discussion about historical transitions in language and technology, James Wilson identifies the assumed authority of physicians regarding the writing of scientific and medical language. Within a historical context, I examine Bright's "assumed authority" as a physician, theologian, and educator through the use of written language within a medical and sociopolitical perspective. He writes persuasively as an accredited physician; however, he also assumes a political stance influenced by personal opinion and governmental policies of the day. Parallel to Wilson's discussion of applying medical studies to scientific and technical writing, Bright's work can also serve as "medical and scientific discourse chosen to facilitate discussion" (150).

Wilson's recognizes that the teaching of writing about disability studies in health professions "become increasingly visible in composition, rhetoric, and professional writing circles," so does preventive public health literacy (151). Jennifer Connor proposes using methods of teaching of historical technical communication that connect the past with present and future studies. She first suggests classifying problems in historical research that identify and offer new ways to avoid inadequacies in "historical methodology," and five constructive approaches to "identify new avenues for [original] research that will enhance knowledge of both fields" (212). The five approaches include

1. Establishing originality for historical textual analysis

2. Adopting an authoritative text for analysis

3. Understanding genre or form

4. Understanding intellectual or social context

5. Understanding the publishing and readership context of a historical text

The "immediate intellectual [and social] contexts" of Bright's work allows researchers of technical communication to identify stylistic patterns "in order to understand its rhetorical structure" (221). For example, in the writing of *we*, Connor argues how changes in the medical practice of an ancient culture cannot provide an accurate background of culture; however, the use of *we* can signal "to the scholarly reader, a writer who is an authority on the subject" (qtd. in Lipson 392-95.) As previously indicated in the Introduction's "Scope of Intended Audience," and as shown in the Methodology section "Discourse Analysis and Data Coding," Bright's use of personal pronoun *we* and *I* indicates his medical authority as an accredited physician and writer of medical discourse.

Edward A. Malone (2007) suggests that research of historical technical communication goes beyond Connor and Lipson's methods of identifying general types of historical studies (334). He suggests additional categories recommended by other scholars in the field, which include "rhetorical strategies (i.e., the rhetorical practices or theories of particular periods); corporate and government communication histories . . . and genre studies (i.e., studies of "types of technical and scientific discourse)" (334). Malone also recommends identifying movements or "shifts and trends, and developments that may have exerted an influence on the history of technical communication" (335). He considers several movements including the "rise of the plain style in scientific and technical writing" (335) as well as techniques in the "historical use of rhetorical and grammatical techniques in scientific discourse" (336). The methods from which Bright's work is analyzed in this thesis are taken from the same historical perspective of identifying genre movements and trends.

In her "Social View of Technical Writing," Carol Lipson's analysis of technical writing addresses how we must "understand the role of language in occupational groups we deal with as writers, editors, and teachers . . . language in an organization performs more than just instrumental functions . . . it also creates a social reality and reproduces a system of shared values and meanings" (7). From the perspectives of Lipson and Connor, the works of Bright need to be analyzed beyond just the rhetorical significance, but from a social and political context as well. The writing, publishing, and intended audience of *The Sufficiencie of English Medicines* were dependent upon usefulness and readership based on English society's concerns about health and environment.

B. Regulating Health Practices: Sociopolitical Influences in Medical Discourse and

    Bright's Treatise

During the early portion of the English Renaissance, few regulations were placed upon medical practices. Coming out of the late 15th and into the early16[th] centuries the need for learned-physicians, surgeons, and apothecaries became obsolete as medical manuscripts in vernacular English, were becoming more and more prevalent as lay people became more literate and more concerned with self-healing (Roberts "Part II" 219). Manuscripts were now printed for the laity as most physicians and surgeons based their "practices on experience rather than academic learning" (219). The invention of the printing became a catalyst to unaccredited medical practices in London, which undermined the practices of learned physicians.

In the year 1512, Parliament passed "An Act concerning Physicians and Surgeons" (Roberts "Part I" 365). The Act was implemented to "protect the mass of people who could not discern from the cunning. Henceforth no one, unless he were a graduate of Oxford or Cambridge, could practice until he was licensed by the Bishop of the diocese" (365). From this perspective, Roberts discusses why these fraudulent medical practices were so prevalent in Renaissance England:

> This trend grew stronger as new drugs began to arrive in England in great quantities, for it was the men in business, the apothecaries, and surgeons to a lesser extent, who handled these commodities and gained the knowledge of prescribing them. In this way the popular but amateur clerics, their wives, and other local wise people were increasingly displaced from practice. (369)

The governmental ruling of the courts in London drafted the Act to put a stop to fraudulent medical and apothecary practices. Within six years of the Act "a College of Physicians was set up to regulate the practice of physic in London" (365). The College

was authorized to examine all practices of physic and in 1553 was given the authority to imprison those it thought practiced medicine without a license.

    Physicians' regained control through the Act 1553, and in an attempt "to clean up medical practice in 1555" began the process of eliminating what Roberts calls "various craftsmen and tinkers who preyed on its needs" (224). The mid-16th century in England experienced trends in what licensed physicians considered fraudulent medical practices in that barber-surgeons" combined medicine with the practice of surgery.[23] This combined practice was frowned upon by licensed, university educated medical practitioners and

> Despite the pretensions of the physicians it was impossible to keep medicine, surgery and pharmacy as separate activities, and a more general form of practice which combined all that was necessary did develop in London just as quickly as in the provinces. (217)

In 1562, the College attempted to take control of unlicensed apothecary practices. However, by the year 1571 surgeons and apothecaries or "grocers" who sought the development and marketing of new remedies or medicine, continued practicing without approved licenses and were imprisoned (to include many Paracelsian supporters such as Thomas Moffet) for the violation of practicing without a RCP approved license.

    In *The Sufficiencie of English Medicines*, the argument for localization of home-grown, medicinal remedies parallels the warning to resist fraudulent medical practices of apothecaries. Bright argues that

> We haue simple medicines. . . ready (saith he) and intreated of in writing, by which onely all kindes of disesases are certainly and undoubtedly cured, oftentimes better and much more easily (beleue reason and experience saith he) (and that with no hurt of daunger) then with the long compoundes of the Apothecaries, which are costly, euill gathered without knowledge of the Physician oftentimes unperfectly mixed, and unskillfully confused. . .These testimonies I rather have alledged gentle reader, that thou mayest knowe this my opinion is not mine only. (Bright 28-29)

In the passage, Bright's argument parallels the sentiment of university-educated physicians during the 16th century. Until 1603, petitions were denied from apothecaries sought to overturn the statutes that prevented the "compounding and selling [of] drugs" (Underwood 1189). However, in 1603, twelve years prior to the release of Bright's second edition, Elizabeth I died and James acceded to the throne whereas "all charters and monopolies had to be surrendered for inspection" (1189). By the year 1607 "the charter of the Grocers Company was [finally] resorted with the alteration that the apothecaries were to form a separate section of the company [however, still with] no voice in the government of the company" (1189). Following the charter, regulations enforced by RCP as well as attitudes of medical practitioners relaxed which opened the door for lay people to self-treat illness through homemade remedies, which facilitated the need for "self-help" or "how-to medical guides."

Bright's 1615 treatise is reflective of changes in attitudes by medical practitioners, the RCP, and lay readership through the addition of visual page design elements. The 1615 edition incorporates a newly added table of contents and drug indexing of all medicinal remedies located within the body of the main text. The inclusion of the 1615 contents and drug index reflects the new attitude in sociopolitical standing regarding the practice of pharmacopoeia in 17th century England. The emphasis on categorizing or indexing and defining the use of compounds in medicinal remedies also reveals a change in views regarding the preparation and distribution of pharmacopoeia by unlicensed practitioners. The added visual design elements also signify a shift in purpose and audience whereas the utility of the text appeals to both university-educated and the uneducated lay-readerships.

Bright's transition toward the use of visual design elements indicates current trends in medical discourse as utilitarian prose, which demonstrates concepts of Ramist methods of organization and format. In the teaching of health and medicine during the Renaissance, medical books that used the Ramist method "help[ed] students see and understand the relationship between types of wounds, for example" (Tebeaux *Pillaging the Tombs* 186). The use of visual aesthetics, such as tables, further enhanced students' memory in the learning of medical terminology and procedure. The inclusion of a tables and alphabetized categorizations of medicinal remedies in Bright's 1615 edition are indicative of a universal, generalized readership, including medical students or medical practitioners that did not read Latin and who relied on a simplified, visual method of presenting medical information.

III. RHETORICAL AND TECHNICAL COMMUNICATION DESIGN THEORY

Technical communication in the 21st century has transformed into a "visual culture [wherein] technical communication is designed" (Markel 257). The development and writing of technical medical documentation relies on visual aesthetics or physical appearance in page design to "help readers achieve work-related goals" (Tebeaux and Killingworth 7). Modern technical communication and design principles in the presentation of scientific-medical rhetoric have not changed much since the late Renaissance beginning with concepts and rhetorical theories regarding style and arrangement introduced by Peter [Petrus] Ramus, Thomas Wilson, and Francis Bacon. Tebeaux and Killingsworth point out the importance of contextualizing modern-day methods of technical communication, theories, and applications. The historical precepts of new methods in the presentation of medical rhetoric, as set forth by Ramus, Wilson, and Bacon, affected trends and transitions in Renaissance medical-technical writing. By understanding the context from which and to whom self-help medical texts were directed, we can see how

> These works are generally directed toward helping people perform tasks—
> explaining the process, providing instructions, describing tools needed for
> performing these tasks. . . we can see how work was performed by readers who
> used the existing knowledge or available techniques.
> (Tebeaux and Killingworth 9)

Tebeaux credits Ramus's logical approach to dialectic as an influential tool in how modern technical writers in the format and organization of page design elements (*Ramus, Visual Rhetoric* 439). She writes that Ramus dialectical "invention . . . became synonymous with arrangement, finding the appropriate dichotomies or partitions within a concept" (415). His dialectical invention includes the use of ten topics: causes, effects, subjects, adjuncts, opposites, comparisons, names, divisions, definitions, and witnesses (Bizzell and Herzberg 676), elements evident in the study Bright's treatise. Ramus argues that "one must place philosophy and eloquence in a proper relation to each other by strictly separating the spheres of philosophy (which for Ramus consists mainly of dialectic) and rhetoric. This separation assigns what were traditionally rhetorical activities to dialectic—namely, invention, arrangement, and memory" (676) whereas dialectic, rhetoric, arrangement, and invention take on new meanings with rhetoric being relegated to only style and delivery. Within this context of understanding how dialectic and rhetoric are relevant to transitions in Renaissance medical discourse, the delivery of simplified, organized arrangements of information allowed readers to follow the hierarchy of Ramus's logic of a "universalizing method [that] is based in rhetorical invention" (676). Ramus describes the usefulness of this universalizing method as "his dialectical method" (677), which plausibly influenced transitions in Renaissance print technology and page design aesthetics.

As demonstrated in the section "Applied Visual Page Design Principles and Print Technology," Bright's use of page design elements and print technology may have been influenced by Ramus's universal or dialectical methods through creating a visual, simple language that "could be made to mean and have precision through visual

presentation" (435). Writers and printers understood Ramus's suggested use of "bifurcated tree diagrams" and visual aesthetics in order to reach a larger, widespread readership. In Bright's body of work, his use of brackets and categorization reveals a gradual transition within a 30-year-span between editions. Figures 8, 13, and 14, shown later in the "Methodology" section, reveal subtle examples of bracketing and categorization in Bright's work reminiscent of the Ramist method that emphasized visual presentation. Common lay people, unlearned in the professional practice of medicine, could process the visual information presented in bifurcated diagrams and illustrations, which were commonly arranged by hierarchy from the most general to the most particular. Similar to Ramus's suggested use of brackets and organized hierarchy of information, Michael Albus (2009) writes how the presentation of information through visual design elements assist in the dissemination of complex information to generalized readerships.

In modern-day technical communication tree diagrams or wireframes used in information design projects, such as print and web design, facilitate the organization of visual information. The following are modern examples of bifurcated-tree diagrams, which are similar to those used in Renaissance medical writing.
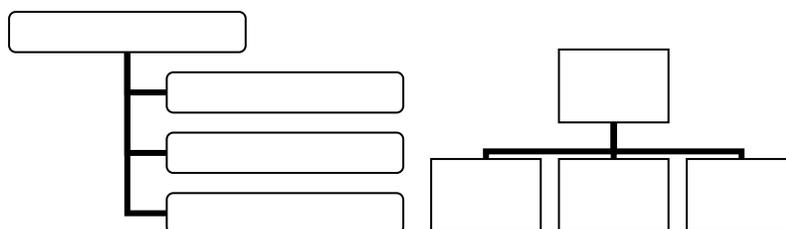
Figure 1. Modern example of bifurcated-tree diagrams

Walter J. Ong argues that in Ramus's "bifurcated tree diagrams"

> . . . such spatial representations could take hold only in a society that had shifted from an auditory to a visual relationship with language. He maintains that such a shift was caused by literacy, which was becoming more widespread in Europe in this period, and was augmented by mechanical printing. The printed page replaced the *viva voce* discourse as the principal means of transmitting knowledge. (Bizzell and Herzberg 677)

Ramus believed in the "usefulness of his dialectical method" where language and information could be universalized and presented to an expanded readership—a sentiment also shared and advocated by Thomas Wilson and Francis Bacon. In the 21st century, Albus describes how information design functions in technical communication parallels Ramus's dialectical method. He writes that "in good design, readers can effortlessly extract the information they need without being conscious of how they gain the information" (6). Within this context, information design "must be considered the practice of enabling the reader to obtain knowledge" (6).

In the late 16th through early 17th century Renaissance, increased literacy levels expanded the generalized readership of medical discourse, which increased the demand for utilitarian type medical "how-to" and "self-help" guides written in vernacular English—a contrast to Latin texts that previously catered solely to the university-educated practitioner. While the "expanded readership" of Bright's work is unclear in *The Sufficiencie of English Medicines*, the treatise provides textual and visual design clues as to who Bright's "gentle reader" may have been. For example, in the following passage from 1580 edition[24] Bright provides a disclaimer to his professional opinion regarding the inclusion of historical witnesses to his argument. His use of *I* and *thou* presumes the audience "maye knowe" what he knows regarding "the use of strange medicines" (29). In the passage, Bright voices concern about the naiveté of a student

regarding deceptive or fraudulent medical practices as he states his "opinion" is not of his own but that of a "student who might be overtaken with speculation." He writes,

> These testimonies I rather have alleged gentle reader, that thou mayest knowe this my opinion is not mine only, and a newe sprung up from the leasure of a student, who might be overtaken with a speculation which never could be showne in use and practice, but hath with it the voyce of authoritie, and suffrages of excellent Philosophers and Physicians, although they have not of purpose and in a set treatise handled this argument, as thought seest: which not withstanding contayneth indeede the matter of a great volume. Hitherto hath bene shewed the great inconveniences and dangers which rise of the use of strange medicines, by reason, by experience, by authoritie of Philosophers and Physicians. (29)

The passage indicates Bright's original target audience consisted of university-educated physicians who taught medicine to students. The passage is preceded by Bright's use of accredited witnesses Plinie [sic], Fuchsius, and Rulandus, "one a great philosopher, and the other both a philosopher and a physician" (29). He credits the study of simple medicine to Rulandus to "whome the students of Physicke owe much for his *Medicina Practica*" (28). His argument then moves from the accredited witnesses to warnings regarding the use of strange medicines prepared by fraudulent apothecaries without a physician's knowledge (29). The passage is further indicative of intended readership—knowledgeable and learned medical professionals. Bright follows the passage with a statement regarding his credibility in the writing of his argument and disclaimer:

> If my reasons be euill gathered, the experience false, the authoritie not autheticall, what have I lost thereby? A fewe houres meditation, and a fewe lines writing, or my credite impaired will some say. If my credite could either buy such virtues to strange medicines as they carie the name, or purge the shops of counterfeit stuff, or redeeme the harmes they have done, I would verily esteeme as much of the change, as he which made exchange of brass for gold. Although I weene it be a proprietie to mans weaknesse unavoidable of any to erre, and there fore if obstinance be not therewith coupled, always found pardon. But if my arguments rise from the causes and effects of these foreigners, and causes and effects of our bodyes, which are of all arguments the most forcible to establish or overthrowe any thing to be decided by reason, and the authorities such, as justly exception can not be taken against: blame me not (gentle reader) though I be caried into this

persuasion my self, and of a love and zeale to benefite thee, have published that which I have conceived of this argument. (29)

Throughout the text, Bright's argument further addresses both philosophical and theological principles, which emulates Bacon's theory of "dividing knowledge into two branches . . . then subdivided into theoretical inquiry" (Bizzell and Herzberg 737). While Bacon's did "not subscribe to Ramus's separation of dialectic and rhetoric" he did use "the device of binary opposition," which was "popularized by Ramus" (737).[25] Binary opposition can be compared to a modern-day medical prognosis where physicians rule out patients' illnesses by aligning known symptoms of a known disease against what they know is not a known illness. In Bright's work, he uses similar comparisons of what is strange and foreign-made to what is not.

Similar to Ramus, Bacon advocated a plain style of delivering scientific rhetoric "designed for general participation in science" and presented in "several parts or stages, each directed to a different faculty, sense, memory, or reason" (Zappen 54). The prose in Bright's 1580 treatise exemplifies the traditional Aristotelian style that precedes Wilson, Bacon, or Ramus's concepts in new page design and use of syntactical devices within the context of paragraph, sentence style, and structure. Overall, the original treatise does not exhibit any categorical hierarchy in placement of information or dichotomized divisions. However, as shown in the visual analysis, the 1615 edition exhibits minor visual and stylistic changes indicative of Ramist style and influence.

A. Trends and Transitions: Stylistic Traditions of Rhetoric and Page Design

Medical-technical writing during the late Renaissance can be attributed to trends and transitions in the printing of written medical discourse between the mid-16th century through early 17th centuries. Tebeaux argues that medical books during this latter portion

of the Renaissance used visual elements inspired by Ramism in texts that were used to educate medical students.

> Ramist-inspired works . . . emphasized stringent organization and spatial arrangement of content, contributed to the shift from oral-based text to efficiently displayed reader-based text that appealed to the eye (visual memory) rather than the ear (acoustic memory) . . . in utilitarian text[s], undifferentiated prose was the exception rather than the norm particularly by the closing years of the 16th century" (Tebeaux "Pillaging the Tombs" 186)

 As noted in the "Introduction," Timothy Bright's 1580 edition of *The Sufficiencie of English Medicines* is an example of undifferentiated prosaic style in that it includes lengthy sentences and lacks any visual appeal to a general readership. In the "Discourse Analysis" of Bright's treatise, stylistics and thought patterns provide linguistic data to support the "impressionistic hunches" of intended readership and genre. Through the study of stylistics in thought-style patterns, a genre is presumed to be targeted toward the specialized medical professional. Theorist Peter Barry describes stylistics as a method of study that

> uses specialized technical terms and concepts which derive from the science of linguistics…[and] makes greater claims to scientific objectivity…In relation to literature it aims to show…the continuity between literary language and other forms of written communication. (203)

He explains that stylistics is a way to "back up the impressionistic hunches of common readers with hard linguistic data" with the use of plain style.

The stylistics approach examines patterns in the overall discourse structure of a work to interpret literary meaning and "describe technical aspects of the language of a text." Considering the concepts of arrangement, as proposed by Ramus, Wilson, and Bacon, the application of stylistics to the study of technical communication and visual

page design is relevant in understanding what affected transitions in late Renaissance

medical writing and page design between the mid-16th century through early 17th century.

Thomas Wilson, in his *The Rule of Reason* (1552), addresses argumentation

within the context of what Aristotle called dialectic [logic], "a rigorous exchange of

views among experts in the subject under discussion" (Bizzell and Herzberg 698). In his

Arte of Rhetorique (1553), Wilson presents the "Five Parts of Classical Rhetoric" based

on the five canons or parts of classic oral rhetoric where he argues for rhetoric's

"usefulness [in] public oratory" (699). Where Wilson's argument for "public oratory"

focuses on the utterances of words, Ramus reduces "rhetoric to style and its

manifestations largely to print" (698). However, while the two theorists have opposing

views of "how" rhetoric should be presented (through oratory or print), they share similar

concepts of presentation regarding the five-part structure of invention, arrangement, style,

memory, and delivery.[26]

Ramus championed for the separation of rhetoric and dialectic, a method that

favored a visual form of delivery of information that relied on hierarchy" (Bizzell and

Herzberg 676).

> [Ramus's] version of invention and arrangement constituted the universally
> applicable method of inquiry that so many intellectuals of his day were seeking
> . . . he could present his method of arrangement as the perfect memory system,
> aligning mind and material to be known so that they match and bond. (677)

Ramus's ideas of arrangement also follow "Hermogenes' practice of structuring

arguments by division or dichotomy . . . working down through levels of generality to the

most minute particulars" (676), further evidenced in historical changes in Renaissance

medical texts during the mid-16th century through 18th centuries. Division and hierarchy

of information are organized into Ramus's tree diagram, where levels of information are

laid out from general to particular. Ramism, alongside the theoretical concepts of dialectic and rhetoric as outlined by Wilson and Bacon, allow for a better understanding of how Ramism affected trends and transitions in late Renaissance writing and page design.

From the perspective of dialectical method and rhetorical invention, my analysis examines several other works by Bright in addition to *The Sufficiencie of English Medicine.* I present three questions and motives posited by Tebeaux (1997) as applied to Bright's work from which, in my methodology, I examine gradual, visual transitions in Renaissance page design and print technology.

1. How did the writers and printers attempt to write how-to books that would appeal to the perceived audiences for these books? (35)

2. What did these printed texts look like? Did they differ from other kinds of Renaissance printed books? If so, how did they differ? (35)

3. Do these technical books provide evidence that Renaissance technical writers and printers conscientiously used other methods to make their works appealing? (91)

IV. FORM AND THEORY

A. Identifying Audience and Genre Types

How preventive health is communicated and understood relies on persuasive and effective use of language based on audience. Bright's 16th century treatise, which addresses public health concerns and policies of the day, is especially interesting because it is a persuasive work written in vernacular English for specific genre and audience type. In the "Introduction," I provided an overview of identity formation and how in medical discourse "categorizing reflects the social categories of their users" (Schryer and Spoel 252). Identity formation is effective in identifying audience and genre type in Bright's work. As stated in the Introduction, in my structural analysis I identify Bright's work within the context of "how genre systems function within a larger network of interrelated genres" (252) by examining and categorizing his work based on genre parameters and thought-style patterns found in early-modern medical discourse. In the course of identifying audience type, literacy is taken into account regarding Bright's intended readership.

The 1615 revised edition of *The Sufficiencie of English Medicines,* with the newly appended table of contents and index of native English medicines (referred to in modern-day terms as a drug index), serves as a literacy health guide within the field of 16th century pharmacopeia and an example of changing trends in format and page design.

Technical communicators and sociologists who study historical scientific and health communication would be interested in how 16th century physicians and medical writers communicated, perceived, and disseminated preventive health information within a sociohistorical context. The significance of Bright's work is evident in his persuasive rhetoric regarding the education of both the learned-medical professional and unlearned lay person as his treatise serves as a foundation in the study of historical medical and scientific discourse in comparison to contemporary critiques of science. The art of persuasion in written discourse is only successful when targeting relevant audience types. In the discussion and analysis of *The Sufficiencie of English Medicines* and intended audience, Bright's persuasive argument is directed toward the universalization of medical practice based on his appeal toward "shared values" and the universal audience who is being persuaded (Perelman and Olbrecht-Tyteca 1380). Between the 1580 and 1615 editions we see a plausible shift in his intended audience through the use of visual design elements alongside the undifferentiated original prose. Changes in the 1615 treatise reflects a shift toward what Perelman and Olbrecht's describe above as the universal audience who is persuaded with references to "demonstrable facts or absolute truths."

In the first edition, as demonstrated in the following "Methodology" section, the treatise attempts to persuade a particular audience, plausibly university-educated; however, the later edition, through the addition of Ramist-influenced page design elements alongside a virtually untouched prose, appeals to a wider, more generalized audience. The prose, written in (not translated into) vernacular English, provides another clue that the treatise was targeted toward a universal readership.

B. Vernacularization and Utility

Peter Ramus and Thomas Wilson supported works written in the vernacular—

Ramus in French; Wilson in English. The works of Timothy Bright published between

1580 and 1615 were written in the English. Similar to Ramus's independent views,

Bright incorporates "overtones of religious reform [and] traditional political

hierarchies" (675) among medical and governmental professionals as well as the

common layman. From a utilitarian perspective, "technical or utilitarian discourse is

inextricable from the development of modern English prose style" (Tebeaux "Pillaging

Tombs of Noncanonical Texts" 165). Elizabeth Tebeaux further recognizes the

evolution of the English language in nonliterary discourse:

> By looking at a broad range of English texts that validate the role of technical
> (utilitarian) writing in the evolution of English, we have a more accurate
> understanding of the character of English and how modern English evolved than
> when we had when we relied only on studies of canonical literary texts. (166)

Tebeaux presents five similar factors that shaped modern English, which parallel

Ramus and Wilson's contributions toward the study and presentation of oratory and

written discourse in Renaissance technical writing:

> a) Brevity induced from accounting/administrative format
> b) Aural/oral-based text, written to be heard as well as seen, that produced
>   conversational style.
> c) Persistence of the indigenous subject-verb-object syntax found in the
>   earliest English documents, religious and secular.
> d) A growing Renaissance book market of literate middle-class readers who
>   responded to speech-based prose
> e) English scriptural renditions surfacing during the late Renaissance that
>   associated colloquial speech with Protestantism. (166)

Tebeaux argues that within the context of English style, attention should be given to

"visual and aural elements underpinning diction, syntax, and discourse purpose" (166),

a discussion further elaborated in the rhetorical analyses within my Methodology

section.

C. Genre Forms and Theory

Jennifer J. Connor discusses how characteristics of historical genres in medicine

identify intended readership (217). She writes that "recognizing that distinctions exist

among medical genres and forms will aid the scholarly analysis of historical medical

text[s]" (217). In her discussion of genre forms over the past few hundred years, Connor

elaborates on three: books, pamphlets, and journals, and then categorizes the genre forms

into sub-genres including learned treatises (218). In the study of genre dynamics as it

relates to Bright's work, Connor suggests a similar method of categorizing by subgenre

as outlined in the *EMEMT Corpus.*

> …each type of medical manual itself can be considered a sub-genre defined by
> intended audience and purpose; that is, written for those who practice medicine on
> others, or for those who treat themselves (recognized today, perhaps, as training
> manuals versus user manuals). Contemporary historians' interest in patients
> (versus "great physicians"), and in broad social trends in medicine, has
> encouraged their examination of both self-help manuals and vernacularization of
> earlier Latin texts. Their studies thus offer a wealth of information and insights of
> use to the technical communicator. (218)

Schryer and Spoel discuss two types of identity formation, *regulated* discourse and

regularized discourse that shows "how genres function" (250). "Regulated" discourse

represents "knowledge, skills, and language behaviors" recognized and required by a

field or profession" (250). "Regularized" refers to strategies and practice situations. In

my methodological section I present an analysis of genre based on parameters set by the

EMEMT Corpus. This methodological approach to understanding genre, categories, and

thought-styles in Bright's work align with Schryer and Spoel's approach, which argues

that "genres exist in a relationship of power with other genres . . . they also regulate or

control other genres" (250). Schryer and Spoel further point out that "text types were inherently ethnomethodological" which as discussed earlier, "the very categorizing of texts reflects the social categories of their users" (252).

Within the discussion of form and theory, Bright's work is interpreted through several applied methods of analysis including the dynamics of genre theory. Taavitsainen and Pahta further examine genre theory from a similar social context through the identification of scientific thought-styles and discursive patterns in genre-category types The *EMEMT Corpus* designates genre parameters within categories representative of their relationship with other genre types. One category, "Specialized Treatises" is the only category that regulates and controls other genres within its inclusive sub-categorization. While each genre type designates set parameters in discourse form for classifying medical texts, a category's "representativeness"[27] is compared and designated based on its relationship to the other genre types. While Bright's treatise meets several parameter criteria from every category in the *EMEMT Corpus*, the text only identifies with a majority of parameters in one or two categories, "Regimens and *materia medica*" and "Regimens and Health-Guides." Depending on which treatise edition is analyzed, depends on which category the treatise is assigned.

Using criteria from the *EMEMT Corpus* parameters and based on statistical percentage of the qualitative and quantitative results of my analysis outlined in the "Methodology" section (See Appendix A), Bright's 1580 treatise aligns with Categories 4, "Regimens and Health Guides" while the 1615 edition aligns with Category 3, "Recipe Collections and *material medica*." The results reveal Bright's treatise went through a genre transition based on several factors that include supply and demand of genre types

within commercial markets. Printers relied on identification of genre types to facilitate commercial market and audience needs for in-demand written medical texts. The genre type also dictated the reprinting of editions as trends in stylistic and visual page design elements.

> Knowledge, available through an increasing number of how-to-books, allowed literate English people access to new as well as ancient information . . . The importance of learning to the growing numbers of middle-class readers, coupled with the increasing numbers of books printed between 1550 and 1640, suggests that literacy, defined as the ability to read printed works, was increasing . . . As Bennett argued, printers soon learned to cater to the tastes of the public. The range of books printed showed that the most popular books dealt with religious, homiletic, practical, and instructional topics. Printers provided these in small volumes that would be inexpensive and easy to handle. (Tebeaux *The Emergence* 11)

Transitions in Bright's 1615 treatise are most evident in my applied visual page design analysis—a side-by-side comparative analysis of page design principles, writing style, and printing technology in both the 1580 and 1615 editions of Bright's treatise. The difficulty of analyzing why the transitions occurred in Bright's treatise is that Bright's 1615 edition was published the same year he died. Two questions remain, did Bright authorize or not authorize print changes to the later text to reflect audience demands or was Bright influenced by Ramist methods wherein he re-edited the original treatise tailored toward a more universalized, generalized audience or readership? In my methodological approach to Bright's work, I will attempt to answers these questions by examining Bright's work through visual and rhetorical analyses of form, theory, and genre as it relates to visual and rhetorical patterns in written medical discourse.

V. METHODOLOGY

A. Applied Visual Page Design Principles and Print Technology

1. Readership and Functional Purpose

Scholars who study the historical trends in Renaissance technical communication can view Bright's work from a fresh historical perspective of how page design influenced medical writers during the late Renaissance through the early modern era Elizabeth Tebeaux posits two questions and motives, which relate to my research questions regarding purpose and intended audience. The questions are relevant to my analysis of late-Renaissance page design and print technology.

> Q-1: *How did the writers and printers attempt to write how-to books that would appeal to the perceived audiences for these books?* (*The Emergence* 35)

> Motive: *Early printers made available a wide range of books for a growing, increasingly diverse English reading public . . . within specific genres of works, particularly technical books, we can track differences among the targeted audiences of these books by the methods that writers used to present their subject matter to their readers.* (*The Emergence* 92)

Bright's work provides a variation of page design principles that reflect 35 years of Renaissance transitions in writing and printing technology. In the following analysis of visual page design principles and print technology, I will show comparisons between the original 1580 edition of *The Sufficiencie of English Medicines* and the reprinted 1615 edition to reveal the impact of visual design elements; however, the main prose reflects few changes. The two editions of *The Sufficiencie of English Medicines*, alongside other works by Bright, printed between 1580 and 1615, reveal subtle to

extensive variations in print style, which exemplify both old and new rhetoric traditions in Renaissance writing and visual page design elements. Elizabeth Tebeaux points out this slow change in Renaissance awareness:

> Although printers often continued to reprint works with little or no changes, the number of technical manuals that showed the writer/printer's awareness of the value of format increased dramatically toward the end of the sixteenth century. ("Ramus, Visual Rhetoric" 439)

Bright's two editions of *The Sufficiencie of English Medicines* alone serve as an effective comparative analysis of how Ramist-influenced trends developed in the writing and printing of medical texts. The historical implications of Bright's writing and printing style is further indicative of his aforementioned affiliations with other physicians and scholars who not only followed Ramism but also supported Paracelsian ideologies regarding the creation, presentation, and accessibility of new alchemy (chemistry) and home-grown medicinal remedies.

2. Arrangement and Organization

Q-2:   *What did these printed texts look like? Did they differ from other kinds of Renaissance printed books? If so, how did they differ?* (Tebeaux *The Emergence* 35)

Motive: *. . . printers provided technical books that, from a modern perspective fall into four categories: 1) those written to appeal to both a general audience and an expert audience, 2) those for a general audience, 3) those written soley for the expert reader.…printers saw that the market for information books for expert audiences was limited, and the greatest profit was to be had in providing books that would appeal to a wide readership.* (Tebeaux *The Emergence* 92)

A close, visual analysis of Timothy Bright's work in vernacular English over a 35-year period, demonstrates how the style and arrangement of Renaissance writing and printed texts transitioned between the late-16th and early-17th centuries. Particular attention is given to the two editions of *The Sufficiencie of English Medicines*, printed

in 1580 and 1615. My visual analysis of Bright's two editions is interpreted through GTM, whereas visual and textual data with respect to page design elements, are extracted, categorized, and then compared for similarities and differences between the texts as well as influences of the Ramist system of logic and rhetoric.

Late Renaissance writers and printers were cognizant of how audiences responded to the arrangement of visual aesthetics in new document design and "that page design enhanced the ability of text to contain and then convey meaning" (Tebeaux *The Emergence* 37). For example, Tebeaux discusses an early text, *The Boke of Saint Albans* (1486) "whereas style and organization . . . illustrate textualized spoken thought . . . the natural quality of early English syntax" (*The Emergence* 40). Crediting Walter Ong's observations of early texts, Tebeaux further points out that "like the spoken thought, [early texts] showed some degree of analytic pattern but nothing like that used in technical books of the late Renaissance where organization and visual presentation became more rigid to help readers see the arrangement of content" (40).

Modern-day design principles rely on understanding methods of arrangement and style as well as recognizing audience needs and expectations that "consider factors such as the audience's knowledge of the subject, their attitudes, their reasons for reading, and the way they will using a document, and the kinds of tasks they will perform" (Markel 260). Renaissance design principles considered similar factors, which incorporated Ramist logic. Representations of design aesthetics in Bright's works are best assessed by first looking at each text's implementation or lack of design principles including arrangement, organization, and use of visual design.

3. Basic Principles of Design

Medical-technical guides during the late Renaissance served a functional

purpose. Readership relied on writers and printers to deliver medical texts that were

functional and usable based on genre and intended audience. In this respect, medical

texts afforded readers a utilitarian function. The target audience of utilitarian prose

was

> often middle-class readers who were the target of many technical books . . . as 'reading to learn to do' grew in popularity, books became organized . . . title pages, tables of contents, and indexes became common in works of substantial length. Graphics improved in quality and value in supporting the meaning of the content. (Tebeaux *Pillaging the* Tombs 187-88)

Based on the precepts of purpose and levels of audience literacy (e.g. educated-learned

professional or unlearned lay person), Renaissance medical-technical books needed to

be 1) written for readers to be used, do a process, or do a task immediately after

reading, and 2) accessible to a wide, universal range of readers, many of whom had

low levels of literacy (Tebeaux *The Emergence* 35-36).

In the context of developing trends in visual format and design in medical

guides, "the Ramist method was particularly welcome in 16th century English"

(Tebeaux "Pillaging the Tombs" 188). In an "emerging textual society that was

predominantly utilitarian," medical texts were developed and printed to help "readers

understand, remember, and perhaps use what they were reading" (188). Tebeaux

agrees that Ramist thought and logic with its emphasis on "division and classification

supported "the evolution of the English sentence" (188). In the development of

medical discourse, "disciplines, such as medicine . . . were drawn to [the] Ramist

display" of division and classification," which targeted medical students. Tebeaux uses

English surgeon, Thomas Gale (1563), as an example of one physician who used "Ramist display extensively in presenting medical concepts that targeted medical students." He used displayed organized illustrations of anatomy alongside the visual display of text when describing medical conditions (188). Gale's use of illustrations are consistent with the genre, surgical guide. Bright, however, does not use illustrations, but does incorporate visual display in the 1615 edition through his arrangement of organized text in the form of an alphabetized catalogue. The following analysis considers principles of visual display in the arrangement, organization, and presentation of medical discourse as applied to Bright's two editions as well as observations from some of his other works in vernacular English.

4. Models and Representations

a. *The Sufficiencie of English Medicines* (ed. 1580 and 1615)

The content of the treatise is arranged, organized, and analyzed in three respective sections: 1) the discussion of localization and regulation remedies, their preparation, and their delivery; 2) instruments and nature of medicine including natural, herbal remedies including the explication of terms; and, 3) *Physicke* as an art whereby health may be repaired by remedy under the God's providence or ordinance. In the 1615 edition, an added appendix of pharmacopoeia expands on the explication of terms from the prose that define all medicinal, herbal remedies mentioned. Side-by-side images from the 1580 and 1615 editions demonstrate transitions in presentation from a traditional presentation of persuasive argumentation to a newer, more linear form that incorporates Ramist logic, but also

aligns with the ideologies of Thomas Wilson, who in his rhetoric and logic addresses two audience types:

> . . . those who, like himself at the beginning of his career, had little familiarity with classical sources and the discourse of power but were ambitious to learn, and also those who had already achieved powerful political positions and could better appreciate the perspicuity and wit of Wilson's advice. (Bizzell and Herzberg 700)

Drawing on observations from Tebeaux and the logic of Ramus and Wilson, Bright's work is interpreted through the analysis of Renaissance style, design, and presentation of published medical discourse.

i. Non-Linear, Undifferentiated Prosaic Style

As demonstrated in the two earlier passages from Bright's 1580 treatise (29), most content in both treatises is presented in an undifferentiated and non-linear prosaic style that is written without indentation, distinct paragraph breaks, or subtitles and commonly printed in English blackletter. This non-linear and undifferentiated style was "written to be read thoroughly" (Tebeaux *The Emergence* 35). With the exception of generalized "patterns" of ornamentation in the title page, dedicatories to Lord Zouch and the Gentle Reader, and a first page introduction, the example of text from the entire treatise appears as shown on the left side of Figure 2. However, in the 1615 edition, the typesetting, as shown on the right side of Figure 2, eliminates excessive spacing of words and paragraphs through the use of indentation.

Figure 2. *The Sufficiencie of English Medicines.* **Page Design Variations** (1580 ed. left; 1615 ed. right)

The 1580 edition shows large, spaced gaps, which in the 1615 edition are shown as indentation or start of a new paragraph

ii. Typeface

English blackletter is a serif-style typeface commonly used by printers throughout Western Europe from the 12th through 18th centuries.[28] Popular 16th century black letter typefaces were Garamond, Textur, Rotunda, Schwabacher, and Fraktur (Marotti 282). Garamond typeface, developed by a leading type designer and Parisian publisher Claude Garamond (1480-1561), is a serif typeface (name in Garamond's honor) that is still used in current modern-day page design.

> This is an example of
> **Garmond Premr Pro** Smbd typeface.
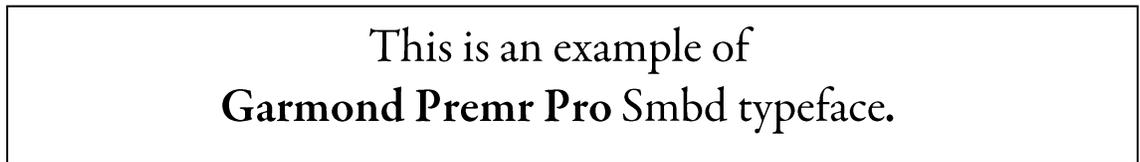
Figure 3. Example of an English blackletter-style, serif typeface

David Jury (2003) writes how Garamond typeset survived through the evolution of Renaissance writing and page design:

> By the middle of the 16th century, there had been a general and rather sudden decline in standards of printing and type cutting across the whole of Europe. Garamond's Roman type was still widely used or copied with varying degrees of success. But the nature of printing and publishing had changed . . . by 1550 the traditional influence of the manuscript had evaporated (59).

Other modern-day examples of blackletter typeface include Lucida and Perpetua. Figure 4 demonstrates not only how typefaces remained unchanged between 1580 and 1615, but how these blackletter-style typefaces are currently used in modern-day page design.
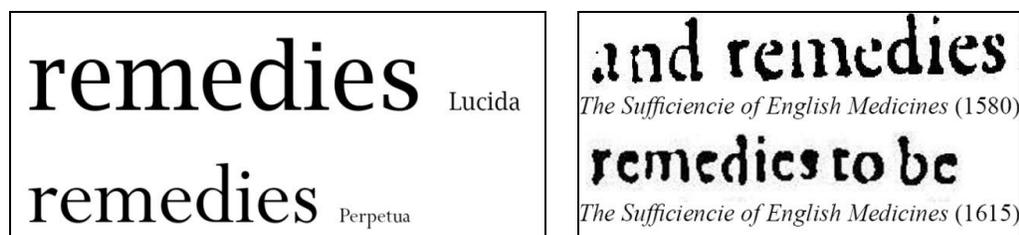
Image: Adobe InDesign® CS3

Image: Used with permission of the British Library, courtesy of EEBO ProQuest

Figure 4. Blackletter typeface

iii. Title Page (Ornate Title Page)

Most Renaissance medical texts feature an "ornate title page" (Tebeaux *The Emergence* 40). Bright's title pages are inclusive of ornate bordering and typeset that "illustrate early English printers' awareness of the importance of visual appeal" (43). Both the 1580 and 1615 editions represent variations in ornate title-page "patterns." (See Figure 5.)
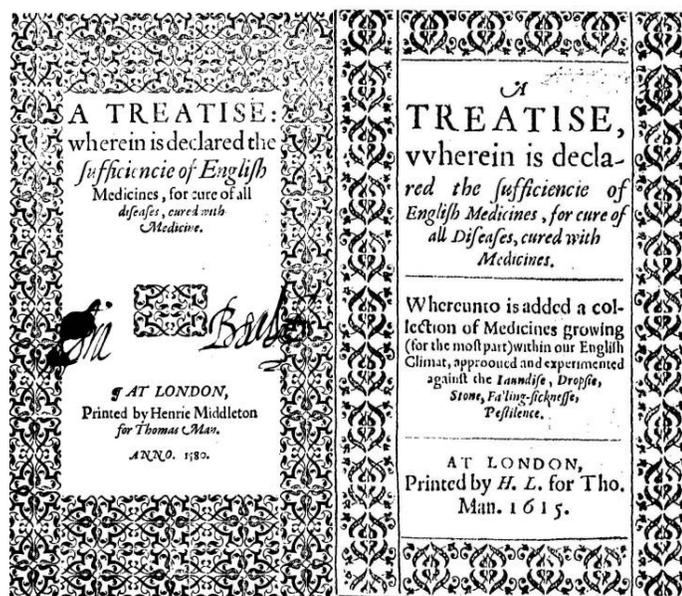
Image: Used with permission of the British Library and EEBO ProQuest

Figure 5. Title pages of the 1580 and 1615 editions

iv. Typeface and Illustrations

While both treatises exemplify varying trends in print design, the 1580 and 1615 editions share one similarity, the use of standard pattern engravings commonly used by Renaissance printers as shown in the title page, dedicatories, and first letter of first line of Bright's text. Figure 6 (left) shows a typical printer's pattern book alongside images from Bright's two print editions (right). As the image suggests use of alphabetical patterns remained a fairly common, unchanged visual aesthetic among all print types.
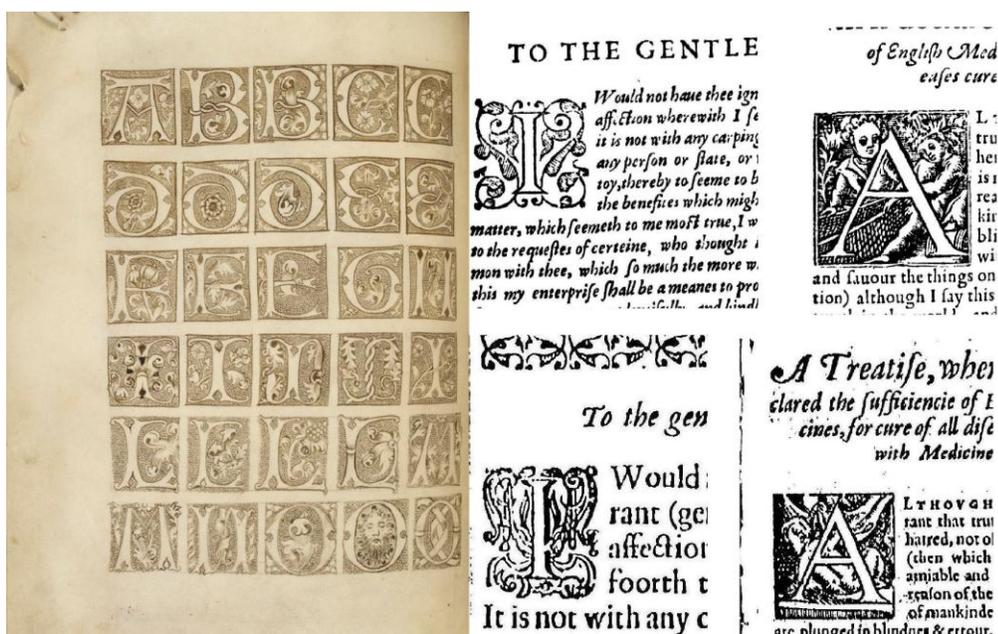
Images: Used with permission of the British Library and EEBO ProQuest

Figure 6. Example of pattern book as used by designers and printers in the 1500s.
Original *Macc Book* (l), variations of patterns used in *The Sufficiencie of English Medicines* (top-right, 1580 ed; bottom-right, 1615 ed.)

The most popular technique for creating illustrative design format is woodcutting, as Tebeaux points out in V.B.D's Waters *The Vertuouse Boke of Distyllacyon of the Waters of all Maner of Herbes* (1527). Type cutters would use this popular technique to create the ornate typefaces and illustrations for the letter press.

> Letterpress was the major form of commercial printing (until lithography at the end of the 18th century), and the earlier printing process required the ink to be applied to the type on the press using a pair of *daubers* . . . while the packing of the press aimed to prove an even pressure. The minute variations in the color of the resulting pages of these early texts are often described as improving both the aesthetic *and* the reading experience. (Jury 52)

Jury further points out how and why the quality of early modern printing varied through the 17th century.

> . . . most English books of this era [17th century] continued to be printed using rather dull, imported Dutch types. This poor state of affairs had been caused, for the most part by a 1586 decree (not lifted until 1695) that had prohibited printing outside London--with the exception of one press each at the Universities of Oxford and Cambridge--and those few given the right to print were by no means the best at their craft. (57)

Tebeaux writes "technical books, until the later third of the 16th century, were cheaply printed and did not show the high quality reserved for the more expensive folios" (*The Emergence of a Tradition* 47). The only clue to the size of Bright's book is analyzed in the section "White Space," example shown in Figure 9, which reveals a ruler to indicate size. The size of a book indicates if the book was small enough to carry for easy access, which could reveal if it was used in the capacity of a quick-reference how-to or self-help guide.

In modern-day technical communication, similar style options are offered through 21st century technology in publication design applications that mimic methods of type cutter and old-fashioned letterpress. Abobe's InDesign offers an option to create permanent paragraph styles for a particular text. In *Paragraph Styles* of "InDesign," character typefaces and spacing can be customized to each part of the text including headers for page and chapter titles, ornate borders, and other design elements that facilitate pagination, creation of a table of contents,

image placement, and numerical indexing. Taking into the consideration the 1615 edition addendums of a Table of Contents, the text in the treatise remains identical with only a few changes in spelling.

Another observation in the comparison of Bright's two editions is the size of the printed text. Size may indicate intended audience based on easy access and mobility to carry a smaller book. As shown in the Figure 2 side-by-side comparisons of the two editions, the images clearly indicate differences in size. The shorter 1580 treatise implements larger typeface whereas the 1615 edition uses a smaller typeface that fits more lines on a page. A consideration of size is that both treatises are facsimile images of the original books; however, two conclusions can be made placement and spacing of the typeset: either the 1615 edition is set in a larger typeset or the size is significantly smaller thus the increase in pagination. The British Library, which owns both books, only provides a measurement for the width of the 1580 treatise and does not indicate if the measurement is in inches or centimeters (see Figure 10). Based on the measurement indicated and using a ruler in inches, the 1580 book width appears to be approximately 5 cm (4.75 in). Tebeaux points out, folio "size [was] influenced by needs of users. Therefore, most reference manuals were printed as small, compact octavos or quartos that could be easily carried and placed in a pocket or saddlebag" (*The Emergence* 36). The book size may also indicate audience or readership-type. Assuming the length and placement of typeset in the 1615 edition is based on size, it is plausible Bright's treatise was printed in a smaller size so that, similar to a folio, the book "could be easily carried."

v. Headings and Marginal Comments

> *The organization and page design of many technical how-*
> *to-books suggest that they were printed for use as reference*
> *manuals rather than for sustained reading . . . clearly*
> *organized and partitioned, centered headings in differing*
> *sizes, italicized fonts to demarcate divisions of text.*
> (Tebeaux *The Emergence of a Tradition* 36)

During the late 16th century writers and printers of medical texts gradually

moved from "dense, undifferentiated prose" by first incorporating centered and

exdented headings, and "judicious use of white space" (Tebeaux *The Emergence*

65). While the use of marginal comments is common practice in earlier printed

manuscripts, the use of marginal comments is a component of the Ramist system of

arranging and organizing the visual display of content. Bright's added catalog and

indexing of herbal remedies in the 1615 edition, as well as the use of marginal notes

in his other works, indicates a step toward applying Ramus's logic of visual display

of arrangement and organization to Bright's work.

In the formulation of 16th century medical self-help guides, Tebeaux writes

that "by the mid-sixteenth century, many [printers] used marginal descriptive

comments or 'exdented' headings to help readers locate specific ideas" (47). In

early modern medical discourse, marginal notes usually indicated important

medical terms found alongside the prose.This element of visual display is evident in

Bright's 1615 edition where Bright includes five alphabetized catalogues appended

to the original treatise. (See Figure 7.) The catalogues are categorized by disease

type as notated in the main text of the treatise. Remedies are alphabetized and

placed in the margins alongside a description of the particular compound or

"principall matter," and each catalogue title page is accompanied by an engraving

or woodcut image placed before header.
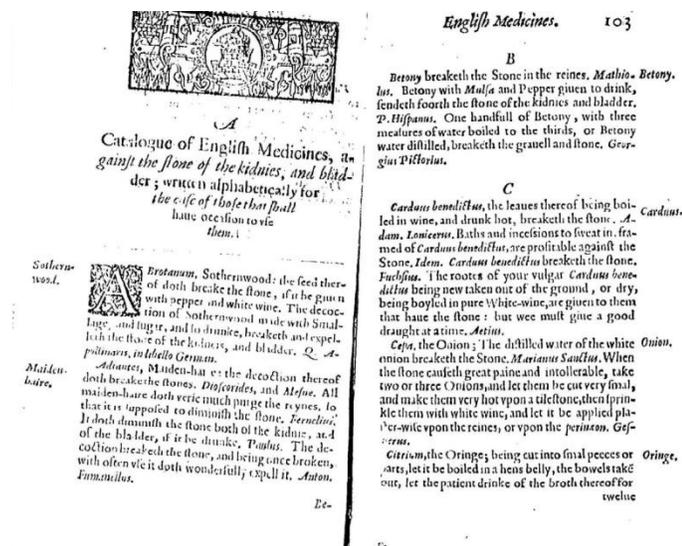
Image used with permission of the British Library and EEBO ProQuest

Figure 7. The 1615 edition includes an index of five alphabetized catalogues

The catalogues emulate Ramus's logic of visual dialectic in what he "proposed was

a natural method of organizing and classifying arguments" (Tebeaux *Ramus, Visual*

Rhetoric 414). In Bright's catalogues, the compounds are organized and aligned

accordingly. The terminology in the descriptions uses italicized indented

typography to emphasize alignment with the marginal sub-headers. The title page of

the catalogue series further emulates Ramus's system of joining together

"appropriate dichotomies or partitions within a concept" (415). Ramus, similar to

Agricola's theories of dialectic [29] "created a schematic diagram" where the subject

is visually divided then sub-divided "until on the right-hand side of the page, the

indivisible parts would all appear" (413). The title page of Bright's catalogues uses

a loose interpretation of Ramus's method of dichotomy. The catalogues are

arranged and broken down into categories within the catalogue *A Collection of Medicines*. (See Figure 8.) Bright then uses one indented bracket to denote each category of disease. He is careful to denote that the medicines are grown in an "English Climate" and authenticates the text's information by stating the medicines are "approved and experimented against" for such diseases. The title page to the catalogue also uses centered headings and variations in typeface size to emphasize the hierarchy or importance of information presented.
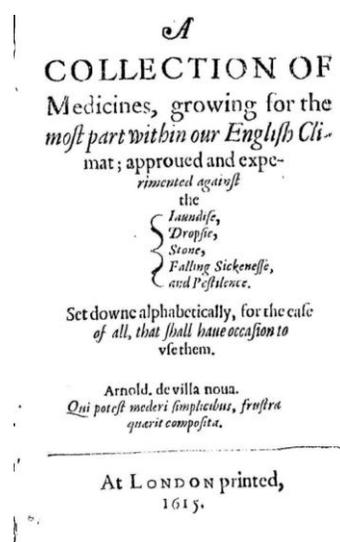
Image: Used with permission of the British Library and EEBO ProQuest

Figure 8. Title Page of the 1615 edition's *Collection of Medicines* index.
Includes five catalogues listing remedies located within the body of the main text of the treatise.

vi. Capital Letters and Italics

In Renaissance medical-technical writing an indication of intended audience-type is the use of capitalizing important words in a text, especially medical terminology (Tebeaux *The Emergence* 43). Throughout the text, Bright repetitively emphasizes words with capital letters such as *Physician, Physicke, Art*

of Physicke, and Philosophers while proper nouns or names of important philosophers, physicians, and countries are italicized as are all medicinal remedies and compounds. While God is spelled primarily with a capital "G," there are instances when Bright uses all caps to spell out the word. Both editions also use italics for the *Dedicatorie* to represent the script of hand written letters or epistles. The only difference in the dedicatories is that the 1580 edition center justifies the entire text, while the 1615 edition remains full justified. In the 1615 edition, there is no dedicatory title, only an italicized *To the gentle reader* is neither italicized nor entirely capped. In both the 1580 and 1615 editions, Bright uses all caps to identify the header THE EPISTLE. (Also see Bright's Other Works in English Vernacular: *A Treatise on Melancholie* (1586))

vii. Word Division and Line Spacing

In modern-day technical communication, technological tools such as Adobe InDesign assist in the adjustment of kerning and leading (the spacing between characters and lines). Spacing of typography in a text in early 16th century works was inconsistent among printed medical texts. Printers would not divide words by syllabication. Rather, the division of words occurred when a printer would run out of "space at the end of a line" (Tebeaux *The Emergence of a Tradition* 47). Not until late into the 16th century would the visual aspect of format and "control of typographic space" be important in the presentation of language as opposed to being heard (47). The presentation or visual display of text guided readerships to immediately understand the context of the information being presented. (See

aforementioned discussion about information design and tree diagrams in the

section "Rhetorical and Technical Communication Design Theory.")

While the quality of typeface in Bright's work is fairly clear in both

editions, the printer's lack of control in typographic spacing reflects inconsistencies

in page design.

> The most popular of the medical guides for lay readers continued the plain English, plain style tradition . . . Clauses are more cleanly separated, and a logical progression is evident in the presentation of ideas . . . However, there is no rhythmic regularity that would lift the plain style to the middle style. (Tebeaux *The Emergence* 152)

An example of what Tebeaux describes as "no rhythmic regularity is found in both

the 1580 and 1615 editions of Bright's treatise where lines and clauses are full

justified; however, the word and character spacing (kerning) is not adjusted as in

the earlier edition. In the 1615 edition, although still evident, the kerning is less

obvious to the eye and appears to be cleanly separated. (See Figure 2 side-by-side

examples.) Although Bright's treatise went through a second-edition printing, the

inconsistency of "cleanly separated" typeset and print style in Bright's work is

indicative the treatise being considered, based on Tebeaux's theory on plain style

tradition, a "popular" medical guide.

viii. Table of Contents (TOC) and Indexes

In late 16th century medical discourse, the TOC represents locations of

specific topics. As previously shown in Figures 7 and 8, indexing and

categorization of terminology during the late Renaissance reflects Ramist concepts

of arrangement. In the 1615 edition, Bright includes a TOC (See Figure 9);

however, the TOC is only reflective of medicinal remedies and terminology located

throughout the main text and does not imply sociopolitical or theological contexts.

The TOC is also suggestive of an apparent intent to reach a more generalized audience. The treatise, written a plain-style English—written simply with little to no use of advanced medical terminology such as terms written in Latin—indicates the audience was not necessarily university-educated physicians.

A briefe Table of the principall matters or heads, contained in the Treatise of English Medicines.

THE preseruation of health consisteth in the true vse of meate, drinke, and exercise.   pag. 2

The vertue of Celendine, herbegrace, vernin and grasse.   pag. 6

Opium hath a stupifying and benumming nature.   pag. 18

Coparison of Metheglin with Malmsy. 29

The vertue and properties of Milk.   37

The vertue of Trifolium, or three-leaued grasse.   pag. 39

The vertue of all manner of Mast.   39

The vertue of Penyrioll.   eadem.

The vertue of Garlicke, Onions, & Leeks, beeing newly gathered.   eadem.

The essence of Primrose and Couslips, good against the French-pox.   pag. 39

Earth-wormes close and ioyne wounds. 40

Sows

Image: Used with permission of the British Library and EEBO ProQuest

Figure 9. Table of Contents preceding main text of 1615 edition

The plain style of Renaissance writing and inclusion of visual design elements followed along the course of what Tebeaux describes as "instructional discourse" (153). In a description of a popular, medical self-help guide, written by Sir. Thomas Elyot, *Castel of Helth* (1598 edition), Tebeaux explains how writing style indicates

audience types.

> Elyot avoided doublets, chose concrete descriptive terms and emphasized the subject-verb object style and clearly demarcated clauses that are predominantly non-periodic . . . Elyot deliberately used a medium-style vernacular . . . devoted to a wide audience. Sententious prose was appropriate for philosophical discourse directed to the English power elite, whereas vernacular medium style was appropriate for explaining and instructing the general population of English readers . . . (153)

As noted previously, in plain style tradition "clauses are more cleanly separated, and a logical progression is evident in the presentation of ideas." In medium-style, the writing includes plain style traditions wherein the prose is not written or presented in a complex language. Based on Tebeaux's explanation of "vernacular medium style," Bright's prose is also considered to be written in a medium style vernacular—devoid of rhetorical devices such as irony and metaphor. While it has already been established Bright may have been addressing university-educated physicians, his use of both plain and medium style written in a less complex vernacular English is an indication the treatise was intended for the instruction of what Tebeaux describes as "general population of English readers."

ix. White Space

White space is another page design element which allows readers or printers to insert marginal notations. (See previous Figure 7.) The two available editions of *The Sufficiencie of English Medicines* are both facsimile copies of the original text. While both texts appear to have a significant amount of white space surrounding the primary text, the images present a challenge in determining if the marginal spacing is due to discrepancies in digital versus actual image size. Only the 1580 edition provides a measurement beside the title page. (See Figure 10.)
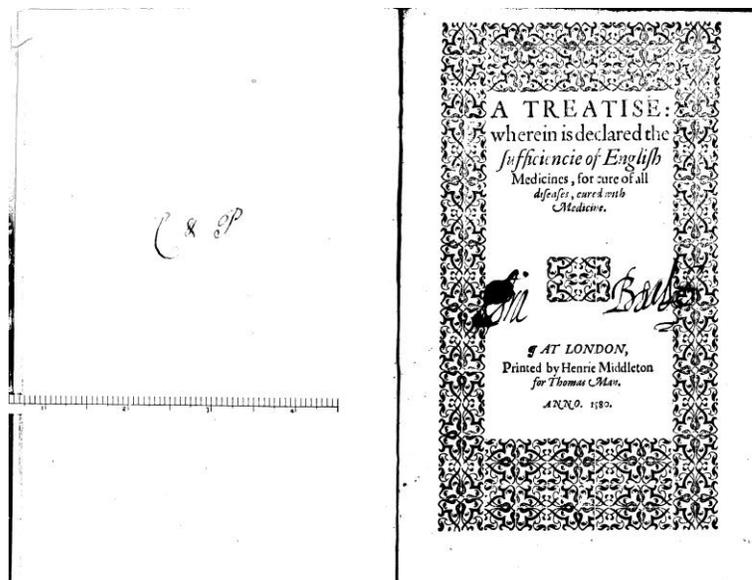
Figure 10. Facsimile of 1580 title page and measurement of book width

As noted previously, while the use of marginal notes is a common feature prior to

Renaissance writing, the feature was emphasized by Ramus alongside the use of

visual aesthetics in the presentation, categorization, and arrangement of

information.

b.   Design Elements: Other Works in Vernacular English

In addition to *The Sufficiencie of English Medicines*, Bright's other works

within the 35 years between editions, exemplify transitions in Renaissance writing

and page design, which reflect new trends in page design. The following images are

examples of visual page design elements identified in three of Bright's other works,

A Treatise of Melancholie, An Abridgement to the Booke of Acts, and *Characterie.*

An Arte of shorte, swifte, and secrete writing by Character. The texts reveal

Ramist-influences in the presentation of visual display such as use of brackets,

headers, and varying typsets, table of content, images, and marginal notes

referencing specific or specialized terminology for easy access.
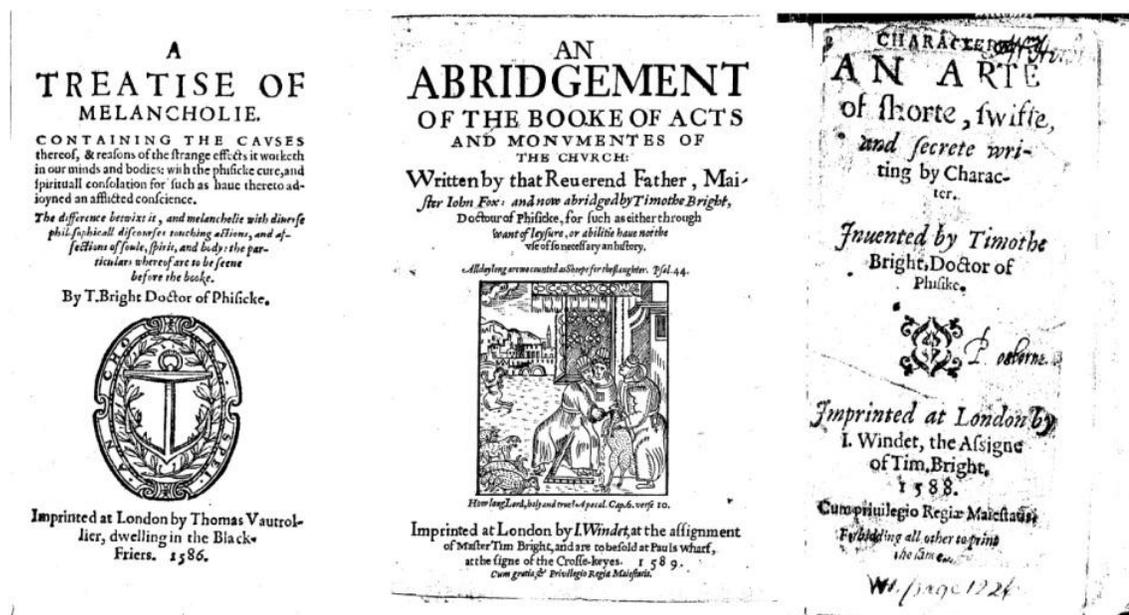
Images: Used with permission by Huntington Library, Bodleian Library, and EEBO ProQuest

Figure 11. Variations in title page design, printed between 1586 and 1589. All three title pages are devoid of excessive ornamentation, which suggests the books purpose is didactic.

i. *A Treatise of Melancholy* (1586)
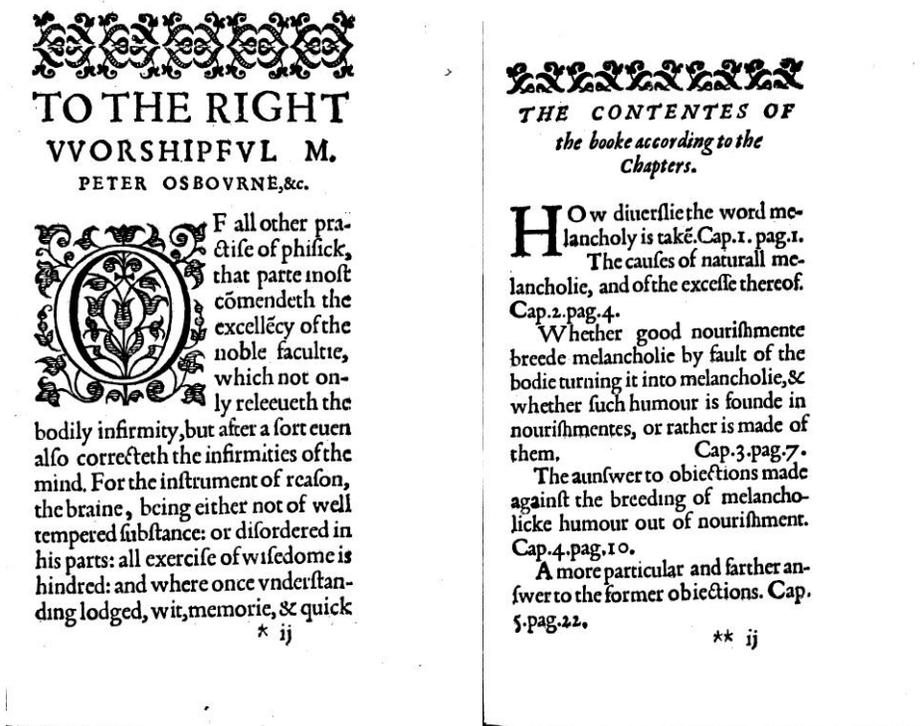
Images: Used with permission by Huntington Library and EEBO ProQuest

Figure 12. *A Treatise of Melancholy*. Preface-Dedicatory and Table of Contents .

The facsimile of *A Treatise of Melancholy* suggests a smaller-sized text because of

the excessive amount of marginal white space. However, the ruler length indicates

the total length of the book is 5 inches. (See Figure 13.)
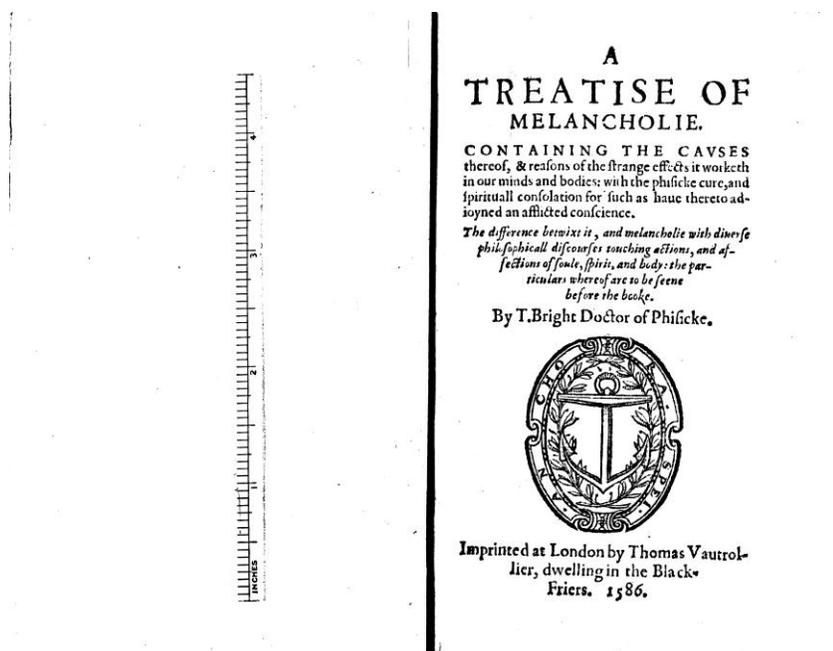
Image: Used with permission by Huntington Library, Bodleian Library, and EEBO ProQuest

Figure 13. *A Treatise of Melancholy*. **Title page and measurement of book length.**

The main body of text also incorporates similar typeface as Bright's earlier works in a Garamond-style. The visual display of arranged and organized content includes a Table of Contents, centered chapter headings and italicized subheadings, indentation with no visual images, charts, or figures.

ii. *Characterie*. *An Arte of shorte, swifte, and secrete writing by Character* **(1588)**

Similar to *A Treatise on Melancholy*, the title page of this work does not use ornate borders. The body of the text incorporates centered-headers and the typeface is displayed as italicized from large to small in size. No distinct sub-headers are observed; however the text is continuous with a change in font size from large block-type to a smaller italicized type. (See Figure 14.)
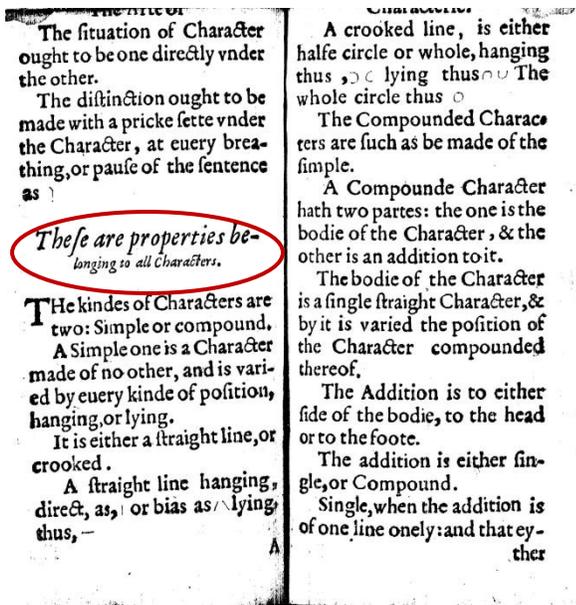
Image : Used with permission of the Bodleian Library, courtesy of EEBO ProQuest

Figure 14. *Characterie.* **Variances in typeface.** In the first line of header, the typeface is larger than the second line.

The book also includes a two-column, alphabetized index and white space for marginal notes. The marginal notes allow for easy access to specialized terminology. (See Figure 15)

Images ©Bodleian Library, courtesy of EEBO ProQuest

Figure 15. *Characterie.* **Examples of two columns, marginalia, white space, and alphabetized categorization or classification of terms.**

iii. *An Abridgement of the Book of Acts and Other Monuments of the Church written by John Fox, abridged by Timothy Bright* (**1589**)

The typeface in this text is in an Old English style. Unlike Bright's other works, the text uses headers and subheaders in varied sizes, numbered lists, brackets, an index with alphabetized content, and marginalia notations. (See Figure 16.)
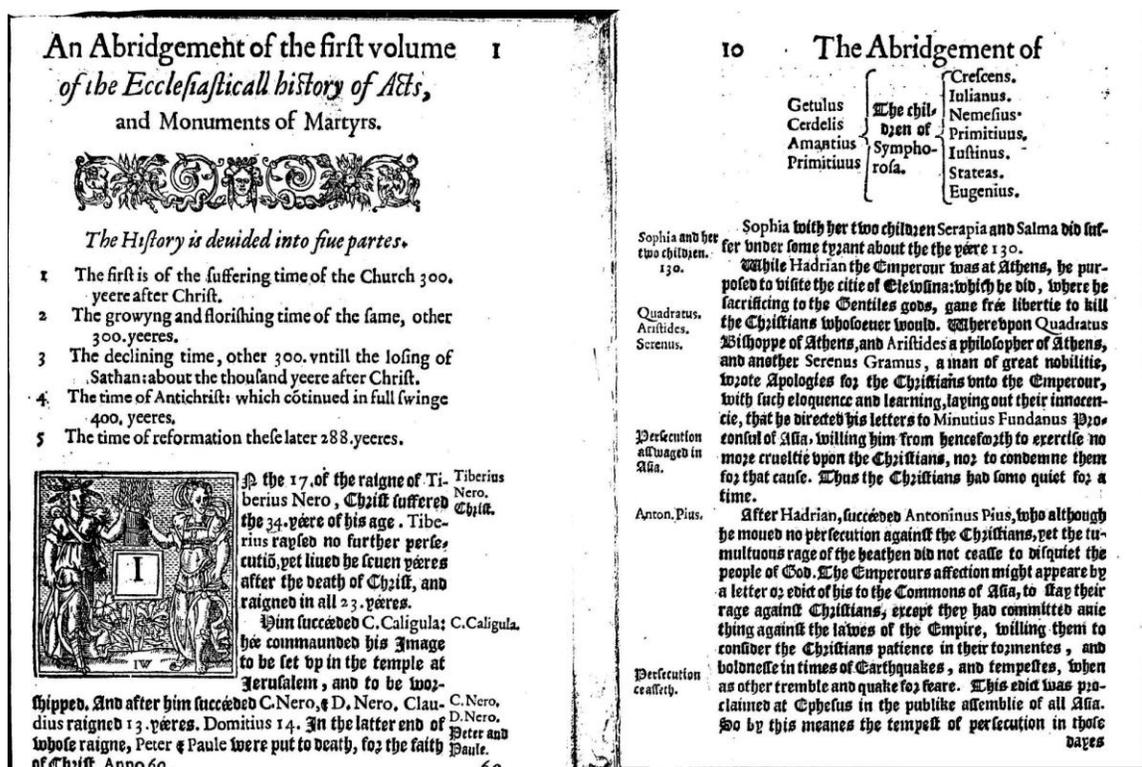
Images : Used with permission of Huntington Library and Art Gallery, courtesy of EEBO ProQuest

Figure 16. *An Abridgement of the Book of Acts and Other Monuments of the Church.* **Various visual display and design elements.** Use of an Old Style typeface versus the commonly used Garamond (l). The use of brackets and marginalia (r).

Images: Used with permission of the Huntington Library, courtesy of EEBO ProQuest

Figure 17. *An Abridgement of the Book of Acts and Other Monuments of the Church.*
Various visual display and design elements. An organized table of alphabetized content
(l). Use of italicized sub-headers and marginalia (r).

B. Applied Qualitative and Quantitative Research

1. Introduction to Rhetorical Analysis and Data Coding

Quantitative and qualitative data, collected from the data coding and structural-
textual analysis, identify similar stylistic transitions found in the page design analysis
within the 35-year-period that Bright's two editions were published. Data coding includes
applied concepts of grounded theory where the primary text is classified and categorized
through methods of memo-taking, the compiling of topic and word frequencies,
identifying thought-style patterns, and a discourse analysis. Data sets reveal upward
trends of transitions in discourse form, which are consistent with other medical discourse
in vernacular English between the late-16th and early 17th centuries. The first data set is a
structural analysis that interprets textual representations of genre-types using parameters
outlined in the *EMEMT Corpus* chapter "Corpus Categories" (65-148). The second data

set uses the *EMEMT* Presenter®, to measure genre dynamics such as word frequencies, thought patterns, and stylometric parameters.

The *Early Modern English Medical Texts Corpus and Description* (2010) is the result of a fifteen-year-research project that presents a statistical approach to the study of language in scientific and medical writing. The *EMEMT Corpus* introduces one method of identifying scientific rhetoric called "thought-styles" (3), which defines the "underlying scientific concepts, objects of enquiry, methods, evaluations and commitments related to epistemology of science" (qtd. in Crombie 5-6). As summarized in the Introduction, the *EMEMT Corpus* is based on a prior research study of early modern medical texts. The study designates set parameters, which from a rhetorical perspective allowed me to conduct an in-depth structural and discourse analysis of Bright's treatise. The discourse analysis interprets meaning and assigns coding categories derived directly from the text data. The structural analysis includes an overview of theory, the interpretation of genre and context, and a discourse analysis, which identifies lexical and stylistic patterns in thought-styles and word frequency. The overall structural analysis assists in the contextualization of Bright's treatise within the stylistic conventions of medical authority, audience, and discourse form.

The discourse and structural analyses contextualize Bright's work through the use of data coding. Similar to the visual analysis, syntactical and lexical elements of medical discourse is examined through each category's discrete sections, then placed into a *coding paradigm* or *coding scheme* (Blythe 204). The *coding paradigm* parses and classifies linguistic data or thought processes into designated categories and sub-categories, which determine what genre type a text belongs. The *EMEMT Corpus*

organizes medical genres into the six aforementioned categories "on the basis of extralinguistic and sociohistorical principles" (Tyrkkö 180). Categorization allows researchers to observe how during the early modern period, the medical profession was only beginning to become organized and that consequently several traditions of writing, each with distinctive lexical and discursive practices, can be identified (180). The structural analysis is supported by a content analysis that measures common word frequencies, discourse strands, and discursive events. Discursive events include the analysis of three discursive movements which determine if the text is diachronic and identify discursive entanglements. The synoptic analysis is the final assessment and interpretation of the text using all measurements from the structural analysis, including identification of the surface of the text, functional rhetorical analysis, content, and discourse position.

2. Categorizing by Genre Type and Thought-Style Patterns

An important element in the identification of Renaissance transitions in medical-technical writing is the classification and categorization of written medical discourse by genre type and thought-style. The study of genre types and thought-styles ascertains how a society uses language in written discourse and distinguishes intended readership, which in turn dictated writing and printing styles during the late English Renaissance. Taavitsainen defines the importance of understanding genre in the study of medical discourse. In her discussion of genre dynamics, she points out "genres as meaning-making practices in communicating medical knowledge" (*EMEMT Corpus* 31).

The *EMEMT Corpus* classifies and categorizes genre types within the context of written early modern medical discourse, where visual as well as textual markers indicate

medical treatise types broken down into the aforementioned six genre categories and subcategories. In addition to identifying genre type, categories indicate purpose and audience types: learned or trained; general readership; and mixed. Primary categories and subcategories of genre types are identified and summarized, then coding assigned to subcategories and specified parameters within each primary category type. Depending on the edition, Bright's treatise falls within several of the categories based on the set parameters in the *EMEMT Corpus:* Chronological, Criteria for Inclusion, Coverage, Discourse Form, Vernacularization, Target Audience, Continuity (from Medieval Traditions versus New Trends), and Images. Subcategories are then measured and frequencies determined based on commonalities between subcategories and the primary text. The highest frequency of commonalities within category and subcategory types will determine genre and audience types.

In the study of thought-styles of early modern medical texts, Taavitsainen and Pähta introduce a variationist frame to the study of language and medicine. The variationist frame examines shifts in external language within "scientific paradigm, postulated in histories of science" (Pahta and Taavitsainen "Introducing *EMEMT*" 5). Understanding the shifts relies on the examination of historical texts to determine new ways they construct knowledge during the early modern period (6). The *EMEMT* research project incorporated the use of a linguistic tool to measure thought-styles within the variationist frame of the *EMEMT* Presenter®. The Presenter provides researchers with an empirical method to parse syntactic and lexical patterns within historical texts. The data is then used to analyze scientific thought-styles and genre patterns from either a large corpus or single source. The Presenter provides two accessible versions of the texts:

1) a corpus version, which includes all original text spellings in Early Modern English, and 2) a normalized version with modern translations of Early Modern English.

The texts in the Presenter are presented as plain ASCII[30] text files for compatibility with a wide range of corpus tools on different computers and with different operating systems. Since early modern printed books contain many features which cannot be captured using ASCII character encoding, special markup is used to represent those features which have been considered essential for the understanding of the corpus texts. (EMEMT Presenter® Help File)

The Presenter text database, which includes Bright's 1580 treatise, is customized to read facsimiles of early modern medical texts using ASCIII markup in plain text and VARD software[31] to create searches in the normalized versions of the texts. The tool is a "purpose-designed software" (Pahta and Taavitsainen 1) that compliments data coding and grounded theory methods (GTM)—which suggest and use similar tools and theory to facilitate qualitative and quantitative rhetorical and historical research.

3. Methodological Approach

My methodological approach to analyzing Bright's work incorporates both quantitative and qualitative methods of conducting research. As defined by John W. Creswell (2009) quantitative research incorporates assigns numeric values to trends and data from a structured sample, such as in interviews, and qualitative incorporates textual data collected from a particular discourse analysis (12-13). Creswell recognizes several approaches to qualitative research, including grounded theory, which defined as "a strategy of inquiry which the researcher derives a general, abstract theory of a process, action, or interaction." Data collected for the structural analysis include both qualitative

and quantitative approaches, which incorporate grounded theory methods (GTM) and data coding. Applied characteristics of GTM include "constant comparisons of data with emerging categories and a theoretical sampling of different groups to maximize the similarities and differences of information" (Creswell 13). Textual data is then compared to the category parameters and assigned numerical values based on frequency of occurrence. Percentages of occurrence are then calculated to determine high and low frequencies. Data for discourse analysis were specifically compiled using the *EMEMT Presenter®*, which as stated previous is a customized electronic concordance used to measure textual data.

In the structural and discourse analyses sections I provide a brief overview of how the measurement tools are used, which includes a description of the *EMEMT Corpus* history and research criteria, and the Presenter software. Overviews are followed by key statistical data collected and a final assessment of the structural and critical discourse analyses.

C. Structural Analysis of Genre Types

Taavitsainen argues that "genres constitute dynamic systems which exhibit variation and change, and the lines of development of individual genres in a long diachronic perspective are not clear" (31). In her discussion of genre dynamics she addresses "changes in the repertoires of stylistic features in the realization of genres in a diachronic perspective," wherein texts are interpreted over a specific period of time (32). I use this diachronic perspective of "variation and change" to identify and represent changes in Renaissance medical-technical texts, particularly within the scope of classifying Bright's two editions of *The Sufficiencie of English Medicines.*

Representativeness, how themes or genres are represented within the corpus, is essential

in understanding "what types of texts . . . a part of a corpus is intended to represent"

(Taavitsainen and Tyrkkö 59). Classification of genre types include "high frequency

linguistic features [found within] shorter extracts, while longer extras are needed . . . to

examine discourse features or rarer lexical items." In Taavitsainen's research of medical

texts, along with that of many scholars in the fields of corpus linguistics, computer

processing, English, philology, history, and Early Modern English texts, the EMEMT

Project assessed the "communication between authors and audiences, with genres

understood as communicative act" (Taavitsainen and Tyrkkö 59). The initial project

compiled and analyzed a range of medical texts from the early modern period with the

goal of understanding the language of medical science between the periods of 1500-1700.

In the *EMEMT Corpus*, Part II provides a "description [that] gives an overview of the

general sociohistorical trends of development in the *EMEMT*" (Taavitsainen and Tyrkkö

57). Findings from the EMEMT project are documented in the *EMEMT Corpus and

Description*, which provides suggested methods and tools to assist future researchers in

the study of genre and readership in early modern medical texts.

The *EMEMT Corpus* provides seven parameters within six categories or medical

treatise types from which genre-types are determined. Similar to Ramus's system of

classification and ordering information from most general to the most specific, the

parameters help identify genre and intended audience through a system of classification,

which is breaks down medical genre types into categories and subcategories.

Taavitsainen and Tyrkkö explain that "the term 'category' was chosen . . . to avoid

overlap or confusion with previously established text typological concepts such as 'text

type,' 'genre,' or 'domain'" (57). What then constitutes how a medical genre is represented is determined by the seven parameters: Chronological Coverage, Criteria for Inclusion, Discourse Form, Vernacularization, Target Audience, Continuity, and Images.

1. *EMEMT* **Parameters**

Parameters within each genre category are very different; however, they share a common structure (57). Within the common structure, parameters are broken down into specific elements in relationship to genre or category type. The following is an outline of the common parameter structure, but is not limited to what each parameter requires for a medical text to be considered inclusive of a designated category:

- Chronological Coverage: In all categories this is inclusive of medical texts published between the periods of 1500-1700. Specifications may include a particular vernacular readership or texts written solely in Latin.

- Criteria for Inclusion: Depends on scope; however, parameters outline target audience including literate lay audiences, educated level of author, all-in-one books with access to theories of medicine, range of learned and authoritative compendia of medicines (e.g. pharmacopoeia), original versus translated works, comprehensive in coverage of material and advice.

- Discourse Form: Monologic, didactic, dialogic/narrative, or highly-segmented modular forms. Sylistics and textual organization: e.g. alphabetical order, visual aides, layout, section titles, and use of marginalia. May include case studies and promotional material. Varied lengths: short (advertisements), long (instructive how-to)

- Vernacularization: Written in vernacular English, or translated from Latin into vernacular English. May include Latin terms embedded in prose.

- Target Audience: University-educated physicians to lay readership.[32]

- Continuity (from medieval traditions versus new trends): No significant change from middle ages. Criteria or inclusion of this parameter may include: anonymous author, lengthy prologue, list of authorities containing medieval and early modern sources, prefatory materials state literature is intended for the "benefit of the general public" (17), simple verses in alternative rhymes, names of ancient authorities on title page.

- Images: Text contains accompanying illustrations beyond printers standard devices e.g. decorated initials or flourishes on the border. (See the "Methodology" section "Applied Visual Page Design Principles and Print Technology.")

Data for the specific research of Bright's work was compiled using GMT memo-writing techniques and data coding based on identifying key elements from the given parameters. Parameter-criteria within each category were then compared against the textual content and discourse forms in both editions of *The Sufficiencie of English Medicines*.

2. Parameters in Discourse Form

Discourse form is one of the set parameters that include stylistics and textual organization such as alphabetical order, visual aids, layout, section titles, and use of marginalia. The analysis of parameters in discourse form identified frequencies of commonalities and differences in textual representativeness from each category, which determined either minimal or significant transitions in style and form between the periods of 1580 and 1615. Table 1 demonstrates the overall percentage of increase in transitions

of discourse form in both editions based on set parameter-structure criteria within each genre category.

Table 1. *EMEMT* **Genre Parameters**

The Sufficiencie of English Medicines Overall Increase in Transitions		1580	1615
Category 1:	General Treatises and Textbooks	50%	56%
Category 2:	**Specific Topics**		
Sub-Cat 2A	Diseases	35%	35%
Sub-Cat 2B	Methods of Diagnosis or Treatment	41%	48%
Sub-Cat 2C	Therapeutic Substances	47%	52%
Sub-Cat 2D	Midwifery	0%	0
Sub-Cat 2E	Plague	0%	0
Category 3	Recipe Collections and *materia medica*	64%	76%
Category 4	Regimens and Health Guides	67%	67%

While the treatise met criteria from every category, percentages indicate the 1580 treatise is identified most with Category 3: Recipe Collections and *material medica* (64%) and Category 4: Regimens and Health Guides (67%). However, in the 1615 edition a 12% increase appears in Category 3, and a zero percent increase in Category 4. As shown in Table 2, the upward trend is a result of significant transitions in discourse form between the 35-year-period of printing Bright's treatise. All categories showed an increase in Discourse Form between the 1580 and 1615 editions with highest trends in Categories 2B, 2C, 3 and 4.

EMEMT Genre Parameters
Discourse Form
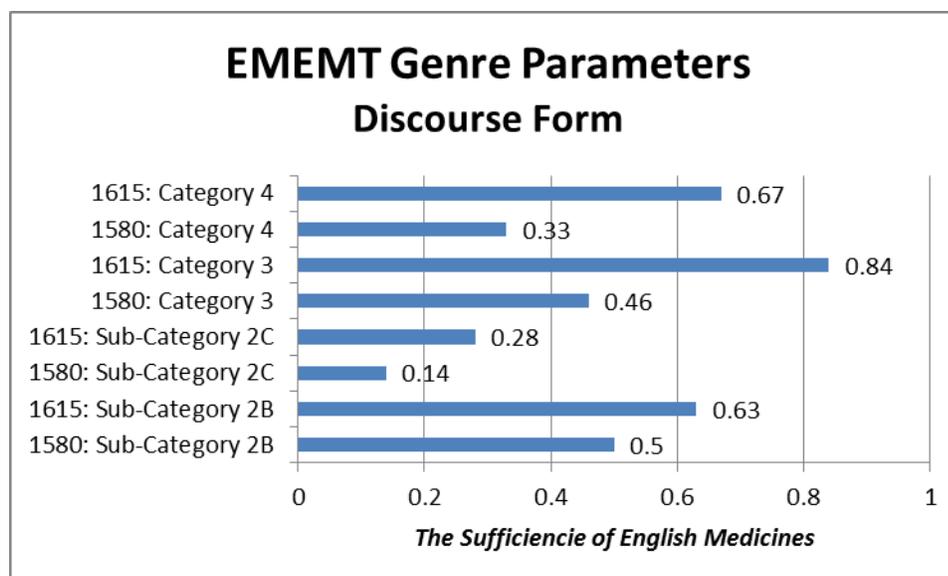
Source: Susan Rauch (2012)

Figure 18. Genre Parameters

Categories 3 and 4 as well as Sub-Category 2B show the largest increase in discourse

forms at 38% and 62.5% respectively. See Appendix B for an itemization of discourse

form parameters for genre categories 3, 4, and Subcategory 2B. The original *EMEMT*

Corpus project places Bright's treatise in Category 3: Recipe collections and *material*

medica. However, from the statistical results of my study of genre, the treatise's genre

profile also fits into Category 4: Regimens and health guides. Based on the highest

percentage of overall transition of genre parameters, the data presented validates my

analysis in page design principles that Bright's work represents printing trends and

transitions of late-Renaissance medical-technical discourse. The structural rhetorical

analysis is further supported by a critical discourse analysis wherein various methods of

quantitative and qualitative coding is conducted to further discern genre, purpose,

intended audience, and writing trends in written Renaissance medical-technical discourse.

D. Discourse Analysis and Data Coding

The following discourse analysis follows suggested research methods and procedural steps outlined by Thomas Huckin (1992), and Siegfried Jager and Florentine Maier (2011).

1. *EMEMT* Presenter® Overview

The *EMEMT* Presenter® is a corpus tool that assists in the evaluation of written language. The tool allows researchers to find key word frequencies, phrase patterns, and thought-style patterns using basic and advanced search functions. Facsimile images stored in the Presenter tool "is intended to serve as a representation of printed medical texts from the early modern period between 1500 and 1700" (Tyrkkö, Hickey, Marttila 230). The tool categorizes texts based on the six categories of genres. Bright's treatise, as stated earlier in the structural analysis of genre, is located under Category 3: Recipe collections and *material medica*. Researchers have a choice of selecting a corpus version with original Early Modern English spelling, or a normalized version, with Modern English spellings and translations. The normalized version indicates where and how a word spelling was translated from its original form. In the study of Bright's *The Sufficiencie of English Medicines*, specific discourse strands and word patterns were entered into the Presenter to search for commonalities and frequency in language patterns that might discern intended readership.[33] In the Presenter, the tool can conduct specified single word search or a random search of all words in the treatise. For example, in the normalized version, the "Concordance Search" function for the word "know" produces several results. (See Figures 19 and 20.) Lexical clusters can also yield a list of word frequencies with the option to remove punctuation.
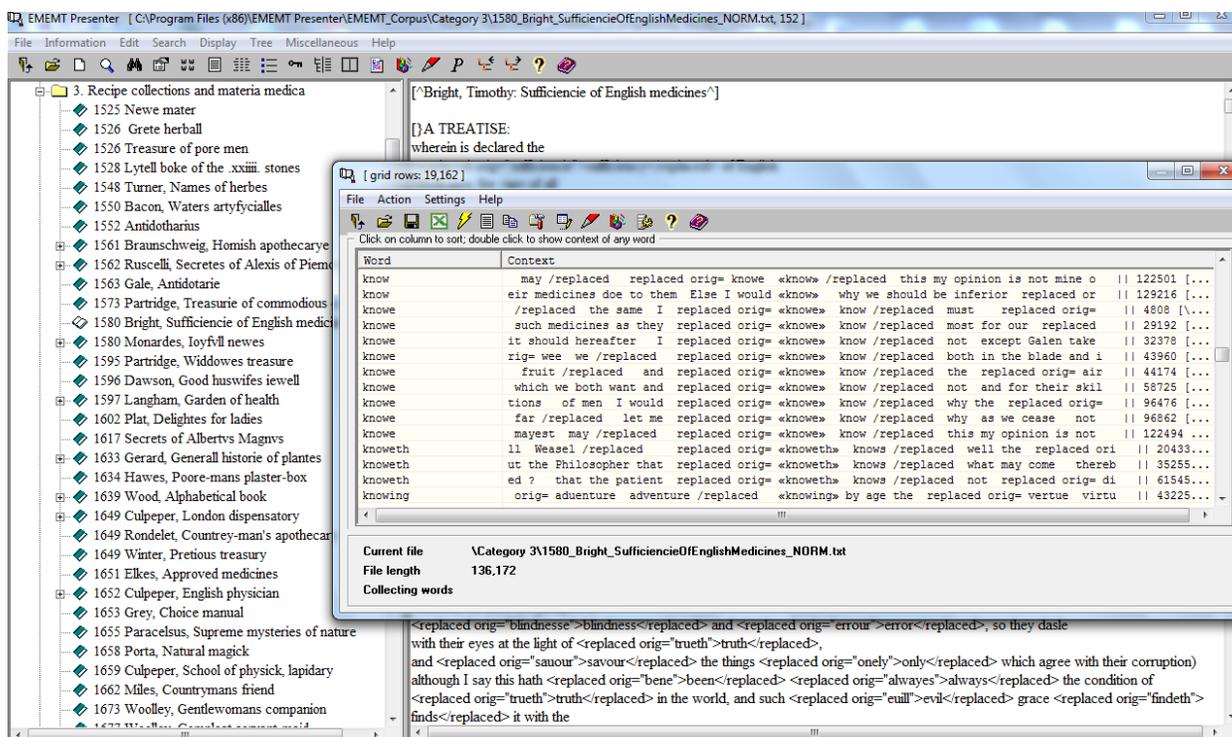
Image: Used with permission of John Benjamins B.V.

Figure 19. Screenshot of the *EMEMT* Presenter®

In the search function "Lexical Clusters," two forms of the word "know" is indicated

with two spellings variations: "know" and "knowe" located twelve and nine times

respectfully in the text. (See Figure 20.)

Image: Used with permission of John Benjamins B.V.

Figure 20. Screenshot of the *EMEMT* Presenter®

In the additional lexical clusters and general word searches, the Presenter was most useful in identifying specific stylometric patterns, which indicates to whom Bright's treatise is addressed. A word frequency search for the use of pronouns reveals Bright used the pronoun "they" 82 times throughout the text, "we" 78, and the personal pronoun "I" 63 times. A search for prepositional phrases was also relevant because such phrases were common within medical and social contexts of medical discourse. Search results yielded 535 uses for the preposition "of," 25 uses of "for" or "for the," and 153 uses for the preposition "in"—all of which were used within a medical or sociopolitical context alongside terms medicine, infirmities, men, another, publicke, benefit, preservation,

recovery, sick, hungry, stomach, patient, poorer, nations. (See Table 4.) The lexicography in Bright's text, similar to the visual aesthetics in page design, further indicates his intended audience.

While Bright's prose did not change much between the 1580 edition and 1615, several words are represented with different spellings; however, the phrasing remained the same. The following critical discourse analysis provides an in-depth look at how Bright's work is broken down through a textual and quantitative analysis using data coding and grounded theory methods. The coding of textual data allows for a better understanding of Bright's thought-style, which further distinguishes his original target audience.

2. Content Analysis: Subtopics Identified and Summarized

Coding processes begin with a grounded theory approach called "memo-writing," a method of data collection that identifies and notates key phrases, topics of discussion, and word content within a text. Memo-writing is a method of data coding that records what is happening in the data (Charmaz 80). Data from the memos are then clustered or organized into categories and subcategories, then comparatively analyzed between the two texts in search of frequencies and commonalities of topic. Tables 2-6 reveal the results of the data coding process, which uses GTM concepts of *initial, focused, and theoretical coding* methods. (Note: Data in the following tables are reflective of the GTM memo-writing and data coding processes discussed in this section.)

Table 2. Initial Coding

Subtopics: *Initial* Coding of Text	
Vocabulary	Herbology, drugs/medicines, causes, cures
Argument	▪ Appeal to learned practitioner, students of "physicke" and general lay readership (gentle Reader; ▪ Advocates health literacy and available remedies for common people ▪ Warns against use of foreign-made "strange" medicines. Champions development of localized home-based medicines
Medical	Fraudulent medical practices i.e. apothecaries, practitioners
Social	Public benefit, appeal to help poor /sustenance and maintenance of health
Cost factors	Availability of medicinal remedies to all.
Political/Ethical	Questions why poor are excluded from benefit/use of remedies.
Ethical/Theological	Foreign medicine, God's truth and desire to provide cures for everyone.
Frequency of Subtopics	
Political and ethical subtopics ≥ Specifics of diagnoses and cures **e.g. melancholy, pockes (pox), bites, stings, and poisons**	
Measurement Tool	
EMEMT **Presenter®** Customized to read ASCII plain text files. Includes database of early modern medical texts between 1580-1600.	

Table 3. Coding Word Frequencies

Coding: Most Common Word Frequencies	
Initial Word Searches/Frequency: melancholy, disease, common, bloud (blood), medicines Yield: Melancholicke (2) bloud (7) medicines (79) common (17) **Gerunds:** "ing" endings (336): includes non-gerund forms: "being" (40), "thing," (45) "nothing," (4)	**Subsequent Word Searches and High Frequency:** straunge medicines, medicine, remedies, Apothecarie(s), drugg(es), God, gentle reader, diseases, charge, cost, public, benefites, foreign countries/nations, mind, common form/saying/phrase, sufficiencies, humours, opinion, judgment, nature, comodities, compounds. Physicke (Physica), hearbes (herbs), authoritie, merchandise, causes, effects, writing **Phrase Frequency:** preservation of health; sufficiency of medicine; maintenance of life; provision of sustenance; recovery of health; native soil; native country; common people; all kinds of diseases
Identifying Patterns: Strange medicines and localization of apothecaries (dispenser of medicine). Cost efficiency. Health maintenance and preservation.	

Table 4. Thought-Style Patterns

Thought-Style Patterns (Lehto, Oinonen, and Pahta 151-166):

Metatextual Comments with reporting verbs:
    ▪ **Verbs of observation in 1st person singular:**
    Pronouns: "they" (82), "we" (78), "I"(63)
    "I know," "I will," "I hold," "I blame"
    ▪ **Frequency of nouns - Verbs of knowing referring to knowledge**
    "I know" " I blame" "I will" "I holde"

Stylometric Parameters[34]
    ▪ Sentence length: Inconsistent throughout (both editions).
        1st sentence of treatise: 198 words with 2 embedded colons
        2nd sentence 58 words with an embedded ? followed by 22 words
    ▪ Length of chapter equivalents:
    ▪ Use of reporting verbs: 16 frequencies: "agree" and "deny"
    ▪ Use of medical terminology: **No complex use of medical terminology**
    ▪ Frequency nominalizations: None detected
    ▪ Existential *there* and *be forms*: 6 specific forms of "there is" "there being" "there be"
    ▪ Prepositional phrases :
    Common uses within medical and social context:
    "of" medicine, infirmities, men, another = 535
    "for the" publicke, benefit, preservation, recovery, sick, hungry, stomach, patient, poorer, nations = 25
    "in" = 153 forms
    ▪ Future Tense: Shifts vary from present to future, some past. No distinct pattern.
    ▪ Code Switching: N/A
    ▪ Narratives: N/A
    ▪ Dictionaries/Lexis: 1615 Ed. Inclusive of TOC and Collection of and Catalogue of English Medicines (Index); 1580 (N/A)
    ▪ Efficacy Phrases (Remedybooks) at end of recipes for learned/lay writing: Identifies disease recipe is supposed to cure; dominates lay texts
Textual Strategies
    Overt references to:
    ▪ Author and patient: Gentle reader; Physician
    ▪ Sources of Knowledge: Virtual Witnesses – Plinie, Rulandus, Fuschius
    ▪ Latin/Greek terminology: N/A
    ▪ Reader as patient: N/A (note evident in *Treatise on Melancholy)*

Data coding also revealed that Bright's primary argument in the 1580 text focused on the localization of medicinal remedies and warnings against fraudulent medical practices. (See Table 5.) While the page design and structural genre analyses provide evidence that his argument shifted toward a more generalized readership in 1615, data for the 1580 edition indicates that the original purpose was university-educated practitioners, and plausibly the Royal College of Physicians, who showed disdain for illegal and fraudulent practice of medical practice including pharmacopoeia.

Table 5. Intercultural Context

Intercultural Context: Use of foreign-made "straunge" medicines	
Argument Against:	**Argument For:**
Foreign sources of medicines e.g.	**Localization**
Arabia, Spain, Portugal, Italy, Barbarie (Red Sea), Ethiopia, banks of Nile, Greece	- Better for English bodies. Diverse reactions to "strange" foreign medicines. - Gardens in England - excellent source to cultivate medicinal herbs. - All countries should have their own commodities: French, German, Arabian, Spaniard, Indian (27) - Argument against illegal and fraudulent apothecaries and foreign compounds.

3. Discursive Events

Diachronic analysis is pertinent when examining discourses relating to historical transitional medical rhetoric, enacted health policies, and style/delivery. A diachronic discourse is the study of study of successive synchronic stages over a period of time. In analyzing the 1580 edition alongside the 1615 edition, Bright's work is considered diachronic (meaning the text transitions over a 35-year period). Within the diachronic period of study between the late 16th and early 17th centuries, changes in language and page design are evident in both editions of the treatise, as well as noticeable changes in other works published within the designated timeframe.

Table 6. Initial Coding Results

Initial Coding Results: Three discursive movements of discussion topics found within the text.	
Action for Curing	What defines a remedy? Who is subject to receive a remedy? • Ethics: Poor versus rich. Universal healthcare for all social classes • Sociopolitical and theological directives – God makes the provision of medicine for all.
Apothecary – Intercultural	Foreign vs. Locally available medicines • Argument: For "preservation of health at home in our own fields" (10); Abundance of medicine (in England); and, remedies necessary for the recovery of health. • Argument: Against distribution and fraudulent use of foreign "straunge" medicine – fraudulent apothecaries
Apothecary – Localized Medicine	• Compounds and Remedies found on English soil • Herb terminologies • Causes and cures.

Results of the discursive strands within the three discursive events, as shown in Table 6, reveal the most obvious, common entanglements in Bright's 1518 text.

Apothecary ➡ Pharmacopoeia ➡ Localization vs. Foreign-Made Medicine ➡

Ethics ➡ Sociopolitical ➡ Theological
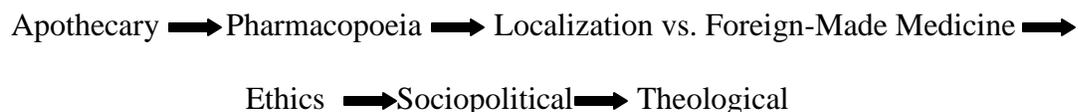
4. Discursive Entanglements

Bright argues against the outsourcing[35] of apothecary remedies, and champions

the use of home-grown remedies that include natural elements created and provided "by

God." He further argues that all medicinal remedies should be available to all social

structures/classes, and the use and development of remedies should be regulated by

knowledgeable and accredited physicians. The primary argument, as demonstrated in

earlier textual analysis of Bright's language from the 1580 edition, is likely directed

toward learned or educated physicians. The later 1615 edition includes the same content;

however, incorporates visual design aesthetics, which implies the text was targeted

toward more universal, generalized readership. While theological directives are evident

throughout the main content of the text, the primary argument is an ethical approach to

health care initiatives—Bright is for the localization of pharmacopoeia in England, and argues that it is unethical to import medicinal remedies not native to English soil, or to patronize unauthorized apothecaries who fraudulently concoct and distribute foreign-made pharmacopoeia in England.

5. Discourse Fragments and Strands: Context of Discourse Analysis

The genre of this text aligns with medical treatises written during the time and government mandates issued regarding public health policies. Timothy Bright was an English physician and theologian whose work is minimally discussed within the study of medical handbooks that advocate social and health policies for all social classes. In this particular text Bright takes the position of banning foreign-made medicines in favor of local homegrown remedies. He supports his argument with theological principles, medical ethics, and provides examples of how to produce homegrown remedies ethically provide medicines without discrimination of social class. Through developing trends in page design and shifts in target audience, the text's purpose transitions away from the university-educated scholar to an educated, general readership.

6. Surface of Text

The Sufficiencie of English Medicines is written and printed in the style of a medical treatise. However, the content analysis reveals the treatise textually and visually provides medical advice consistent with a medical "how-to" handbook. This particular treatise does not use headers in the main prose and is structured into three units of meaning: education of foreign v. local medicines; localization and availability of remedies; and, applied usage. Key medical terms are italicized including the names of countries, philosophers, and apothecaries/remedies. In terms of all aforementioned

discourse strands, the text in this treatise can be considered a fragment of all five strands: medical, intercultural socioeconomic, political, and vocabulary. All discourse strands overlap within the entirety of Bright's argument.

7. Functional Rhetorical Analysis

Based on rhetorical patterns found in the discourse analysis, such as word frequencies, phrases, thought-styles, and discourse strands, Bright presents an argument against what modern-day society calls *outsourcing*—the importation and use of foreign-made medicine—in support of localizing homegrown remedies and regulation of apothecaries in England. Bright's logic is based on his personal opinion, mention of well-known philosophers and physicians Pliny, Fuschsius, and Rulandus as virtual supportive witnesses to his argument. Bright also states his opinion is that of other trained physicians and colleagues in the field of medicine. He alludes to apothecary practices of foreign countries and voices his disdain for public policies that exclude the common people from access to available medicines. No specific idioms, sayings, or clichés were used in this text with the exception of a dedicatory epistle salutation: "To the Right Honorourable Lord Zouch" and the vocabulary and style of the text is in vernacular English.

Rhetorical patterns from the discourse analysis reveal the primary text leans entirely toward the practices of English medicine and apothecaries; however, the inclusion of tables in the 1615 edition indicate a shift in focus to pharmacopoeia and medicinal remedies. Specific examples indicating the original text emulated classical Renaissance medical writing include the mention of classical philosophers and physicians: Plinius Secudus (Pliny), Dioscoride, Fuschius, Sympohorianus, Capegius, Oetaviarnus Horatianus, Physician to Valentinian the Emperor, and Galen.

8. Content and Ideological Statements: Bright's Argument

An interesting observation in Bright's argument is found in the concluding remarks of the treatise, wherein he contradicts the treatise's argument: "that al [sic] countries have sufficient medicines for all diseases" (48), but states just prior "why the matter of same medicine should not also varie I knowe not. The medicine varieth in respect of the complexions of the patient being other in one country." I interpret this statement as Bright's disclaimer that all medicines in their natural environment are beneficial to inhabitants of that environment, and that other environments can produce varied medicines with similar medicinal properties. Bright is not advocating for new medicine from other countries, but the development of new medicine locally grown in England. He also advocates that the poor have the same rights to medicine as the rich, but that illegal or uneducated producers and distributors of medicines (apothecaries) should be regulated.

9. Discourse Position

The discourse position and overall message is health literacy—to educate educated practitioners and students, common lay people to implement and control the distribution and fraudulent practices of pharmacopoeia. To support his argument, Bright proposes examples and indexes of homegrown medicines. The general summary of his argument is: 1) To not partake in unauthorized preparations of strange medicines, and 2) About the bodily side effects from foreign medicine or "straunge" drugs.

E. Synoptic Analysis of Methodology: Final Assessment and Interpretation

The Sufficiencie of English Medicines is an example of how 16th and 17th century medical discourse attempted to influence public and government opinion related to trends and regulation of medical practices regarding the "preservation of health" for all social classes in England. Thomas Huckin writes "information is subject to interpretation, and that interpretation is based on values, goals, purposes, and other variables that are community-based" (87). My discourse analysis of Bright's work is based on 16th-century community-based values and goals placed on the medical practices, which influenced trends in medical writing, audience, and stigmas commonly attached to medical practices. *The Sufficiencie of English Medicines* further addresses ethical and unethical medical practices within localized communities of England whereas stigmas and theological directives are attached to the use of foreign-made "strange medicines" with the belief any compound derived from environment other than an inhabitants local or natural environment is poisonous to the body. Although Bright supports the development of new medicine within England, he opposes the importation, preparation, and use of foreign-made medicines.

The Sufficiencie of English Medicines is an appeal to break sociopolitical boundaries of economic and social class structures regarding availability of medicinal remedies condemning outsourcing of foreign apothecaries in favor of the localization of homegrown medicines. In this context, Bright's argument sides with governing agencies such as the Royal College of Physicians while appealing to professional colleagues for the regulation of untrained apothecaries and physician practices—an appeal which

parallels sixteenth century regulatory practices and statutes set in place by the Royal College of Physicians Statute of 1533, later challenged by supporters of the Paracelsian Movement who lobbied for new medicine practices in England.

VI.   CONCLUSION

The purpose of my thesis is to present evidence which recognizes Bright's treatise, *The Sufficiencie of English Medicines,* as a contribution to the study of Renaissance medical-technical discourse. In the context of historical, medical-technical discourse written during the English Renaissance, his treatise appears neglected as a topic of study. Although Bright's medical works are not as well-known as other Renaissance authors, *The Sufficiencie of English Medicines* embodies significant characteristics which identify the work as an important contribution to the study of late Renaissance medical writing and the emergence of modern design principles in medical-technical handbooks. The study of historical medical discourse allows medical-technical communicators to understand the evolution of health communication and how genres and trends in publication design affected readership in the late 16th and early 17th centuries.

I presented comparative analyses of genre, theory, and page design principles applied to the 1580 and 1615 editions of the treatise. As demonstrated in the visual page design, structural, and content analyses, transitioning textual and design elements in Bright's work align with the ideologies of Ramus's visual dialectic, that "format and organization should reveal the content of the text" (Tebeaux *The Emergence* 56). My analysis of Bright's work answers several of Tebeaux's and my research questions regarding functional purpose including the identification of intended readership

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or audience, purpose, and how Bright's work is an example of trends and transitions in English Renaissance medical writing and page design. Research outcomes of the treatise also identify Bright's overall message of health literacy: 1) Educate readers about the preservation of health and maintenance of life through advocating localization and regulation of medicinal remedies in England, and 2) Educate about fraudulent health practices and advocate for the regulation and efficacy of contemporary pharmacopoeia. To support his argument, Bright supplies examples of common diseases, homegrown remedies, scholarly testimonies, a guide to causes and cures of disease accompanied by a catalogue or drug index to support his appeal.

The treatise also correlates with enforced public health policies and problems associated with foreign versus home-grown medicinal remedies and sociopolitical indifferences within an epistemic community structure of physicians (e.g., the RCP), writers, and educators.[36] Bright advocates for the regulatory control of medical and apothecary practices, favoring the localization and efficacy of contemporary pharmacopoeia in England.

His treatise was written with a purpose and specific target audience in mind. Based on the noted trends and transitions in discourse form in both editions, his method of delivery is not limited to one specific audience type or readership, and emphasizes the moral responsibility to educate all social class structures about preventive health care and fraudulent medical practices. In fact, the intended target audience, as evidenced in the qualitative research or genre results, shifts from a learned, educated to a generalized readership. Therefore the study of medical genre types is crucial in understanding purpose and intended readership.

In the study of genre dynamics and how they apply to written medical-technical communication, Taavitsainen points out the importance of understanding written genre-types within the context of medical discourse:

> Medical discourse refers collectively to the communicative practices of the medical profession. It includes written genres such as research articles to advance knowledge, textbooks with which new members are introduced to the field and manuals for reference, but medical discourse also includes genres that mediate the subject matter to a larger audience and oral communication about medical matters. (Taavitsainen "Historical Discourse Analysis" 201)

Taavitsainen further contends that "genres constitute dynamic systems which exhibit variation and change" (Taavitsainen "Discourse and Genre Dynamics" 31). From the perspective of developing genres such as textbooks, pamphlets, the field of genre dynamic systems in historical medical discourse warrants more study. Taavitsainen argues the reasons modern-day scholars should study historical medical discourse is that

> . . . genres provide important clues to meaning-making practices, and they change according to the needs, goals, and likings of their users . . . and are created with certain kinds of readerships in mind, but [that the] needs of audiences change, and these changes are reflected in styles of writing. Old genres can be adapted to new functions. (31)

Taavitsainen's argument correlates with why Renaissance medical writing went through many technical changes such as the incorporation of Ramist-influenced styles in the presentation of written documentation. As demonstrated in the page design and content analyses of this thesis, writers and printers tailored the publishing of medical texts toward the needs of their audience or readership based on genre-type. The parameters of audience depended on sociolinguistic and pragmatic variables. Taavitsainen advises that "by analyzing passages containing central theoretical doctrines . . . for various audiences, it is also possible to gain insights into the appropriation of knowledge, which is the other side of the communication process" (34).Within the context of Timothy Bright's treatise,

genre needs to be ascertained through the dissection and classification of discourse form, use of stylistics and lexicography, and sociopolitical and historical representations to determine intended readership. As further outlined in the comparative analysis of page design, structural analysis of genre, and content analysis, the two editions share similarities and differences within the presentation of content. While the prose remains fairly consistent with a few syntactical changes in format and visual design elements reveal transitions consistent with new methods used during the English Renaissance that communicated written medical discourse and organized page design.

From the perspective of medical-technical writing, the scope of Bright's entire corpus of work, published between 1580 and 1615 in both Latin and vernacular English, presents an open opportunity for researchers in the field of Renaissance medical writing and document design to further study Bright's work from a technical perspective of transitions in writing and design styles. Future studies should also investigate how his work influenced other 16th and 17[th]century writers of the day such as William Shakespeare and Robert Burton. The study of historical transitions in technical communication also facilitates a better understanding of current-day medical genres and to what capacity they serve general readerships. In today's world of changing technology, technical communicators experience similar transitions in medical writing and document design. We are consciously aware of target audience and genre especially when creating written documentation for dissemination within the healthcare community. For example, written correspondence is replaced with email and social networks; promotional materials that communicate public health and environmental concerns are now accessible via websites and chat forums; and print technologies are continually updating digital

publication design software that incorporates assistive style guides and large choices of typography.

While the tools of modern-day technical communication evolve with changing technologies, the principles of design, organization, and format remain consistent following similar Ramist concepts of classifying and categorizing written information for a universal readership. An example of modern-day use of Ramist concepts is my thesis where I use tables and figures, which allow readers to quickly process visually the information provided. Similarly, in medical writing, physicians use comparable methods of disseminating medical information through the process of electronic medical records (EMRs). For example, when a new patient visits a doctor or hospital, a patient intake form is initially filled out. After the doctor's physical assessment, a chart note or summary is written where the physician presents an argument of symptomatology and recommendations. Not so unlike Bright's non-linear, undifferentiated prose, the assessment is converted into a lengthy prose called a History and Physical from which the Subjective or introductory information is first written in complete sentences. (See Appendix C for sample H&P.) Following the Subjective, the Assessment is then classified into respective categories based on social and past medical history, and physical exam, which are not written in sentences but rather short summaries, with abbreviated terminology including the use of acronyms.

Similar to Bright's 1615 edition whereby he classifies specific information from his original prosaic form into an alphabetized index, physicians summarize a patient's history, transitioning from a prosaic form into an itemized outline form. From this perspective and example, understanding genre and readership types is relevant to what

type of assessment the physician writes e.g. new patient, referral letter to another physician, lab results, or a short follow-up synopsis of the patient's condition.

In the introductory quote of my thesis, I note how Elizabeth Tebeaux challenges readers and scholars who study historical Renaissance medical-technical writing to answer the question: *Do [Renaissance] technical books provide evidence that Renaissance technical writers and printers conscientiously used other methods to make their works appealing* (*The Emergence* 91)? Within the context of Bright's *The Sufficiencie of English Medicines*, and based on my overall analyses of his work, my answer is yes. Bright's work provides sufficient evidence in trends and transitions in printing and writing styles. Therefore, his work should be included among other medical texts in the study of trends and transitions in Renaissance medical-technical discourse as well as how the dynamics of genre dictated varying styles and format based on intended readership.

ENDNOTES

[1] Ramism refers to the doctrines of Peter (Petrus) Ramus, which are based on his advocacy of a new logic and rhetoric and his opposition to Aristotelianism. (Webster).

[2] Petrus Ramus, (Latin:) French Pierre De La Ramée   (born 1515, Cuts, Picardy, Fr.—died Aug. 26, 1572, Paris), French philosopher, logician, and rhetorician. "Restrictions on Ramus's teachings were lifted in 154" (Bizzell and Herzberg 675).

[3] The use of "gentle" could plausibly imply the intended reader is someone of distinguished or of noble birth; however, the OED, definition 3b, uses examples used within the context of "Gentle Reader," which identifies this use as a "polite or ingratiating address, or as a complimentary epithet. Obs. exc. as a playful archaism in 'Gentle Reader.'"

[4] "Nonlinear" and "undifferentiated" refer to the text having no directional structure; without a distinct difference. (OED) "Content, printed in English black letter, appeared in dense, undifferentiated text demarcated only by minimal chapter divisions and marginal commentary " (Tebeaux *The Emergence* 35). "Ramus, anticipating much current technical communication research, advocated hierarchies of information—either in bracketed displays or in clearly demarcated linear discourse" (60)

[5] "Nationalism" defined by the OED 1a: "advocacy of or support for the interests of one's own nation, esp. to the exclusion or detriment of the interests of other nations. Also: advocacy of or support for national independence or self-determination. Whereas patriotism usually refers to a general sentiment, nationalism now usually refers to a specific ideology, esp. one expressed through political activism. In earlier use, however, the two appear to have been more or less interchangeable."

[6] St. Bartholomew's Day Massacre (August 24-25, 1572). Paris, France. The massacre of French Huguenots (Protestants) in Paris plotted by Catherine de Médicis and carried out by Roman Catholic nobles and other citizens. (Enc. Brit.)

[7] Advocacy of or support for the interests of one's own nation, esp. to the exclusion or detriment of the interests of other nations. Also: advocacy of or support for national independence or self-determination. Whereas *patriotism* usually refers to a general sentiment, *nationalism* now usually refers to a specific ideology, esp. one expressed through political activism. In earlier use, however, the two appear to have been more or less interchangeable. (OED)

[8] "aetiological": The study of the causation of diseases.

[9] A follower or adherent of Paracelsus, or of his medical or philosophical principles; of, relating to, or characteristic of Paracelsus, or of his teachings or followers. (OED). See endnote 5.

[10] Blood, bile, phlegm.

[11] From OED 1. Of, relating to, or of the nature of ontology; metaphysical; (Theol.) ontological argument n. the argument that God, being defined as the most great or perfect being, must exist, since a God who exists is greater than a God who does not. 2. *Pathol.* Designating a theory that disease exists as an entity within the body.

[12] "iatrochemistry": treatment of disease with chemical substances . "The theory or school of thought that existed in the 16th and 17th centuries and regarded medicine and physiology as subjects to be understood in terms of the chemistry of the time." (OED)

[13] Paracelsus (1493-1541). Physician, natural philosopher, alchemist, lay theologian, and social thinker. Influenced 16th century intellectuals regarding the use of new medicine, and alchemy (chemistry). (OED).

[14] See endnote 15.

[15] "chemical therapy" refers to new medicine or "alchemy": "The chemistry of the Middle Ages and 16th c.; now applied distinctively to the pursuit of the transmutation of baser metals into gold, which (with the search for the alkahest or universal solvent, and the panacea or universal remedy) constituted the chief practical object of early chemistry. Paracelsians advocated for a system in which metals and minerals were the principle agents in both the development and the treatment of disease. (OED) See endnote 8.

[16]"**Martin Rulandus**" Author of *A Lexicon of Alchemy*, 1612. A Paracelsus follower.;
From Oxford Dictionaries Online:"**Pliny**" 1. Roman statesman and scholar. known as Pliny the Elder. His Natural History is a vast encyclopedia of the natural and human worlds. He died while observing the eruption of Vesuvius. "**Galen**" Greek physician. He attempted to systematize the whole of medicine, making important discoveries in anatomy and physiology. His works became influential in Europe when retranslated from Arabic in the 12th century.

[17] See endnote 3.

[18] "Andrew Melville studies under Ramus at Paris and carried the dialectic to Scotland; it reached Cambridge in the 1570's, and there dominated the teaching of logic . . . (118)"

[19] Stylistics. Examines patterns in the overall discourse structure of a work to interpret literary meaning and "describe technical aspects of the language of a text" (Barry 203).

[20] The EMEMT Presenter® is a downloadable software, which accompanies the *EMEMT Corpus* text in the form of a CD-ROM. The Presenter is a customized concordance with preloaded early modern English texts, including Bright's 1580 edition of *The Sufficiencie of English Medicines*, and the 1588 edition of *A Treatise of Melancholy*. The Presenter was developed for the *MEMT* (Middle English Medical Texts) and *EMEMT* projects to facilitate the study of genre, thought-style, and linguistic patterns in early modern English medical texts.

[21] *Philosophical Transactions* is a scientific journal first published in 1665 by the newly formed Royal Society of London.

[22] New rhetoric is a "stylistic tradition of rhetoric, which was started by Omer Talon, the friend of Petrus Ramus, in his two books on rhetoric published in 1572. (Perelman *The New Rhetoric: The Theory of Practical Reasoning* 1383*)*

[23] "Henry VIII incorporated the physicians into a college and united all barber-surgeons and surgeons into a company with exclusive power. These two bodies continued throughout the Tudor and Stuart period, and

their separate governance of the two distinct branches of medical practice was so well defined and so well known that any reassessment of medical practice there may seem unnecessary if not impossible" (Roberts 217).

[24] With minor changes to spelling, the prose is identical in both editions.

[25] Binary opposition is when language is defined by value and meaning by comparing it against what it not.

[26] "invention": First of five canons of rhetoric. Art of making persuasive arguments in any given rhetorical situation. Includes techniques such as brainstorming, outlining, and clustering as aids to inventions; (Bizzell and Herzberg "canons of rhetoric" 1630; "invention" 1632); "arrangement": ordering parts of a discourse according to the rhetor's audience and purpose (1630); "style" use of appropriate and effective language; "memory": memorization; "delivery": art of performing speech. (1630).

[27]" What type of texts a part of a corpus is intended to represent. What domain of writing does the corpus represent?" (Taavitsainen and Tyrkkö 59)

[28] A heavy, ornate, early printing type, as contrasted with the later, lighter 'Roman' type. Cf. Gothic adj. 5b, Old English n. 3.A form of black letter (cf. Fraktur n.) remained in regular use in Germany until 1941, when Antiqua became the standard German type. Black letter is still sometimes used for decorative printing in England, Germany, and elsewhere. (OED)

[29] Rodolfo Agricola (ca. 144-1485) : Italian humanist. Author of *Dialectical Invention*. Separated logic and rhetoric with more importance to dialectic as a site of invention. Reduces rhetoric to a "teachable method" (Bizzell and Herzberg 566).

[30] ASCIII represents English characters as numbers. Each letter is assigned a number from 0 to 127. Most computers use ASC codes to represent text in order to transfer or access code from one computer to another. (Webopedia)

[31] VARD version 2.3. Software designed to deal with spelling variation in Early Modern English (Lehto, Baron, Ratia and Rayson 283.

[32] Taavitsainen and Tyrkkö note "This sociohistorical backtround parameter is important as there is a great deal of variation and writers adapt their styles according to their assumed readers" (58).

[33] The *Presenter* only includes Bright's 1580 edition and one later work, A Treatise of Melancholy (1588).

[34] Stylometric analysis: "measures such as word usage, word length, and word repetition" combination of these factors.

[35] "outsourcing": The action or practice of obtaining goods or services by contract from outside sources. (OED). An example of modern-day outsourcing is when a country or organization pays for and imports goods or services from another country such as medical transcription.

[36] "A network of professionals with recognized expertise and authoritative claims to policy-relevant knowledge in a particular issue area. These professionals may have different disciplinary and professional backgrounds and may be located in different countries, but they share a set of norms that motivate their common action, a set of causal beliefs about central problems in their area of expertise, shared criteria for evaluating knowledge, and a common policy enterprise." (Clunan 179-81)

EMEMT Corpus Categories: Textual Representativeness
Text: *The Sufficiency of English Medicines*
Editions: 1580 and 1615

	Category 1 General Treatises and textbooks		Category 2 (Specific Topics) Subcategory 2A Diseases		Subcategory 2B Methods of Diagnosis or treatment		Subcategory 2C Therapeutic Substances		Category 3 Recipe Collections & *materia medica*		Category 4 Regimens and Health Guides	
	1580	1615	1580	1615	1580	1615	1580	1615	1580	1615	1580	1615
Chron Coverage	0.5	*	0.5	*	0	*	0	*	100	*	100	*
Criteria for Inclusion	0.75	0.87	0.33	*	0.6	*	100	*	0.63	*	0.38	*
Discourse Form	0.75	*	0.14	*	0.5	0.65	0.14	0.28	0.46	0.84	0.33	0.67
Vernacularization	0	0.5	0	*	100	*	100	*	100	*	0.67	*
Target Audience	0.67	*	0.5	*	0.8	*	0.67	*	100	*	0.83	*
Continuity	0.25	*	0	*	0	*	100	*	0.6	*	0.75	*
Images	0.33	*	100%	0	0	100%	0.5	0.33	0.67	*	100	*
Overall % Inclusive:	50%	56%	35%	35%	41%	48%	47%	52%	64%	76%	67%	67%

* = reflective of both editions; no change between editions

Overall Increase in Transitions		
	1580	1615
Category 1	50%	56%
Category 2A	35%	35%
Category 2B	41%	48%
Category 2C	47%	52%
Category 2D	0%	0
Category 2E	0%	0
Category 3	64%	76%
Category 4	67%	67%

Specific Upward Trends between 1580 and 1615

5-6% average overall increase in all categories except Subcategory 2A, which remained the same; and Category 3 with increase of 12%

Category 1: 50% increase in Vernacularization

Subcategory 2B: 60% increase in Discourse Form

Subcategory 2C: 14% increase in Vernacularization

Category 3: 38% increase in Discourse Form (e.g. page design format and stylistics)

Category 4: 34% increase in Discourse Form

Category 4: Continuity slightly higher than Category 3

Removed from data set: Subcategories 2D Midwifery and 2E Plague
Category 5 Surgical and Anatomical Treatises
Category 6 *Philosophical Transactions*

Source: Susa Rauch (2012)

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EMEMT Corpus List of "Parameters in Discourse Form" for Categories 3, 4, and Subcategory 2B

Category 3 (Marttila 105-118) Recipe Collections and *material medica*		Category 4 (Suhr 119-126) Regimens and Health Guides	Subcategory 2B (Pahta and Ratia 79-84) Specific Topics: Methods of Diagnosis or Treatment
▪ Highly segmented in structure ▪ Discrete descriptions or prescriptive passages ▪ Organization of discrete passages vary ▪ Multi-tiered organization, primary divisions according to the general type of substance (trees, herbs, etc.) or disease. Organizing material within groups either alphabetically or other rationale. ▪ Textual organization according to site of ailment ▪ Material presented in alphabetical order ▪ Individual recipe segments formulaic ▪ Employ technical "instructional" passages and abrupt expressions with frequent abbreviations ▪ Some: plain, formulaic but simpler with fewer technical abbreviations and Latinate names	▪ Segmented structure: Divided descriptions of each plant under a set of headings, each segment presenting a certain aspect of the plant's properties. ▪ Narrative framework (not formulaic) sequence of individually titled recipes presented in a narrative mode, incorporating references to both ancient authors and personal experience. ▪ Does not use dialogue form to communicate remedies ▪ Argumentative text embeds description of medical properties of plants into an argumentative framework ▪ Does not include case reports.	▪ Written in didactic(instructive) prose (i.e. recommendations) ▪ Divisions into chapters or books, organized alphabetically according to Latin name of conditions described ▪ Chapter headings with English names ▪ Table of Contents listing all chapters of book ▪ Tables occur at beginning or end of books ▪ Flowcharts to organize texts (simplifies theoretical basis of maintaining health) ▪ Sometimes dialogic with commentary	▪ Varied ▪ Longer books ▪ Argumentative ▪ Promotional, argumentative (e.g. pamphlets) ▪ Written in instructive tone ▪ Provides advice on diagnostic or therapeutic procedures ▪ Latin embedded within English vernacular ▪ Facts presented in form of simple lists

APPENDIX C

SAMPLE HISTORY AND PHYSICAL (H&P)

DATE OF ADMISSION: MM/DD/YYYY

HISTORY OF PRESENT ILLNESS (HPI): This is a (XX)-year-old white male who went to the emergency room with sudden onset of severe left flank and left lower quadrant abdominal pain associated with gross hematuria. The patient had a CT stone profile which showed no evidence of renal calculi. He was referred for urologic evaluation. When seen in our office, the patient continued to have mild left flank pain and no difficultly voiding. Urinalysis showed 1+ occult blood. Intravenous pyelogram was done which demonstrated a low-lying malrotated right kidney. There was no evidence of renal or ureteral calculi or hydronephrosis. Urine cytology was negative for malignant cells. The patient subsequently had a CT renal scan with contrast. This showed what appeared to be an infarction of an area of the lower pole of the left kidney. It was suggested that a renal MRI be done for further delineation of this problem. He had a right kidney which was malrotated but was otherwise normal. The patient is admitted at this time for complete urologic evaluation.

PAST MEDICAL HISTORY (PMH): He had surgery on his right knee two years ago.

PAST SURGICAL HISTORY: Numerous abdominal surgeries.

MEDICATIONS: Aspirin 81 mg daily, Imdur 60 mg daily, Colace 100 mg b.i.d., folic acid 1 daily, Ditropan XL 5 mg b.i.d., Glucophage 250 mg b.i.d., glyburide 1.25 mg b.i.d., Lopressor 100 mg daily, clonidine 0.3 mg a day and clonidine 1 mg q.4 h. for systolic blood pressures greater than 80.

ALLERGIES: NKDA.

SOCIAL HISTORY: He is retired. Lives at home. No history of tobacco or alcohol.

Denies use of alcohol. Nonsmoker.

FAMILY HISTORY: Father died of cancer, type unknown. Mother is living and well.

REVIEW OF SYSTEMS:

Neurologic: Denies vertigo, syncope, convulsions or headaches. **Musculoskeletal:** No muscle or joint pain.

Cardiorespiratory: Denies shortness of breath, dyspnea on exertion, chest pain, cough, or hemoptysis.

Gastrointestinal (GI): He has occasional indigestion. Denies emesis, melena, constipation, diarrhea or rectal bleeding.

Genitourinary (GU): As noted in HPI.

PHYSICAL EXAMINATION:

VITALS: Stable. BP 205/92, Pulse 78 and regular, Resp 18-22, unlabored.

Sample H&P Page 2.

GENERAL: Well-developed, well-nourished white male in no acute distress. Alert and cooperative.
HEENT: Pupils equal, round and reactive to light and accommodation. Extraocular movements intact.
Pharynx clear. Tympanic membranes normal.

NECK: Supple. No thyromegaly. No cervical adenopathy.

CHEST: Symmetrical with equal expansion.

LUNGS: Clear to percussion and auscultation.

HEART: No cardiomegaly. No thrills or murmurs. Normal sinus rate and r
slight left flank tenderness to deep palpation. There is no guarding or rebo
sounds are normal.

EXTREMITIES: No peripheral edema or varicosities.

GENITALIA: Normal external male genitalia. No penile lesions. Testes are
normal to palpation.

RECTAL: The prostate is small, benign and nontender.

LABORATORY AND DIAGNOSTIC: White blood count is 22, otherwise unremarkable. A CAT scan was
reviewed. The patient has clear-cut possible retrocecal appendicitis.

IMPRESSION/ASSESSMENT:

1. Hematuria associated with left flank pain and left renal infarction.

2. Mental status change, etiology unknown. CT scan was performed, results are not available at this
time. Possibly secondary to hypertensive crisis/onset of cerebrovascular disease, new/transient
ischemic attack. We will continue to treat blood pressure as well as blood sugars as necessary. I cannot
appreciate any type of infection causing these reactions. However, I may consider followup blood
cultures or follow up any additional tests obtained.

2. History of cerebrovascular accident/transient ischemic attack. The patient has a history of at least
four in the past with residual right hemiplegia up until one year ago. At home, she states she is on
aspirin only but was on Coumadin sometime in the past, but this stopped a number of years ago. I do
not have any report finding consistent with lower extremity deep venous thrombosis or cancer or other
possible etiologies for embolic ischemic events. I may consider obtaining old medical records for
evaluation of etiology. I placed the patient on Fragmin 5000 subcutaneous daily as well as continu
the aspirin daily.

3. Diabetes mellitus. Fingerstick blood sugars q.a.c. and h.s. Sliding scale insulin will be written fo
well as routine medication. Continue to follow closely.

4. Hypertension. We will continue with clonidine as recommended and additional Lopressor a
consider nitroglycerin patch on a p.r.n. basis for elevated blood pressures. Consider obtaining
electrocardiogram for baseline. Labs results, CBC, will be obtained.

5. Chronic renal insufficiency. I will obtain BUN and creatinine and continue to follow. PT/OT a
speech consultations have been requested.

RECOMMENDATIONS/PLAN: The patient has received antibiotics. The patient has received hydration.
The patient has been consented for laparoscopic, possible open, appendectomy. We will place bilateral
sequential compression devices and call the operating room to have him scheduled as soon as possible.
I discussed with him the exact nature of the surgery and the risks including but not limited to bleeding,
infection, death, injury. All questions were answered and he wished to proceed with surgery.

2. As the document progresses, the patient's information is classified and categorized by various medical and social histories. General exam/vitals section is written with abbreviated,

3. Impression or Assessment and Recommendations/Plan are listed in hierarchal order of most important to most general for diagnosis and treatment plan. Assessment/Plan may be written as a list or combination of list/full sentences.

APPENDIX D

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